BRINKMANN

Operating Instructions

for the operating company and operating personnel
always keep by the machine
Translation of the original instructions

Compressed-air conveyor

EstrichBoy DC 260/45 BS

Machine no.

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BRINKMANN

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1 Guide to the Operating Instructions

This chapter contains information on reading and understanding the contents of these Operating Instructions. In addition to general information and definitions of terms used, you will also find information on the layout of the Operating Instructions.

If you have questions about the contents of the Operating Instructions or your machine, please contact your dealer or the manufacturer. You can find the correct contact person at the manufacturer online at: www.putzmeister.com.

Have the details of the machine model and machine number ready in case there are questions.

1.1 General information

These Operating Instructions contain information and instructions for the safe operation of the machine. They are intended for the operating company itself and for the operating personnel authorised by the operating company. If necessary, the machine operating company must supplement these Operating Instructions with information from national and local laws, ordinances and directives on operational safety, accident prevention and environmental protection.

Within the framework of accident prevention, the following rules and regulations must be observed at the machine's site of use:

- Locally applicable rules and regulations on occupational health and safety
- Recognised rules for proper and safe work

Observing the contents of these Operating Instructions will enable you to:

- Recognise and avoid hazards
- Keep repair costs and machine downtime to a minimum
- Increase the reliability and service life of the machine

1.1.1 Copyright notice

The contents of these Operating Instructions are the property of the manufacturer and are subject to copyright. Transmitting, reproducing and distributing as well as editing the contents of these Operating Instructions, e.g. by means of copying or translation, is prohibited. Any use of the contents of these Operating Instructions which infringes on this basic provision without the explicit permission of the manufacturer is prohibited and will be prosecuted. All rights reserved in the event of the grant of a patent, utility model or design.

1.1.2 Applicable documents

In addition to the Operating Instructions, the following additional documents apply to the machine:

- Supplier documentation (e.g. Operating Instructions for engine)
- Circuit diagrams
- Technical data sheets

- Inspections of the machine, instructions for risk assessment and instructions for briefings

  Material number: 365448000
- Machine's EC Declaration of Conformity
- EC Declaration of Conformity of the pressure vessel
- Spare parts catalogue, see:

The QR code takes you to the directory in which the Operating Instructions and spare parts catalogue are stored. You need to be registered with Putzmeister and log in to the website. If you do not yet have access to the website, you need to register: **www.estrich-boy.de**.

1.1.3 Passing on or selling the machine

You must observe the following information when passing the machine to a new owner:

- You must hand all documents received with the machine to the new owner (e.g. Operating Instructions, circuit diagrams). Damaged or lost documents can be reordered from the manufacturer.
- Notify the manufacturer of the change in ownership. Information about safety-relevant adaptations to the machine will then reach the new owner directly.

1.2 Terms and abbreviations

1.2.1 Compressed-air conveyor

Compressed-air conveyors are machines for pneumatic material delivery. They operate according to the plug conveyance principle. The material is transported to the placement site using compressed air.

1.2.2 Manufacturer

The manufacturer is the person or entity (company) that produces the products, e.g. machines.

1.2.3 Operating company

The operating company is the person or entity (company) that operates or owns a machine or that was authorised to carry out the technical operation by the owner. The operating company is responsible for the safe operation of the machine.

1.2.4 Machine operator

Machine operators are personnel trained and assigned to perform the following activities with and on the machine:

- Starting and shutting down the machine
- Operation
- Checks and assessments
- Cleaning
- Carrying out simple maintenance and repair work

1.2.5 Subject expert

A subject expert is a person who, through their professional training, their professional experience and their recent professional activity, has the required specialist knowledge to inspect the tools.

1.2.6 Qualified personnel

Qualified personnel are persons who are qualified to carry out certain activities after completing specialist training.

1.2.7 Service technician

Service technicians are trained, qualified personnel who are qualified and authorised by the manufacturer to carry out maintenance work.

1.2.8 Qualified electrician

A qualified electrician is someone who is able to assess assigned work and recognise potential dangers based on their specialist training, knowledge and experience as well as knowledge of the relevant

standards. Several years of activity in the relevant field of work, documented by a theoretical and practical examination, can also be used to assess professional training.

1.2.9 Driver

The driver controls the truck used to move the machine. The driver must be in possession of a valid driving licence. The driver's place of work is the truck driver's cab. Certain situations require the driver to be aided by a signaller. In this case, the driver and signaller must agree on clear signals and commands.

1.2.10 Signaller

Situations in which the driver cannot see the route or can only see the route with difficulty require the driver to be aided by a signaller. In this case, the driver and signaller must agree on clear signals and commands.

The signaller must be able to independently recognise, assess and appropriately deal with dangerous situations.

1.2.11 Genuine parts

Genuine parts are all spare parts, attachments and accessory components authorised for use by the manufacturer.

1.2.12 Working area

The working area is the area in which work is carried out with and at the machine. Parts of the working area can become danger zones, depending on the job being performed.

The working area is also the area where work is carried out with and on delivery lines and attached accessories.

Personal protective equipment (PPE) must be worn in the working area.

1.2.13 Workplace

The workplace is the area in which people must remain in order to carry out the work.

The workplace of the machine operator is at the operating elements of the machine.

The workplace of the operator of connected accessories is where work is being carried out with these accessories. The operators must communicate with each other.

1.2.14 Maintenance

Maintenance includes all activities required to inspect, maintain and repair a machine.

1.2.15 Abbreviations

Abbreviation	Meaning
EGR	Exhaust gas recirculation
TC	Trailer coupling
BetrSichV	German Ordinance on Industrial Safety and Health
B	Feeder
BS	Feeder, scraper
CE	Conformité Européenne – European conformity
DEKRA	German Motor Vehicle Monitoring Association
EAC	Eurasian Conformity
EMC	Electromagnetic compatibility
VIN	Vehicle identification number
HP	High pressure
PPE	Personal protective equipment
PU	Polyurethane
PVC	Polyvinyl chloride
SRP	Safety-relevant part
TÜV	Technischer Überwachungsverein (technical inspection association)

Abbreviation	Meaning
UKCA	UK Conformity Assessed
ZÜS	Authorised supervision institution

Table 1: Abbreviations in the text

1.3 Formatting of the Operating Instructions

The information in these Operating Instructions is marked differently according to its content.

All pages in these Operating Instructions are consecutively numbered: **For example,** 3 – 2 refers to chapter 3, page 2.

1.3.1 Markings used

Designation	Meaning
1. ... 2. ... 3. ...	Instruction with several successive work steps
▸	Instruction with a work step
⇒	Result of a work step
➞	Result of a complete action
●	Item in a list
TASTE MISCHEN	Operating elements, menu names and menu entries on the display are written in small caps (smaller capital letters) in flowing text and in work steps. Headings and tables are excluded from this.
(Markings used P. 1 — 7)	Cross-reference within the Operating Instructions to the contents of a chapter, section or figure.

Designation	Meaning
✓	Prerequisite for an action, describes a defined condition
	Note, tip or further information for the preceding text

Table 2: Designations, symbols

1.3.2 Figures

The figures in these Operating Instructions show components or assemblies of the machine. The colour, shape and size may differ from the actual design. In addition, different components or assemblies can be positioned at different points on the machine (e.g. left or right). Only one variant of these components or assemblies is ever shown.

1.3.3 Layout of warning notices

Warning notices warn of possible hazards while working with and on the machine. In these Operating Instructions, warning notices are positioned before the action that could pose a danger.

Warning notices are laid out as follows:

- SIGNAL WORD
- Specification of the source and type of danger
- Specification of consequences if the warning notice is ignored
- List of measures to prevent the danger

The SIGNAL WORD signals the level of danger depending on the possible consequences.

DANGER signifies a dangerous situation which could lead to death or very serious injuries if it is not prevented.

DANGER

Source and type of danger

Consequences if the warning notice is ignored.

- Measures to avoid, prevent the danger.

WARNING signifies a dangerous situation which could lead to death or serious injuries if it is not prevented.

⚠ WARNING

Source and type of danger

Consequences if the warning notice is ignored.

- Measures to avoid, prevent the danger.

CAUTION signifies a dangerous situation which could lead to minor or moderate injuries if it is not prevented.

⚠ CAUTION

Source and type of danger

Consequences if the warning notice is ignored.

- Measures to avoid, prevent the danger.

NOTICE signifies a situation which could lead to damage to the machine or other property if it is not prevented.

NOTICE

Source and type of danger

Consequences if the warning notice is ignored.

- Measures to avoid, prevent the danger.

2 For your safety

This chapter contains important information for the safe operation of the machine.

The contents of this chapter must be read and understood by all persons who work with and on the machine.

All information in this chapter applies in addition to national and local laws, ordinances and directives and does not override them.

2.1 Designated use

The machine is designed exclusively for mixing sand, aggregate or gravel with a particle distribution of up to 16 mm, cement and water to form semi-dry floor screed. The semi-dry floor screed is transported to the placement site via a delivery line. The machine may only be operated outdoors on construction sites. The maximum delivery pressure specified on the rating plate must not be exceeded.

The machine is not approved for operation in potentially explosive areas.

The machine is designed for a service life of 10 years.

2.1.1 Electromagnetic compatibility (EMC)

The machine fulfils the general requirements for operating equipment specified in Appendix 1 of Directive 2014/30/EU.

- The machine does not cause any electromagnetic interference that could affect the operation of radio and telecommunication systems.
- The machine is sufficiently insensitive to the electromagnetic interference to be expected during use.

2.2 Reasonably foreseeable misuse

Operating the machine outside of its designated use is considered misuse.

The machine must **not** be used for mixing, pumping and spraying materials other than those specified in the designated use. The machine generates compressed air for transporting the screed. The compressed air may only be used for this purpose, as well as for applying barrier agents and cleaning the machine. No devices may be connected to the compressed air supply that allow the compressed air to be used for any other purpose.

The feeder (B, BS) must not be used as a lift, traction device or for lifting loads.

The scraper (BS) must not be used as a means of transport or for pulling loads.

The following notes must also be observed:

- The machine must **not** be operated if it is known to be defective.
- The machine must **not** be operated outside the permitted operating parameters.
- The machine must **not** be operated without protective devices, e.g. safety grids.
- The protective devices on the machine must **not** be overridden.
- Wear parts, replacement parts and accessory components must be approved by the manufacturer.
- **No** structural changes may be made to the machine.
- The maintenance intervals must be adhered to and the testing regulations observed.
- Only qualified personnel may carry out service work.

2.3 Obligations of the operating company

The operating company is responsible for the safe operation of the machine and for occupational health and safety and environmental protection. In this respect, the operating company must observe the following in addition to the generally applicable obligations:

- Before using the machine, the operating company must assess all hazards that may occur and derive the necessary and suitable protective measures. The working environment must be included in the risk assessment. The results of the risk assessment must be documented.
- The operating company must determine and specify the type and scope of required inspections on the machine as well as the intervals for recurring inspections. Components of the machine that require monitoring must be checked periodically to ensure that they are safe to operate.
- The mixing vessel on the machine is a pressure vessel and therefore requires monitoring. It must be checked periodically. The inspections must be carried out by an authorised supervision institution, e.g. TÜV or Dekra.
- The Operating Instructions must always be available at the machine's site of use.
- The Operating Instructions must be complete and easy to read.
- The Operating Instructions must be read and understood by anyone working with or on the machine.

- Personnel must have knowledge of or be trained in national and local laws, ordinances and directives:
  - Safety at work
  - Accident prevention, accident protection
  - First aid
  - Handling of hazardous substances
  - Environmental protection, disposal
  - Traffic safety
- Personnel must be familiar with the special features of the company (e.g. organisation of work, procedures, deployed personnel) and be informed about obligations to provide supervision and obligations to report.
- The machine may only be operated and maintained by qualified and authorised persons.
- The necessary PPE must be provided for the personnel.
- The operating company must provide appropriate fire-fighting resources at the machine's site of use.
- No modifications may be made to the machine without the manufacturer's approval. Unauthorised modifications will void the warranty and/or operating permit.
- All safety instructions and hazard warnings on the machine must be complete and fully legible at all times. If necessary, these must be replaced.
- The machine must be maintained in a technically safe condition.
- The machine must be maintained regularly.
- The safety of the machine must be checked and documented by a subject expert at least once a year.

2.4 Personnel selection and qualifications

Only the following persons may work independently with and on the machine:

- Persons above the legally permitted minimum age
- Persons who are physiologically capable (rested and not under the influence of alcohol, drugs or medication)
- Persons who can perceive and understand visual and acoustic indicators of danger
- Persons who have read and understood the contents of the Operating Instructions

- Persons who have been instructed in carrying out work with and on the machine
- Persons who reliably fulfil the tasks assigned to them
- Persons who have been explicitly assigned by the operating company
- Qualified personnel with qualifications corresponding to the work task

The work tasks and areas of responsibility for personnel must be clearly defined.

Persons who are being trained or instructed on or with the machine require the constant supervision of experienced personnel.

Activity with and on the machine	Personnel qualification
Transporting	Trained and instructed personnel, where necessary in possession of a valid driving licence
Setting up, starting up	Machine operators who have been instructed on the machine
Operating, rectifying faults	Machine operators who have been instructed on the machine, trained qualified personnel and service technicians
Cleaning, shutting down	Machine operators who have been instructed on the machine
Maintenance	Machine operators who have been instructed on the machine, trained qualified personnel, service technicians and, if necessary, qualified electricians who are qualified for the work task and authorised by the manufacturer
Disposing	Specialist disposal company with qualified personnel

Table 3: Personnel qualifications

Activities that require little specialist knowledge and can be carried out quickly may be performed by the machine operator or by third parties authorised by the operating company. This applies to activities such as cleaning and replacing an air filter to prevent prolonged machine downtime. These activities are described in detail in the “Maintenance work” chapter. Only carry out work for which there are instructions in these Operating Instructions.

2.5 Legal basis for machine operation

The machine falls within the scope of various directives in which health and safety requirements are defined:

- Machinery Directive, Directive 2006/42/EC
- Low Voltage Directive, Directive 2014/35/EU
- Electromagnetic Compatibility Directive, Directive 2014/30/EU

The various materials are mixed with water in the machine’s mixing vessel. The closed mixing vessel is then pressurised and the semi-dry floor screed is conveyed to the placement site through the delivery line. Pressure vessels for a pressure greater than 0.5 bar are considered pressure equipment as defined by Directive 2014/68/EU.

With the CE marking on the rating plate of the machine and the rating plate of the pressure vessel as well as the declarations of conformity, the manufacturer confirms that the requirements of the above-mentioned directives are fulfilled. The declarations of conformity are a constituent part of the documentation for the machine.

2.5.1 Operation in Germany

The German Ordinance on Industrial Safety and Health (BetrSichV) applies to the use of work equipment in Germany. The aim of the BetrSichV is to ensure the safety and health protection of employees when using work equipment.

The BetrSichV stipulates the following, among other things:

- Requirements for the work equipment provided (Section 5)
- Protective measures for the use of work equipment (Sections 6, 8 and 9)

- Inspections before commissioning and inspections before recommissioning after changes requiring inspection (Section 15)
- Recurring inspections (Section 16)

The mixing vessel on the machine is a pressure vessel and therefore requires monitoring. It must be inspected regularly to ensure that it is safe to operate. Recurring inspections include external inspections, internal inspections and strength tests. The recurring inspections must be carried out by an authorised supervision institution, e.g. TÜV or Dekra.

Outside Germany, the standards, directives and regulations applicable in the country of use must be observed.

2.6 Basic safety instructions

The machine is designed in accordance with current engineering standards and recognised safety rules. However, its use may still present a risk of death or injury to persons, or damage to the machine and other property. For this reasons, all safety-relevant information in these Operating Instructions must be observed.

- All personnel working with or on the machine must be conscious of safety and dangers.
- The machine must only be operated as designated in a technically perfect condition.
- Safety-relevant components on the machine (e.g. limit switches, safety valves, covers and casings) must not be removed, decommissioned or otherwise modified.
- The machine must not be operated with any safety-relevant components removed or decommissioned.
- If safety-relevant components need to be decommissioned or removed in order to complete work on the machine, these must be reinstalled or recommissioned once work is complete.

  The function of the safety-relevant components must be checked after completing work on the machine.
- The machine's operational safety must be checked each time before starting up. If defects or faults are identified during the test run, these must be rectified immediately.
- Faults during operation which may compromise safety must be rectified immediately. Stop machine operation immediately and switch off the machine on the MAIN SWITCH.

- A shaft with mixer blades (mixer) rotates in the mixing vessel. Do not reach into the mixing vessel or insert any objects into it during the mixing process.
- The machine operator must always be able to see the machine. If this is not possible, the machine operator must appoint a person to monitor the machine. Watch out for unauthorised persons approaching the machine and stop working if necessary.
- The basic settings on the machine, e.g. for the pressure and power, must not be changed. Changed settings jeopardise the machine's operational safety.
- The software version of the machine and the corresponding settings must not be changed.
- Load-bearing parts of the machine, pressure vessels and lines for the fuel supply and hydraulic system must not be welded or machined.
- Specified maintenance work must be carried out at regular intervals.
- Any work on the hydraulic system of the machine must be carried out by trained and qualified personnel only.
- Any work on the electrical system of the machine must be carried out by qualified electricians only.
- Smoking and working with naked flames are prohibited in the immediate vicinity of the machine.

2.7 Environmental protection

Machine functional fluids and any cleaning agents are considered environmentally hazardous substances. Incorrect handling of environmentally hazardous substances, especially incorrect disposal, can cause considerable damage to the environment.

Observe the following instructions when handling environmentally hazardous substances:

- If environmentally hazardous substances are accidentally released into the environment, appropriate measures must be taken immediately. Any spilled functional fluid must be bound immediately with

binders. Contaminated soil must be removed and disposed of in an environmentally friendly manner. If in doubt, inform the responsible authority and ask for the necessary measures.

- The manufacturer's safety data sheets and the packaging of the functional fluids and cleaning agents contain important information on safe handling.
- When draining functional fluids, use sufficiently large catch pans.
- Drained functional fluids must be collected separately, safely and in an environmentally friendly manner in suitable containers (mixing prohibited).
- Collect removed filters and contaminated cleaning cloths in suitable containers.
- Have environmentally hazardous substances disposed of by specialist disposal companies that are certified accordingly.

2.8 Dangers during machine operation

The machine meets high safety requirements. During operation, however, there are residual risks to the health of the machine operator or third parties or risks of damage to the machine and other property.

2.8.1 Transport

2.8.1.1 Risk of death from falling loads!

The machine can be lifted and loaded with a crane. Lifting tackle can tear, the machine can fall down.

- Use only lifting tackle and lifting equipment designed for the weight of the machine.
- Wear a safety helmet.
- Do not walk under lifted loads.

2.8.1.2 Risk of injury from improper loading!

The machine can slip, roll away or tip over if it is not properly loaded and secured.

- Use only means of transport designed for the weight and dimensions of the machine.
- Take into account the gross weight of the machine.

- Use only suitable securing devices.
- Secure the machine against rolling away, slipping and toppling over.

2.8.1.3 Risk of crushing when coupling the machine!

- Keep out of the danger zone while coupling the machine to a truck.
- Keep an eye on the danger zone. Warn persons approaching the danger zone.
- Only use the handle to adjust the height of the trailer coupling.
- Do not reach into the open coupling.

2.8.1.4 Risk of accident if the machine detaches from the truck!

If the machine is not coupled to the truck correctly, the machine can come loose and cause an accident with serious consequences.

- Make sure that the coupling engages correctly on the truck.
- Check the indicators on the towing mechanism.

2.8.2 Setting up, starting up, operation

2.8.2.1 Risk of accident from unsecured machine!

If the machine is not secured correctly at the site of use, it can roll away and cause an accident with serious consequences.

- Apply the parking brake of the machine.
- Use chocks to secure the machine against rolling away.

2.8.2.2 Risk of injury from tripping and falling!

- When setting up the machine, ensure that there is sufficient space to move.
- Lay lines and hoses in such a way that nobody can trip and fall over them.
- Do not place any objects on the machine.

2.8.2.3 Risk of crushing and becoming trapped when opening and closing the machine hood!

- Only raise and lower the machine hood using the side handles.
- Do not reach between moving parts.
- Watch out for persons in the danger zone.

2.8.2.4 Hearing damage during operation!

The machine creates noise during operation.

- Wear hearing protectors.

Data on the emission level can be found on the information plate next to the rating plate.

2.8.2.5 Health hazard from breathing in dust particles!

Dust is created when loading and operating the machine. When breathed in, this dust can cause damage to the respiratory passages and lungs.

- Wear respiratory protection for all work in which dust particles can enter the body through the respiratory passages.
- Take note of the information on the materials' packaging.
- Take note of the information on the material safety data sheets.
- Warn people in the danger zone.

2.8.2.6 Risk of crushing and impact when moving the feeder!

There is a risk of injury when raising and lowering the feeder.

- Ensure that no persons or objects are in the danger zone of the slewing feeder.
- Do not reach between moving parts.

2.8.2.7 Risk of being drawn in during mixing!

- Keep the safety grid of the mixing vessel filler opening closed.
- Do not reach through the safety grid.

2.8.2.8 Risk of being drawn in by the cable winch of the scraper device (BS)!

- Watch out for people in the danger zone when using the scraper device.
- Stop work if people are at risk.
- Do not reach into the cable winch when the cable winch is moving.

2.8.2.9 Risk of injury from suddenly escaping pressure and escaping medium!

The mixing vessel and the delivery line are pressurised during delivery operation. Increased risk of injury when encountering and removing blockages.

- Make sure that the mixing vessel is properly closed.
- Make sure that all couplings on the delivery line are correctly seated.
- Ensure sure that the discharge stand is stable.
- Make sure that there are no persons in the danger zone.
- If you need to open the mixing vessel or disconnect a coupling of the delivery line, switch off the delivery and only open the mixing vessel or the coupling of the delivery line once the system has been completely depressurised.

2.8.2.10 Risk of injury from sudden escape of highly pressurised liquids!

Parts of the machine, fuel system and the hydraulic system are under very high pressure during operation. If fuel or hydraulic lines burst, the liquid spraying out can cause scalding and penetrate the skin.

- In addition to your protective clothing, wear protective goggles and protective gloves.
- The machine must only be operated with the machine hood closed.
- When the machine is running with the machine hood open (maintenance), only stand near fuel or hydraulic lines for as long as is strictly necessary.

2.8.2.11 Risk of injury from switching on the machine and starting the engine when working on the machine during downtime!

- Position a clearly visible notice on the MAIN SWITCH of the machine indicating that it must not be switched on when work is being carried out on the machine.
- Keep an eye on the area around the machine.

2.8.3 Maintenance, repair

2.8.3.1 Risk of burning from hot surfaces!

When working on the machine, especially on the engine, the compressor or the hydraulic system, you can burn yourself on hot machine components.

- Allow the machine to cool down before carrying out any work.
- Cover hot surfaces in the working area with heatresistant materials.

2.8.3.2 Risk of injury from sudden escape of highly pressurised liquids!

Parts of the machine, fuel system and the hydraulic system are under very high pressure during operation. If fuel or hydraulic lines burst, the liquid spraying out can cause scalding and penetrate the skin.

- In addition to your protective clothing, wear protective goggles and protective gloves.
- The machine must only be operated with the machine hood closed.
- When the machine is running with the machine hood open (maintenance), only stand near fuel or hydraulic lines for as long as is strictly necessary.

2.8.3.3 Risk of injury from switching on the machine and starting the engine when working on the machine during downtime!

- Position a clearly visible notice on the MAIN SWITCH of the machine indicating that it must not be switched on when work is being carried out on the machine.
- Keep an eye on the area around the machine.

2.8.3.4 Risk to health from contact with toxic functional fluids!

The machine functional fluids can cause damage to health in the event of skin or eye contact, ingestion or inhalation.

- Wear a face mask or protective goggles when handling functional fluids.
- Work in sufficiently ventilated rooms.

2.8.4 Cleaning

2.8.4.1 Risk of injury when cleaning the machine with the high-pressure cleaner!

- You must wear protective goggles.
- Do not direct the water jet from the high-pressure spray gun at yourself or other living creatures.

2.9 Safety-related parts (SRP)

SRPs are components used to ensure the machine's functional safety. SRPs are marked separately on spare parts sheets. An SRP as a spare part is packed separately. The packaging is labelled accordingly.

SRPs may only be repaired, maintained or replaced by qualified personnel.

2.10 Warning plates

Warning plates are attached at various points on the machine to indicate potential dangers. Make sure that these warning plates are undamaged and legible. Missing, damaged and illegible warning plates must be replaced immediately.

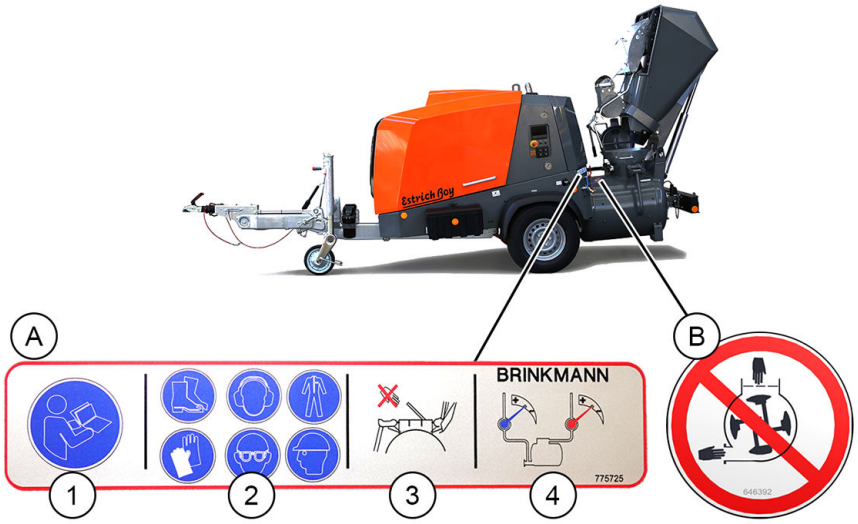


Figure 1: Overview of information plates

Item	Designation
A	General information
1	Read the Operating Instructions!
2	Mandatory PPE signs
3	Prohibition: Do not reach into the mixing vessel while mixing!
4	Adjustment instructions for header air and delivery air (pressure in the mixing vessel)
B	Prohibition: Do not reach into the mixing vessel while mixing! Do not reach into the vessel outlet!

Plate, marking	Meaning	Position on the machine
	**Warning!** **Risk of hand injuries!** When closing the machine hood, you can injure your hands by pinching or crushing them.	At the front of the machine frame next to the machine hood closure.
	**Warning!** **Risk of burning!** Parts of the machine become very hot during machine operation. Touching hot surfaces can cause burns.	At the top in the centre of the machine frame. Only visible when the machine hood is open.
	**Warning!** **Risk of scalding!** The coolant becomes hot during machine operation. When opening the expansion tank, escaping hot steam can cause scalding.	At the rear of the coolant expansion tank. Only visible when the machine hood is open.

Table 4: Warning plates on the machine

2.11 EMERGENCY STOP

During an EMERGENCY STOP the machine is brought into a safe state. An EMERGENCY STOP can be triggered automatically or manually via one of the EMERGENCY STOP buttons at one of the machine's operating positions.

An automatic EMERGENCY STOP is triggered if the radio link is interrupted while the machine is being operated with the radio remote control or if a safety switch detects that the safe state has been exited.

The following actions are triggered in the event of an EMERGENCY STOP:

- The safety circuit is opened.
- Delivery is stopped.
- All hydraulically powered functions are stopped:
  - Mixing – mixer drive
  - Raising and lowering the feeder (B, BS) – hydraulic cylinder

- Pulling the scraper (BS) – cable winch drive
- High-pressure cleaning – high-pressure water pump for high-pressure cleaner (option)

- The EMERGENCY STOP symbol on the display turns red.
- The LEDs on the keypad buttons light up red and signal a fault.

2.12 Personal protective equipment (PPE)

PPE must be worn while working with or on the machine to protect against injuries and damage to health. The operating company must provide PPE to all persons working with or on the machine on their behalf. The PPE must meet the requirements of different standards.

PPE	Application
	Safety footwear for professional use; category S3 (DIN EN ISO 20345:2022) to protect the feet from falling objects or stepping on items, e.g. nails.
	Protective gloves against mechanical risks; class 1111 (DIN EN 388:2017) to protect the hands from aggressive or chemical substances, mechanical effects (e.g. impact) and from cuts.
	Personal eye protection (DIN EN 166:2002) to protect the eyes from injuries, e.g. caused by splashing material or dust.
	Industrial safety helmet (DIN EN 397:2022) to protect the head from falling items or objects.
	Hearing protectors (DIN EN 352-1:2021) to protect from noise in the vicinity of the machine, combined with a safety helmet (DIN EN 352-3:2021).

PPE	Application
	Respiratory protection and face mask (DIN EN 149:2009 (Respiratory protection devices - Filtering half masks to protect against particles - Requirements, testing, marking; class FFP1)) to protect from particles of building materials that could enter the body via the respiratory passages (e.g. concrete admixtures).
	Safety harness to protect from falling while working on platforms or areas not safeguarded to prevent falling (e.g. ceilings without barriers). Full body harnesses; category III (DIN EN 361:2002).

Table 5: Personal protective equipment (PPE)

3 General technical description

This chapter describes the machine and explains its method of operation.

Figure 2: EstrichBoy side view

3.1 Machine design

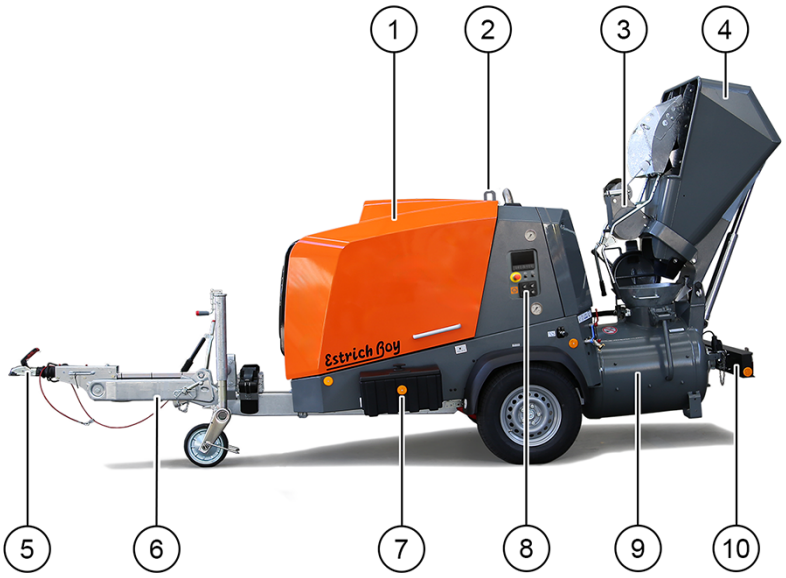


Figure 3: EstrichBoy

Item	Designation
1	Machine hood
2	Lifting eye
3	Scraper (BS)
4	Feeder (B, BS)
5	Ball hitch
6	Trailer coupling height adjustment
7	Toolbox (option)
8	Control box with keypad
9	Mixing vessel
10	Lighting equipment

The machine is a compressed-air conveyor and operates according to the plug conveyance principle. Compressed air is used to transport the semi-dry floor screed through the delivery line to the discharge stand at the placement site.

The machine is available in the following versions:

- Compressed-air conveyor without feeder (B) and without scraper (S)
- Compressed-air conveyor with feeder (B)
- Compressed-air conveyor with feeder and scraper (BS)

The machine consists of the following main assemblies:

- Chassis with frame
- Engine
- Compressor unit
- Hydraulic system
- Mixing vessel with gearbox
- Feeder (B, BS)
- Scraper (BS)
- Highpressure cleaner high-pressure water pump (option)
- Control box with display and keypad

Example model designation: EstrichBoy DC 260/45 BS NON-EU

Designation	Meaning
EstrichBoy	Model
DC	Diesel engine
260	Model
45	Compressor version
B	Feeder
S	Scraper
NON-EU	Version for export to non-EU countries

Table 6: Model designation

The machine can be equipped with the following options and auxiliary equipment:

- 24 V lighting equipment
- Exhaust pipe with flap
- Working lights
- Mixing vessel lid (automatic)
- Mixing vessel lid (manual), opens lengthways

- Highpressure cleaner
- Truck coupling
- Location system (GPS)
- Protective plate for feeder (B, BS)
- Gooseneck overrunning brake equipment
- Software package with:
  - Power management (Blue Power)
  - Mix counter
  - Mixing time extension
- Support feet
- Chassis conversion to 100 km/h
- Wear plates to extend the service life of the mixing vessel (6 or 8 mm):
  - Wear plate at the top of the dome
  - Casing wear plates (5 pcs)
  - Wear plates on both protection bars (4 pcs)
- Toolbox

You can find more options and accessories in the Putzmeister Mortar Machines GmbH accessories catalogue or online at www.estrichboy.de.

3.2 Rating plate

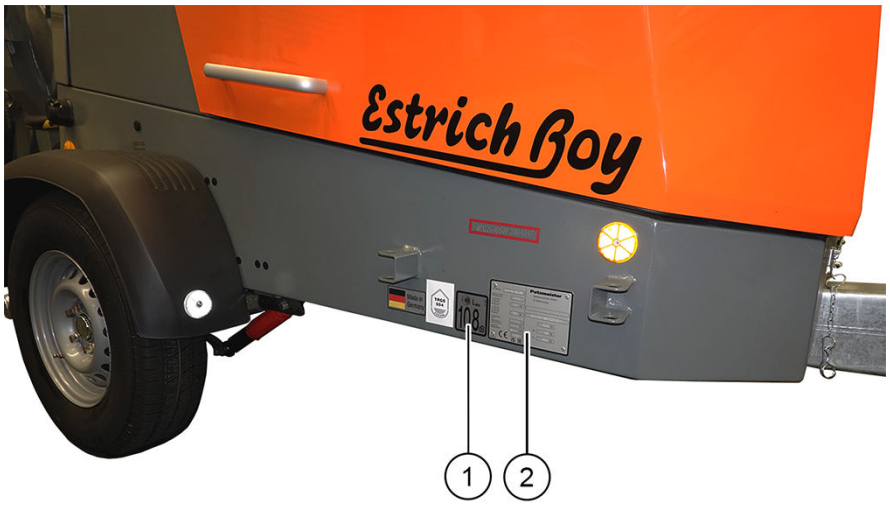


Figure 4: Plates

Item	Designation
1	Sound power level plate
2	Rating plate

The machine rating plate is located on the front right-hand side of the machine frame.

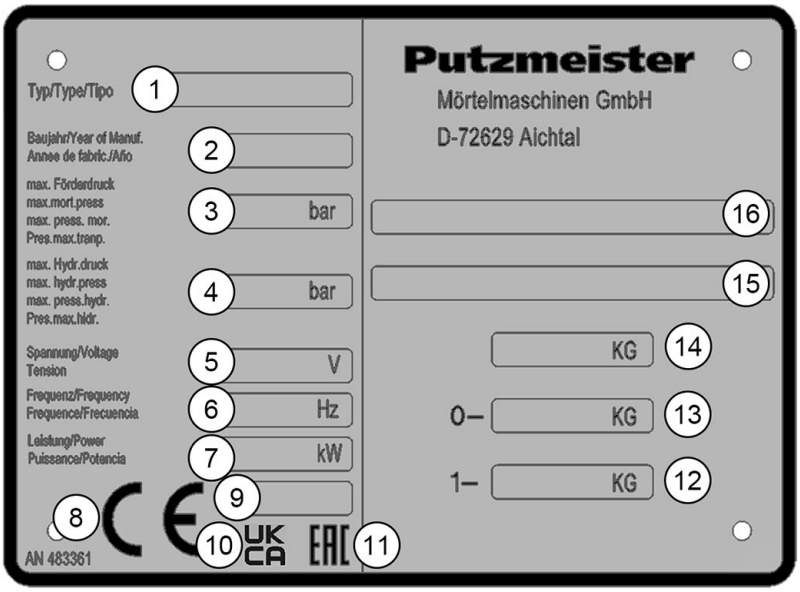


Figure 5: Rating plate

Item	Designation
1	Model (machine model)
2	Year of manufacture
3	Maximum delivery pressure
4	Maximum hydraulic fluid pressure
5	Voltage
6	Frequency
7	Power
8	CE marking (EU)
9	Identification number for certification and monitoring office
10	UKCA marking (GB)
11	EAC marking
12	Permitted axle load
13	Permissible drawbar load
14	Permissible gross weight
15	Chassis number
16	Registration number

The rating plate of the mixing vessel is located at the front of the mixing vessel, but is covered by the cover of the gearbox.

Figure 6: Mixing vessel rating plate

Item	Designation
1	Manufacturer address
2	Manufacturer code
3	Serial number
4	Test pressure
5	CE marking
6	Temperature limits
7	Volume
8	Permissible pressure
9	Date
10	Year of manufacture

3.3 Sound power level plate

The plate indicating the sound power level is located next to the machine's rating plate.

Figure 7: Plate – sound power level

Item	Designation
L_{WA}	Sound power level
dB	Value in decibels

3.4 Under the machine hood

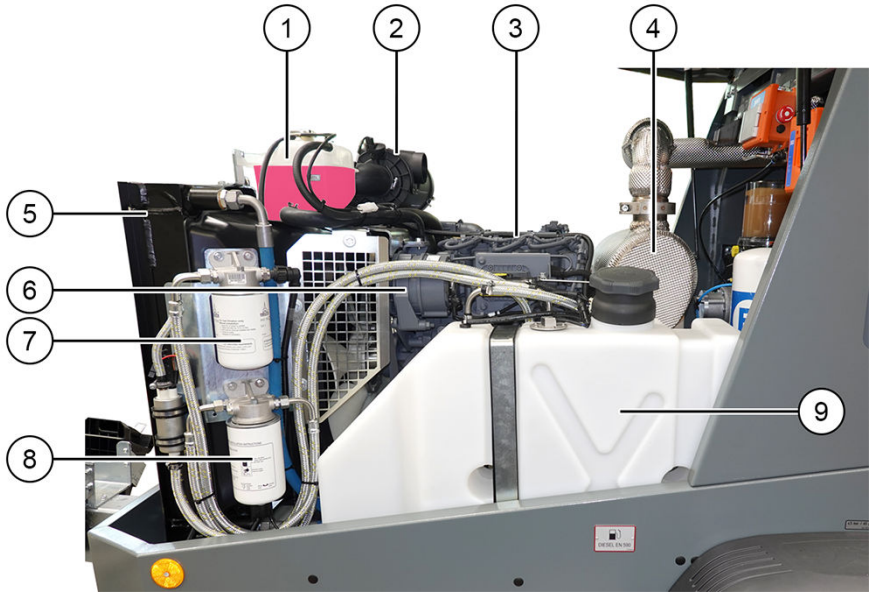


Figure 8: View from the left

Item	Designation
1	Coolant expansion tank
2	Engine air filter
3	Engine
4	Silencer
5	Radiator assembly
6	Generator (alternator)
7	Fuel main filter
8	Fuel pre-filter
9	Fuel tank

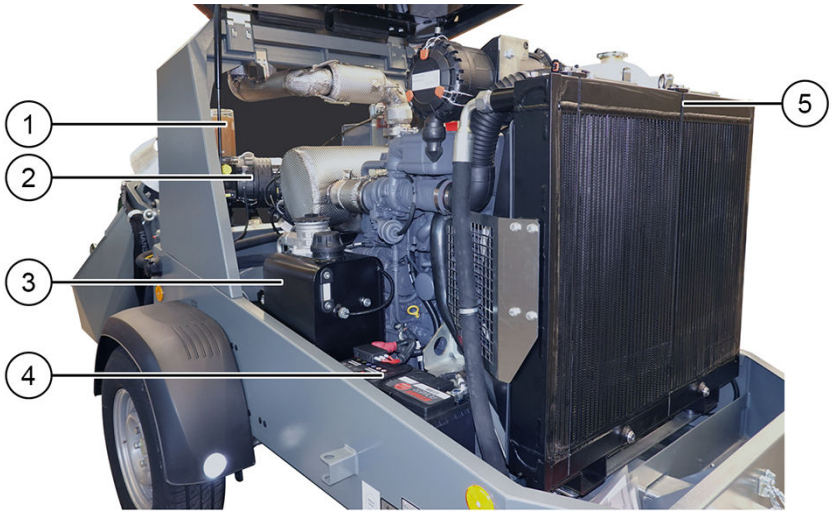


Figure 9: View from the front right

Item	Designation
1	Central lubrication system
2	Compressor air filter
3	Hydraulic fluid reservoir
4	Battery
5	Radiator assembly

3.5 Safety equipment

The machine is equipped with various protective devices to protect persons from injury.

3.5.1 EMERGENCY STOP button

In situations where persons are directly at risk or the machine itself could be damaged, the machine must be stopped immediately – EMERGENCY STOP. An EMERGENCY STOP can be triggered manually via an EMERGENCY STOP button. The machine is then brought into a safe state.

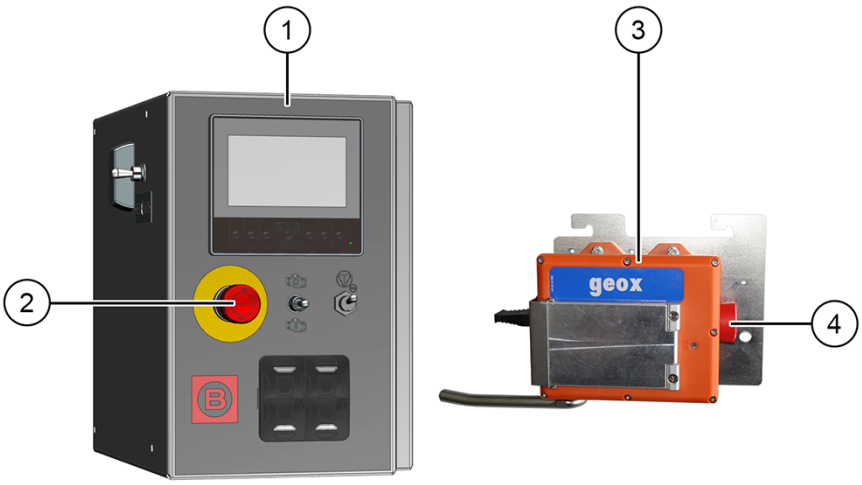


Figure 10: EMERGENCY STOP button

Item	Designation
1	Control box
2	EMERGENCY STOP button
3	Radio remote control (BS)
4	EMERGENCY STOP button (scraper)

Only press the EMERGENCY STOP BUTTON if people or the machine are actually at risk. Familiarise yourself with the position of the EMERGENCY STOP buttons on the machine.

3.5.2 Safety valve

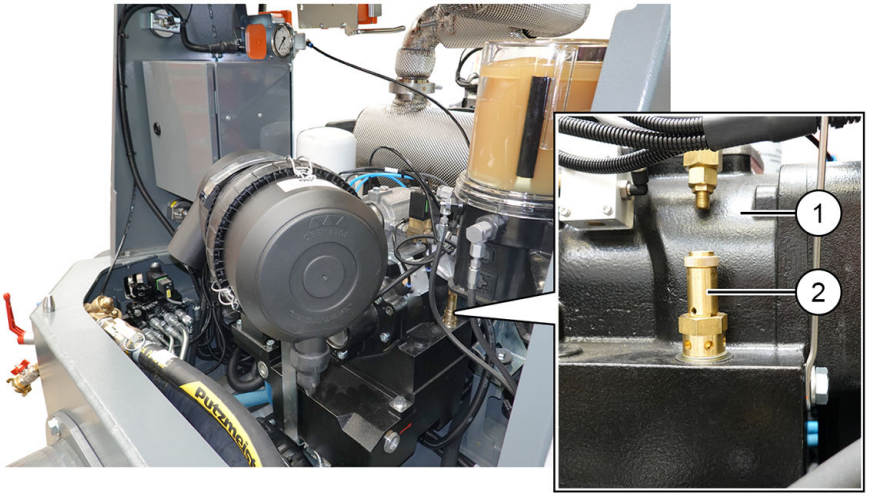


Figure 11: Safety valve

Item	Designation
1	Compressor
2	Safety valve

The safety valve is located on the compressor and protects the pipework system and the mixing vessel from impermissibly high pressure. If the pressure in the system rises above the limit and the compressor does not automatically reduce the pressure, the safety valve opens. The pressure in the system is released into the environment. Oily compressed air escapes.

Frequent activation of the safety valve leads to oil loss in the long term.

3.5.3 Safety grid with safety switch

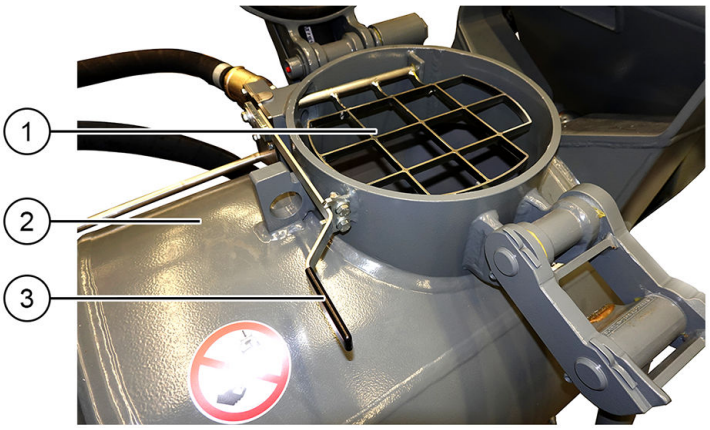


Figure 12: Safety grid

Item	Designation
1	Safety grid
2	Mixing vessel
3	Lever

The safety grid covers the filler opening of the mixing vessel and protects the machine operator from being drawn into the machine. The mixer in the mixing vessel can only be operated when the safety grid is closed. The mesh size of the safety grid is large enough to fill the mixing vessel without any problems. If the safety grid is opened during machine operation, detected by a safety switch, the mixer is switched off and the mixer shaft comes to a standstill within 0.5 s – EMERGENCY STOP.

The rods of the safety grid are wear parts. The safety grid must be replaced as soon as a grid rod reaches a material thickness of only 50%.

Highpressure cleaner (option)

To clean the mixing vessel, the high-pressure cleaner can also be operated with the safety grid open.

3.5.4 Mixing vessel lid locking mechanism

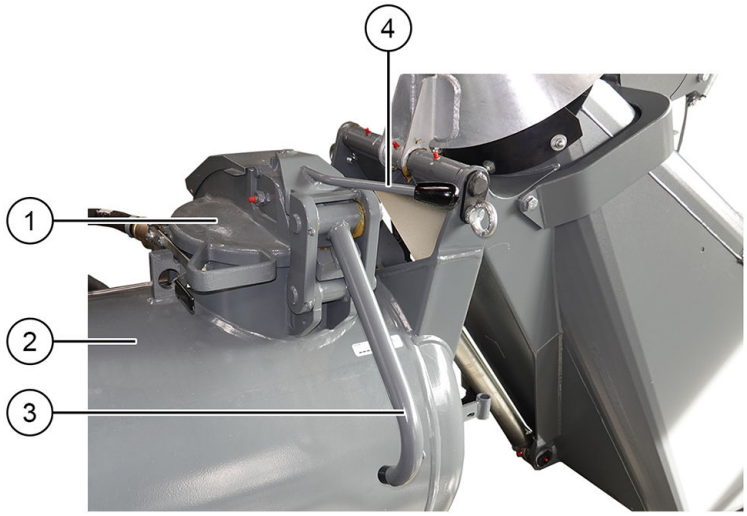


Figure 13: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

When the machine is conveying screed, the mixing vessel is pressurised. The lid is secured in multiple ways to prevent it from suddenly popping open under pressure and causing injury. When the lid is closed, the quick-release lever presses the seal ring in the lid against the filler pipe of the mixing vessel. The vessel is tightly sealed. The securing lever prevents the quick-release lever from being lifted. The lid cannot be opened.

To open the lid, the securing lever needs to be pushed to the side. This opens up a channel inside the lid through which the compressed air can escape to the outside, thus relieving the pressure. The lid is then still secured with the quick-release lever. Only when the pressure in the mixing vessel has been completely released can the quick-release lever be lifted and the lid then opened.

3.6 Function description of material conveying

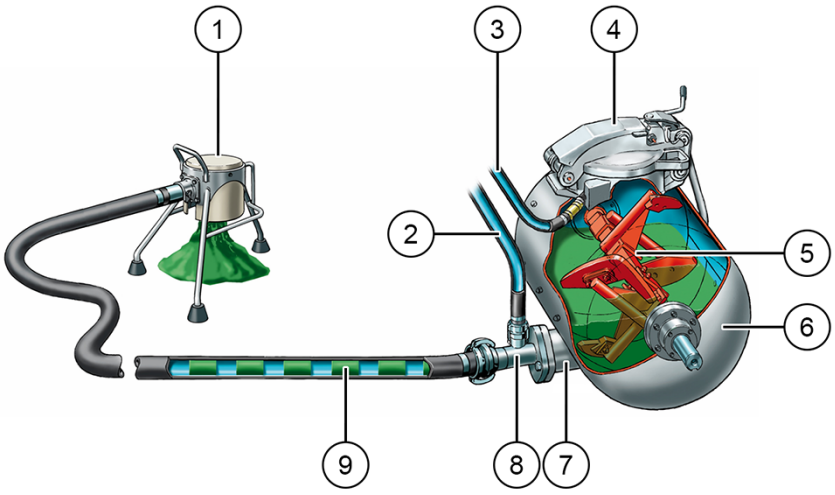


Figure 14: Plug conveying principle

Item	Designation
1	Discharge stand
2	Delivery air line
3	Header air line
4	Mixing vessel lid
5	Mixer (mixer shaft with mixer blades)
6	Mixing vessel
7	Vessel outlet
8	Wear connection
9	Screed plugs

The machine’s engine powers the compressor directly and the high-pressure pump via the power take-off.

The compressor compresses filtered air from the environment and generates the compressed air for transporting the semi-dry floor screed.

The high-pressure pump generates the fluid pressure in the hydraulic system.

The hydraulic system supplies the following equipment with the appropriate operating pressure:

- Mixer gearbox hydraulic drive
- Feeder hydraulic cylinder (B, BS)
- Scraper cable winch (BS)
- Highpressure cleaner high-pressure water pump (option)

The mixer in the mixing vessel is powered by a gearbox and can be moved in both directions of rotation (forward, reverse). Sand, cement, water and aggregates are mixed together in the mixing vessel through the rotation of the mixer shaft with mixer blades. During the delivery (mixing vessel closed), compressed air is fed into the mixing vessel via the header air line. The screed in the mixing vessel is pressed downwards into the vessel outlet. A plug of screed forms in the wear connection. At the same time, compressed air is fed to the wear connection via the delivery air line. An air cushion builds up behind the screed plug in the delivery line, the pressure continues to rise and the air cushion pushes the screed plug in front of it through the delivery line to the discharge stand. The screed plug then exits downwards at the discharge stand at the placement site and the air cushion escapes into the environment. This process is repeated until the mixing vessel is empty.

3.7 Control box

The control box is located at the rear left of the machine. All electronic components for the machine's control system are housed in the control box, which is splash-proof. The display and various operating elements are located at the front left of the control box. The operating elements are accessible with the machine hood closed.

The MAIN SWITCH and the RADIO REMOTE CONTROL TOGGLE SWITCH are located on the rear of the control box. Both switches are only accessible when the machine hood is open.

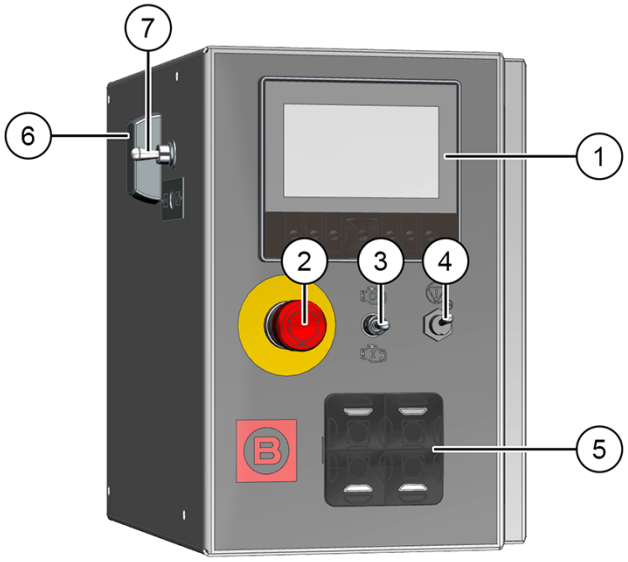


Figure 15: Control box

Item	Designation
1	Display
2	EMERGENCY STOP button
3	Engine toggle switch
4	“Acknowledge” toggle switch
5	Keypad
6	Main switch
7	Radio remote control toggle switch

3.8 Engine

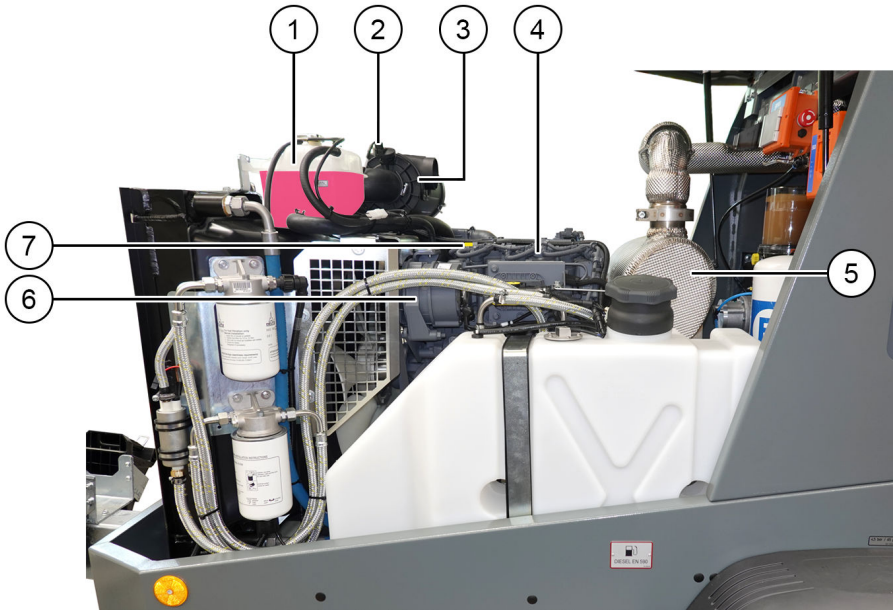


Figure 16: Engine, view from the left

Item	Designation
1	Coolant expansion tank
2	Air filter maintenance switch
3	Engine air filter
4	Engine
5	Silencer
6	Generator
7	Valve cover lid

The three-cylinder diesel engine powers the compressor and the hydraulic pump. The compressor ensures the compressed air supply. The hydraulic pump generates the necessary fluid pressure in the hydraulic system.

The engine performance data is listed in the “Technical data” chapter.

3.9 Central lubrication system

Figure 17: Central lubrication system

Item	Designation
1	Lubricant reservoir
2	Lubrication nipple
3	Filler pipe cap

The central lubrication system supplies the two mixer shaft bearings with grease. A lubricant pump conveys the grease to the lubrication points. During delivery operation, the mixer shaft bearings are lubricated once per cycle. The lubricant pump is activated for 5 seconds.

Lubrication of the mixer shaft bearings can also be triggered manually. In this case, the lubricant pump is activated for 10 seconds. The process must be started via the MANUAL PUMPING BUTTON.

Requirements:

- Machine switched on
- The engine is switched off
- ACKNOWLEDGE BUTTON pressed

The bearings of the mixer shaft are subject to heavy loads while mixing and must be lubricated at least three times a day.

The lubricant reservoir can be filled via the filling point or via the lubrication nipple.

3.10 Compressed-air system

The machine’s compressed air system consists of the following components:

- Dry air filter
- Compressor
- Oil trap
- Air valve fitting
- Header air line
- Delivery air line

The machine mixes various materials in the mixing vessel to form semi-dry floor screed. Compressed air is then used to transport the semi-dry floor screed through the delivery line to the discharge stand at the placement site. Driven by the engine, the compressor draws in fresh air via the dry air filter and compresses it. The air mixes with the lubricating fluid in the compressor. The compressed air is then cleaned in the oil trap. Air and lubricating fluid are separated from each other. The lubricating fluid is then cooled in the hydraulic fluid radiator, cleaned in the fluid filter and fed back into the compressor. The compressed air is directed to the air valve fitting and from there via the header air line to the mixing vessel and via the delivery air line to the wear connection at the vessel outlet. The pressure in the mixing vessel and the delivery pressure can be set using the operating levers on the air valve fitting.

3.11 Hydraulic system

The mixer, the feeder (B, BS), the scraper (BS) and the high-pressure water pump for the high-pressure cleaner (option) are powered hydraulically. The engine powers the high-pressure pump. The high-pressure pump pumps fluid from the hydraulic fluid reservoir, compresses it and makes it available to the consumers.

The hydraulic system consists of the following assemblies:

- Hydraulic fluid reservoir
- High-pressure pump
- Hydraulic fluid radiator
- Mixer gearbox hydraulic drive
- Feeder hydraulic cylinder (B, BS)

- Scraper cable winch (BS)
- Highpressure cleaner high-pressure water pump (option)

3.12 Feeder (B, BS)

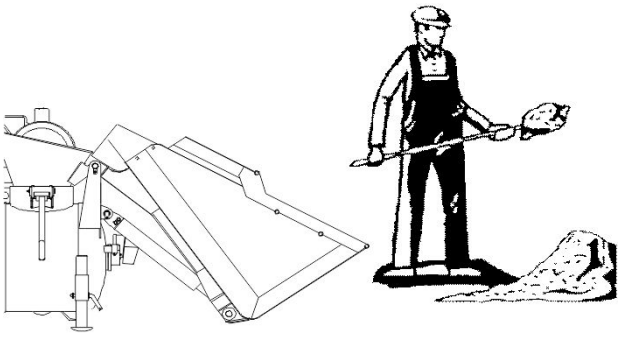


Figure 18: Feeder

The feeder can be filled with sand during the delivery process. This allows for approx. 30% higher performance. The feeder is connected to the mixing vessel with a hinge and is raised and lowered via a hydraulic cylinder.

The feeder must be raised for road transport (transport position).

3.13 Scraper (BS)

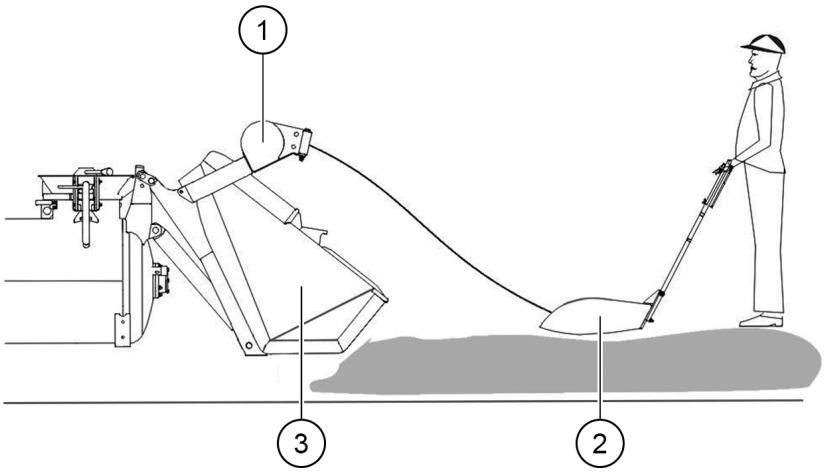


Figure 19: Scraper (BS)

Item	Designation
1	Cable winch
2	Scraper
3	Feeder

The feeder can be filled quickly and effortlessly with the scraper. The scraper works quickly and economically without putting a lot of physical strain on the machine operator. Even pulling together piles of sand that have been spread far apart is easy. The scraper is pulled to the feeder by a cable winch. The cable winch is powered by a hydraulic motor and operated using the radio remote control. A stop on the traction cable of the scraper stops the cable winch when the scraper reaches the feeder.

3.14 Highpressure cleaner (option)

The machine can be cleaned with the high-pressure cleaner. A high-pressure water pump generates a water pressure of 5 to 140 bar. The high-pressure water pump is hydraulically driven.

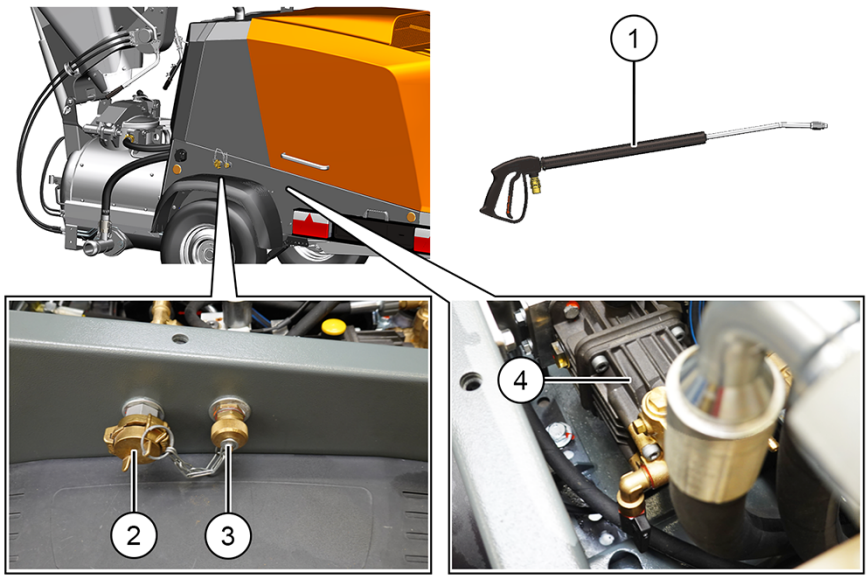


Figure 20: Highpressure cleaner

Item	Designation
1	High-pressure gun
2	Water connection
3	High-pressure hose connection
4	Highpressure water pump

The water pressure must be set on the pressure control valve of the high-pressure water pump. The trigger of the high-pressure gun has a trigger safety device.

3.15 Operating elements and indicators

The machine is operated using the operating elements on the control box.

3.15.1 Overview

Figure 21: Operating elements and indicators

Item	Designation
1	Mixing vessel pressure gauge (delivery pressure)
2	Display
3	Keypad
4	Hydraulic fluid pressure gauge
5	System pressure gauge (compressed air)

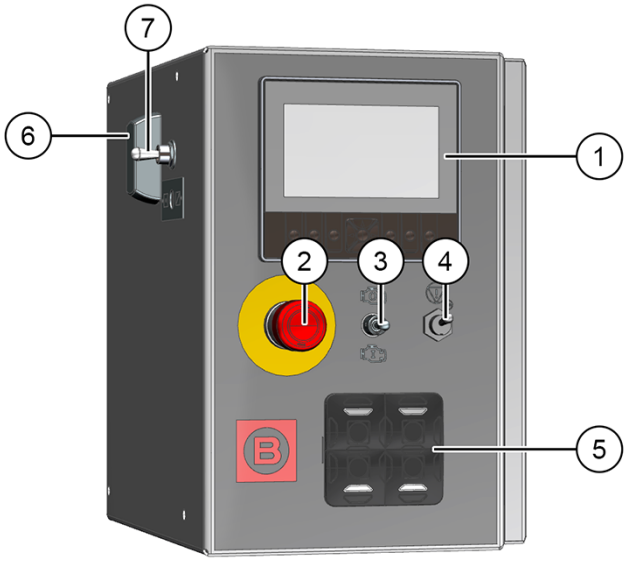


Figure 22: Control box

Item	Designation
1	Display
2	EMERGENCY STOP button
3	Engine toggle switch
4	“Acknowledge” toggle switch
5	Keypad
6	Main switch
7	Radio remote control toggle switch

3.15.2 Display

The display on the machine's control box forms the interface for communication between man and machine. In addition to the machine's operating data, active feedback on functions, faults and errors is displayed. The surface of the display is divided into different display areas.

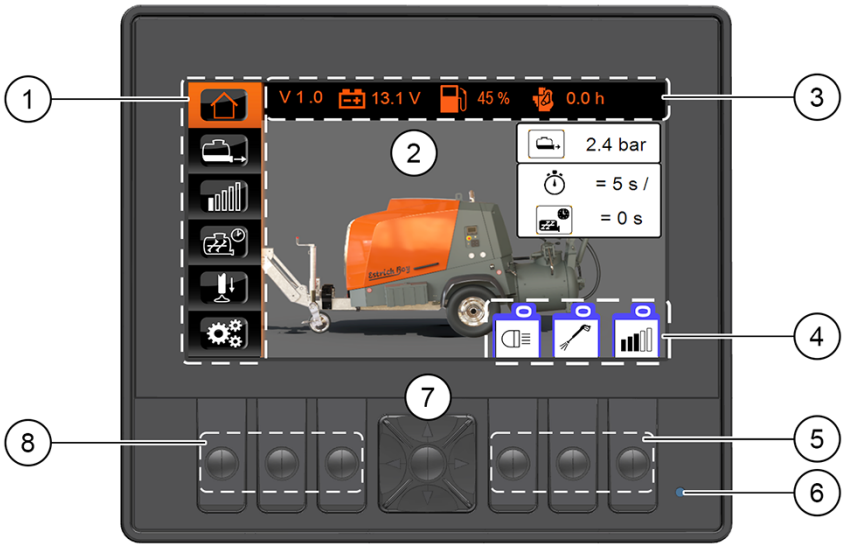


Figure 23: Main menu view display

Item	Designation
1	Menu bar
2	Main display area – faults, information, options or special functions
3	Information bar
4	Function bar (options)
5	Right selection buttons
6	Status display
7	D-pad (UP, DOWN, LEFT, RIGHT)
8	Left selection buttons

Symbol	Menu	Function
	Main menu	Status information display
	“Switch-off pressure” menu	Setting the switch-off pressure
	“Power management” menu	Adjusting the engine operating speed
	“Mixing time extension” menu	Adjusting the remixing duration
	“Mix counter” menu	Mix counter ON/OFF, deleting the counter reading
	“Technology” menu	Displaying operating parameters, input signals and output signals Displaying fault codes and ambient data

The manufacturer and service technicians with the appropriate authorisation can request further information from the control system. Access to this information is password-protected.

You can navigate within the structures (menu, submenu, list) using the D-pad buttons. If options can be selected or settings can be adjusted within a menu, corresponding symbols are shown on the display above the buttons that need to be pressed for this purpose. The changed setting is automatically applied. It does not need to be confirmed.

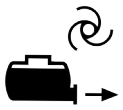
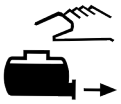
If it is not possible to operate the machine using the keypad buttons, the respective functions can also be operated via the display – EMERGENCY operation.

3.15.3 Keypad

Figure 24: Version A: Keypad with round buttons

Figure 25: Version B: Keypad with square buttons

Pos.	Symbol	Designation
1		“Mixing in hold-to-run command mode (reverse)” button
2		“Mixing in continuous operation (forward)” button

Pos.	Symbol	Designation
3		“Automatic delivery” button
4		“Manual delivery” button

3.15.3.1 Function feedback

The status of functions that can be selected (keypad or display) is reported back to the machine operator according to a colour logic. The buttons on the keypad are equipped with colour LEDs. On the display, the options in the function bar are shown with a coloured frame and the pictograms in the main display area are highlighted in colour.

Colour	Function
BLUE	Function can be selected
YELLOW	Function starts If all LEDs flash YELLOW, a warning appears on the display.
GREEN	Function activated
RED	Function cannot be selected If all LEDs light up RED, a fault message appears on the display.

3.15.4 Radio remote control for the scraper (BS)

Figure 26: Radio remote control

Item	Designation
1	Radio remote control
2	EMERGENCY STOP button (scraper)
3	Status display
4	Scraper cable winch toggle switch

The scraper cable winch is operated with the radio remote control. The radio remote control is impact-resistant and splash-proof and is attached to the scraper. An EMERGENCY STOP BUTTON and the SCRAPER CABLE WINCH TOGGLE SWITCH are located on the radio remote control. The radio remote control battery is removable.

If the radio remote control is not actuated for more than 25 minutes, the machine switches to EMERGENCY STOP mode.

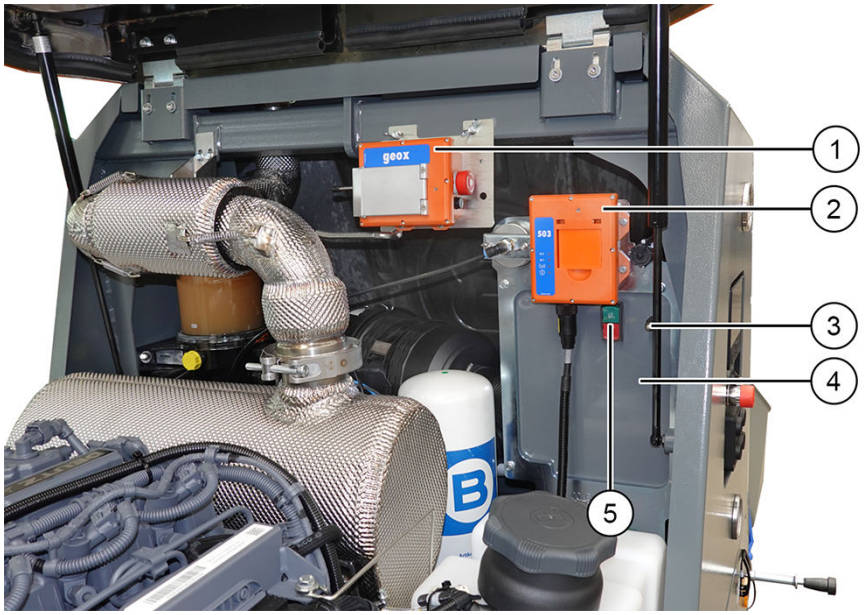


Figure 27: Control box and radio remote control

Item	Designation
1	Radio remote control (in rest position)
2	Radio remote control receiver
3	Radio remote control toggle switch
4	Control box
5	Main switch

The radio remote control receiver is located under the machine hood above the control box.

A charging station for a rechargeable battery is located behind a flap on the housing of the radio remote control receiver. Two batteries for the radio remote control are included with the products supplied. The charging function is only active when the machine is switched on. The batteries should only be charged when they are completely flat. An external charging station is available as an accessory.

4 Technical data

This chapter provides a summary of the machine’s technical data.

4.1 Dimensions

Designation	Value
Length with drawbar (standard)	5067 mm
Length with drawbar (B, BS)	5210 mm
Width	1525 mm
Height (standard)	1840 mm
Height (B, BS)	2526 mm
Mixing vessel filling height (standard)	820 mm
Mixing vessel filling height (B, BS)	400 mm

4.2 Operating conditions

Designation	Value
Maximum installation altitude above sea level (without reduction in performance)	1000 m
Temperature	-5 – +45 °C
Maximum longitudinal tilt angle	6 °
Maximum transverse tilt angle (standard)	5 °
Maximum transverse tilt angle (B, BS)	2 °

4.3 Weights

Designation	Value
Permissible gross weight (fully fuelled) (standard)	1715 kg
Permissible gross weight (fully fuelled) (B)	1840 kg
Permissible gross weight (fully fuelled) (BS)	1900 kg
Drawbar load	100 kg

4.4 Chassis, wheels, tyres

Designation	Value
Permissible maximum speed	80 km/h
Towing ring	In line with DIN 74054 Part 1
Tyres	195 R14C
Rim	5 1/2 J x 14 H2 ET30
Inflation pressure	4.5 bar
Wheel bolt torque	90 Nm

As an option, the chassis can be converted for a top speed of 100 km/h.

4.5 Engine

Designation	Value
Engine	Three-cylinder diesel engine
Power	36.4 kW

4.6 Compressor

Designation	Value
Output	4.35 m^3/min
Cut-off pressure	8 bar
Filling time (mixing vessel filling test with 0–5 bar)	15 s
Maximum delivery rate	3.8 m^3/h
Maximum delivery rate (B)	4.6 m^3/h
Maximum delivery rate (BS)	5 m^3/h
Maximum delivery pressure	8 bar
Maximum delivery height	90 m
Maximum delivery distance	180 m
Maximum particle size	16 mm
Control voltage	12 V

The maximum values for the delivery rate and delivery pressure cannot be achieved simultaneously.

The specifications depend on:

- Material composition
- Consistence

4.7 Noise emissions

Designation	Value
Sound power level	See plate on the machine
Sound pressure level	< 85 dB(A)

4.8 Highpressure cleaner (option)

Designation	Value
Highpressure water pump (option)	5 – 140 bar

4.9 Fill volumes, capacities

Designation	Value
Engine oil (with oil filter)	7.8 l
Compressor oil	10 l
Transmission oil	3.0 l
Fuel tank	70 l
Hydraulic fluid reservoir	20 l
Highpressure water pump oil (option)	0.18 l

4.10 Mixing vessel

Designation	Value
Maximum permissible pressure (PS)	10 bar
Temperature range	-10 – +50 °C
Total volume	260 l
Useful capacity	200 l

Designation	Value
Wall thickness	10 mm
Number of permissible load cycles	50,000 load cycles

5 Transport, setting up and connection

In this chapter you will find information concerning the safe transport of the machine and the set-up at the site of use.

5.1 Securing the feeder (B, BS) for transport

The feeder can be secured to the frame with a cam buckle strap to transport the machine. Shocks and impacts that occur while driving and can lead to faster deflection of the bearing points of the feeder's lifting cylinder are prevented.

Prerequisites:

✓ Machine in transport position *(Moving the machine to the transport position P. 8 — 11)*

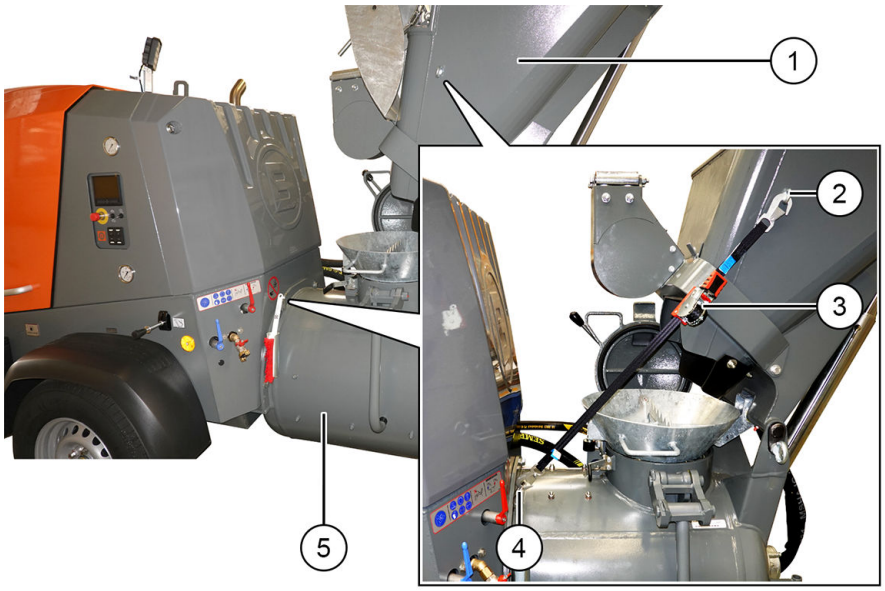


Figure 28: Feeder transport security device

Item	Designation
1	Feeder
2	Eyebolt
3	Cam buckle strap
4	Eyelet
5	Mixing vessel

1. Hook the cam buckle strap into the eyebolt on the feeder and into the eyelet on the mixing vessel.
2. Tension the cam buckle strap.

5.2 Loading the machine with a crane

Prerequisites:

✓ Machine in transport position *(Moving the machine to the transport position P. 8 — 11)*.

Figure 29: Lifting eye

⚠ DANGER

Risk of death from falling loads!

- Wear a safety helmet.
- Watch out for persons in the danger zone.
- Use only lifting tackle and lifting equipment designed for the weight of the machine.
- Only lift the machine by the lifting eye.
- Only lift the machine as high as necessary.
- Avoid excessive swaying of the lifted machine.
- Do not walk under suspended loads.

1. Position the crane vertically above the lifting eye of the machine.
2. Attach the lifting tackle to the crane hook and the lifting eye.
3. Move the support wheel to the transport position.
4. If necessary, move the support feet on the machine into the transport position.

5. If necessary, remove the machine's load securing device from the transport vehicle.
6. Release the machine's parking brake.
7. Slowly lift the machine and move it to the unloading point using the crane.
8. Set down the machine at the unloading point.
9. Lower the support wheel to the ground until the machine is level.
10. Apply the machine's parking brake.
11. Additionally secure the machine against rolling away.
12. Remove the lifting tackle from the crane hook and the lifting eye.

5.2.1 Securing the machine on a transport vehicle

Prerequisites:

✓ Machine lifted with a crane

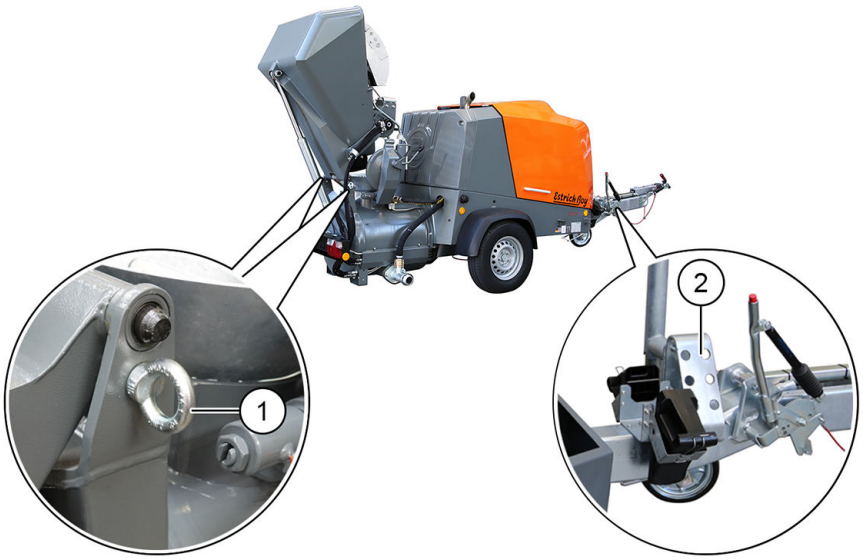


Figure 30: Transport security device for machine with feeder (B, BS)

Item	Designation
1	Eyebolt (2x)
2	Support wheel bracket

On machines without a feeder, the eyebolts are located at the bottom of the frame to the left and right of the mixing vessel.

1. Place the machine on the floor of the transport vehicle using the crane.
2. Lower the support wheel to the ground until the machine is level.
3. Apply the machine's parking brake.
4. Remove the lifting tackle from the crane hook and the lifting eye.
5. Secure the machine at the front with two cam buckle straps on the support wheel bracket on the chassis and on the left and right of the transport vehicle.
6. Secure the machine at the rear with one cam buckle strap each on the eyebolts on the left and right of the mixing vessel and on the left and right of the transport vehicle.

5.3 Moving the machine in road traffic

Before transporting the machine on the road, it must be made roadworthy. The towing vehicle must be equipped with towing gear that complies with national regulations.

The machine chassis is equipped with a parking brake device and an overrunning brake with brake safety cable. The towing gear of the machine is equipped with a ball hitch and can be adjusted in height. An optional towing ring can be fitted for transport on a truck. The 24 V lighting equipment option may then also be required.

1. Check the suitability of the towing vehicle with regard to trailer and drawbar load.
2. Check that the towing equipment of the towing vehicle is suitable for the version on the machine; if necessary, change the towing equipment on the machine.

5.3.1 Changing the towing equipment on the machine

Prerequisites:

✓ Machine stands securely
✓ Machine secured against rolling away with chocks
✓ Machine parking brake applied

Removing the towing equipment

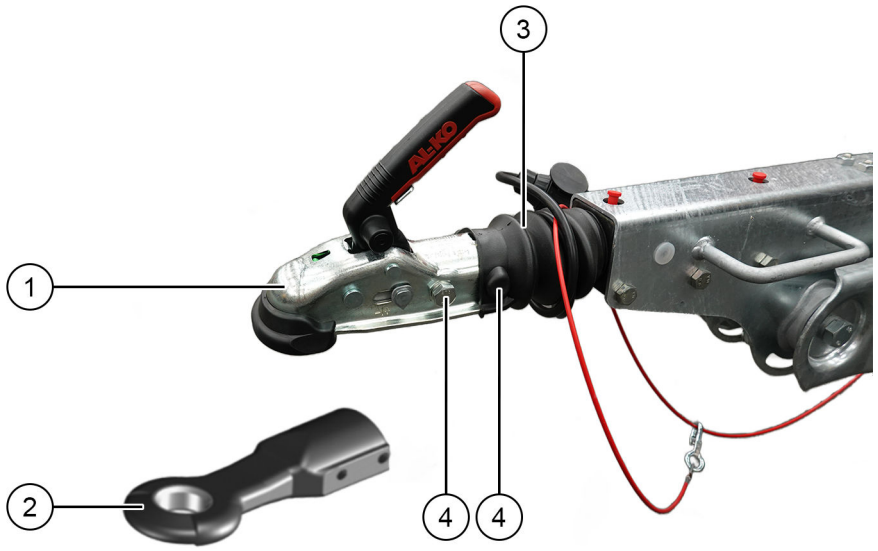


Figure 31: Towing equipment options

Item	Designation
1	Ball hitch
2	Towing ring
3	Rubber gaiter
4	Bolt

1. Loosen the rubber gaiter and push it back until you can access the rear bolted connection of the ball hitch.
2. Loosen the bolted connections.
3. Unscrew the nuts.
4. Remove the washers.
5. Remove the bolts.
6. Remove the towing equipment from the towing bar.

Fitting the towing equipment

7. Position the towing equipment on the towing bar.
8. Align the bores with each other.
9. Insert the bolts through the bores from the left as viewed in the direction of travel.
10. Place washers on the bolts.

11. Screw new self-locking nuts onto the bolts.
12. Tighten the nuts to the specified torque.
13. Position the rubber gaiter over the rear bolted connection.

5.3.2 Fitting the lighting equipment

The machine may only be transported in road traffic with fully functional lighting equipment.

Prerequisites:

✓ Machine in transport position *(Moving the machine to the transport position P. 8 — 11)*

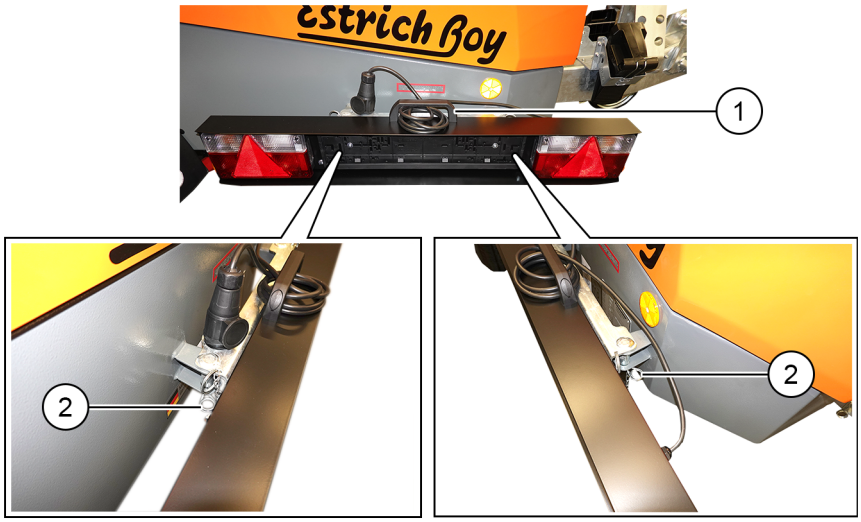


Figure 32: Lighting equipment

Item	Designation
1	Lighting equipment
2	Spring cotter pin

1. Pull the spring pins out of the retaining bolts of the lighting equipment.
2. Remove the lighting equipment from the retainers on the side of the machine frame.

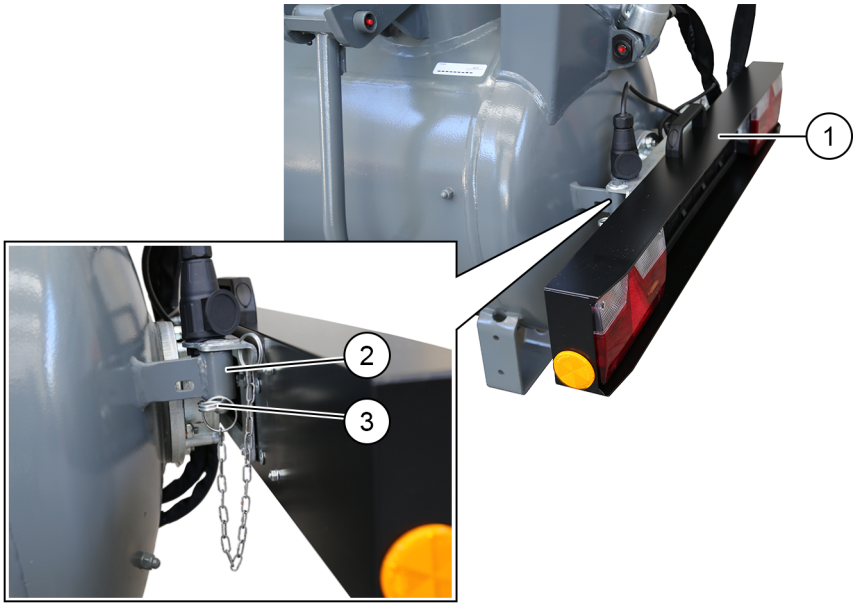


Figure 33: Lighting equipment

Item	Designation
1	Lighting equipment
2	Mixing vessel retainer
3	Spring cotter pin

3. Insert the lighting equipment with the bolts into the retainers at the rear of the mixing vessel.
4. Insert the spring pins in the bolts through the bores.

Figure 34: Lighting equipment socket

Item	Designation
1	Socket

5. Insert the plug of the lighting equipment into the socket on the machine.

5.3.3 Adjusting the height of the towing gear

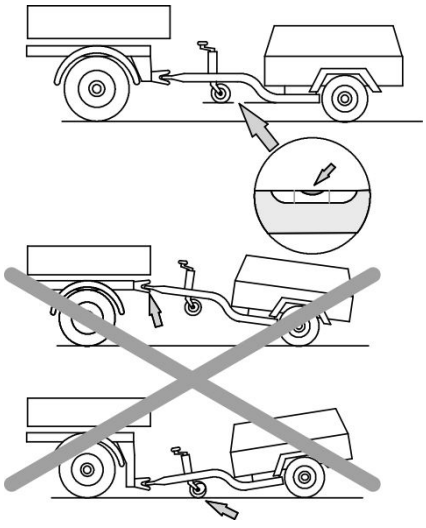


Figure 35: Attaching the machine horizontally

The machine must have maximum ground clearance during road transport. The height of the towing gear must be adjusted so that the machine chassis is as parallel to the road as possible.

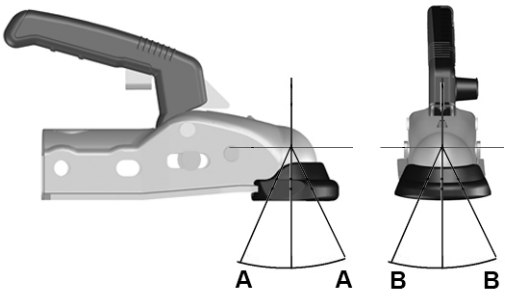


Figure 36: Ball hitch slewing angle

Item	Designation
A	Slewing circle 20°
B	Slewing circle 25°

1. Align the machine horizontally with the support wheel.

⚠ WARNING

Risk of crushing and becoming trapped while manoeuvring the truck towards the machine!

- Always manoeuvre the truck towards the machine with the help of a signaller.
- Make sure that no persons are located between the truck and the machine.
- Stop the truck when people enter the danger zone.

2. Slowly reverse the truck until it is approx. 1 m away from the machine.

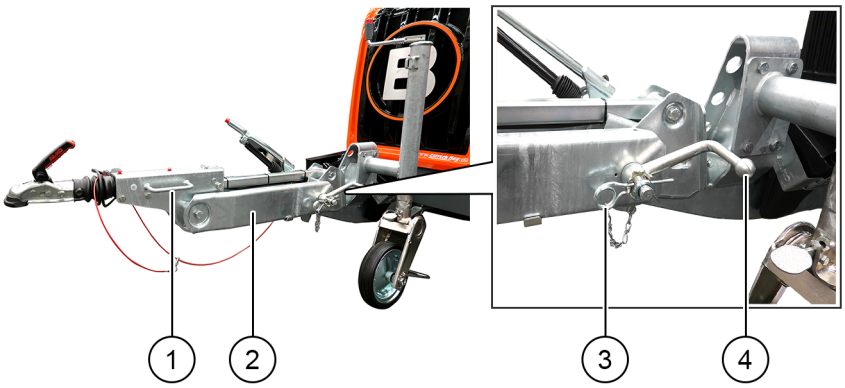


Figure 37: Trailer coupling height adjustment

Item	Designation
1	Handle
2	Articulated arm
3	Spring cotter pin
4	Locking toggle

3. Pull the spring pin out of the locking toggle.
4. Grip the handle, release the locking toggle and turn it anti-clockwise as far as it will go.
   ⇒ The height of the towing gear can now be adjusted.
5. Using the handle, align the towing gear according to the height of the trailer coupling on the truck.
6. Hold the position and tighten the locking toggle clockwise.
7. Secure the locking toggle firmly in place by tapping it with a rubber mallet. Turn the locking toggle further until the spring pin can be inserted into the bore in the height adjustment bolt.
8. Insert the spring pin into the bore in the bolt so that it engages.
9. After driving approx. 100 km, check again that the locking toggle is firmly seated.

5.3.4 Coupling and uncoupling the machine to and from the truck (ball hitch)

5.3.4.1 Coupling the machine

⚠ WARNING

Risk of crushing and becoming trapped while manoeuvring the truck towards the machine!

- Always manoeuvre the truck towards the machine with the help of a signaller.
- Make sure that no persons are located between the truck and the machine.
- Stop the truck when people enter the danger zone.

1. Reverse the truck close to the towing equipment of the machine.
2. Correct the height of the ball hitch with the support wheel.

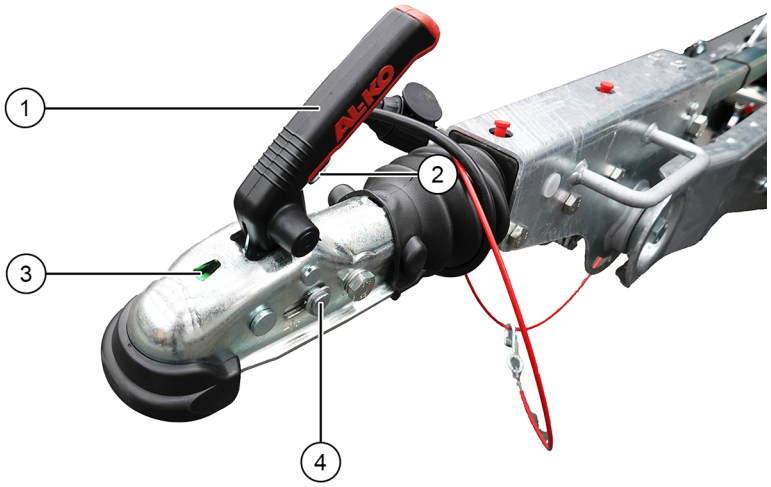


Figure 38: Ball hitch

Item	Designation
1	Hitch handle
2	Lock
3	Engagement indicator
4	Wear indicator

When the ball hitch is open, the hitch handle points diagonally upwards. A closed ball hitch must be opened before coupling.

3. Actuate the lock at the bottom of the hitch handle and pull the hitch handle upwards.
   ⇒ The ball hitch opens.
4. Align the machine with the truck so that the ball head on the truck and the ball hitch on the machine are aligned.
5. Slowly reverse the truck until the ball head is under the ball hitch.

⚠ WARNING

Risk of crushing fingers when locking the ball hitch!

Even slight pressure on the spherical cap of the ball hitch can trigger the locking mechanism and crush fingers.

- Only move the machine for coupling and uncoupling using the handle on the towing equipment and the support wheel.
- Do not reach into the open ball hitch.

6. Lower the machine with the support wheel until the ball hitch audibly engages.
   ⇒ The ball hitch engages automatically due to the weight of the machine.
   ⇒ The hitch handle is horizontal and the green engagement indicator becomes visible.
7. In addition, push the hitch handle all the way down by hand.

DANGER

Risk of accident if the machine detaches from the truck!

If the machine is not securely attached to the truck, the machine may detach while driving and cause serious accidents.

- Check the indicators for wear and correct engagement after every coupling process.
- Make sure that the machine cannot be moved if the ball hitch is defective or worn.

8. Check the wear indicator.
   ⇒ If the wear indicator is in the negative range, you must abort the process and replace any worn parts. The machine must not be moved in this case.

DANGER

Risk of accident due to sudden locking of the machine wheels!

If the brake safety cable is unintentionally tensioned during transport, the wheels of the machine may lock. The machine can cause a serious accident.

- Attach the brake safety cable to the truck with sufficient slack.
- Attach the brake safety cable to the truck in such a way that it does not drag on the ground and cannot get caught on the road surface.

9. Attach the brake safety cable to the truck with sufficient slack so that it is not unintentionally tensioned or drags on the ground while driving.
10. Remove the chocks and insert them into the holders.

Machine with support feet:

11. Move the support feet to the transport position.
12. Move the support wheel to the transport position.
13. Release the machine's parking brake.
14. Plug the trailer cable plug of the machine into the trailer socket of the truck.
15. Check the function of the machine's lighting equipment.
16. Check the wear indicator again after a short journey (approx. 500 m).

During this short journey, the hitch mechanism will readjust to the maximum extent possible.

5.3.4.2 Uncoupling the machine

1. Park the truck with the machine.
2. Lower the support wheel of the machine until it is in contact with the ground.
3. Detach the brake safety cable from the truck.
4. Disconnect the trailer cable plug of the machine from the trailer socket of the truck.
5. Apply the machine's parking brake.
6. Additionally secure the machine against rolling away with chocks.
7. Actuate the lock at the hitch handle and pull the hitch handle upwards.
8. Raise the machine with the support wheel until the towing equipment is completely separated from the ball head.
9. Drive the truck away.

5.3.5 Coupling and uncoupling the machine to and from the truck (towing ring)

5.3.5.1 Coupling the machine

⚠ WARNING

Risk of crushing and becoming trapped while manoeuvring the truck towards the machine!

- Always manoeuvre the truck towards the machine with the help of a signaller.
- Make sure that no persons are located between the truck and the machine.
- Stop the truck when people enter the danger zone.

1. Slowly reverse the truck until it is approx. 1 m away from the machine.
2. Open the drawbar coupling on the truck.
3. Align the machine with the truck so that the towing ring and the jaw are aligned with each other.
4. Slowly reverse the truck towards the machine until the towing ring is audibly locked by the coupling pin in the jaw.
5. Engage a forward gear and drive off briefly to check whether the trailer coupling is closed.

⚠ DANGER

Risk of accident if the machine detaches from the truck!

If the machine is not securely attached to the truck, the machine may detach while driving and cause serious accidents.

- Check the indicators for wear and correct engagement after every coupling process.
- Make sure that the machine cannot be moved if the ball hitch is defective or worn.

6. Check the locking of the trailer coupling on the truck (e.g. control indicator, control signal).

⚠ DANGER

Risk of accident due to sudden locking of the machine wheels!

If the brake safety cable is unintentionally tensioned during transport, the wheels of the machine may lock. The machine can cause a serious accident.

- Attach the brake safety cable to the truck with sufficient slack.
- Attach the brake safety cable to the truck in such a way that it does not drag on the ground and cannot get caught on the road surface.

7. Attach the brake safety cable to the truck with sufficient slack so that it is not unintentionally tensioned or drags on the ground while driving.
8. Remove the chocks and insert them into the holders.

Machine with support feet:

9. Move the support feet to the transport position.
10. Move the support wheel to the transport position.
11. Release the machine's parking brake.
12. Plug the trailer cable plug of the machine into the trailer socket of the truck.
13. Check the function of the machine's lighting equipment.

5.3.5.2 Uncoupling the machine

1. Park the truck with the machine.
2. Lower the support wheel of the machine until it is in contact with the ground.
3. Detach the brake safety cable from the truck.
4. Disconnect the trailer cable plug of the machine from the trailer socket of the truck.
5. Apply the machine's parking brake.
6. Additionally secure the machine against rolling away with chocks.
7. Open the drawbar coupling on the truck.
8. Engage a forward gear and drive the truck away.

5.4 Setting up the machine at the site of use

5.4.1 Selecting the set-up site

As a rule, the site management determines the set-up site for the machine and prepares the site accordingly. However, the responsibility for setting up the machine safely falls on the machine operator.

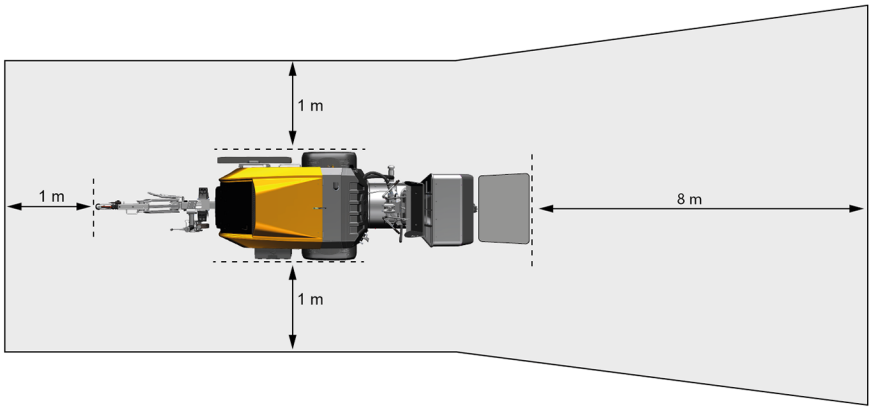


Figure 39: Working area

The machine set-up site must meet the following conditions:

- The supporting ground must be even and firm and must have a sufficient load-bearing capacity.

  The supporting ground must be able to support the weight of the machine and must be firm enough to absorb the forces passed into the ground via the machine. There must not be any voids or ground unevenness under the machine.
- A clearance of at least 1 m must be provided around the machine. It must be possible to open the machine hood unhindered.

  If the machine is equipped with a feeder (B, BS) and a scraper (BS), a corridor that is 8 m long and approx. 6 m wide must be kept clear behind the machine for the bulk material.
- If the set-up site is located on a platform or a higher floor, the working area must be equipped with suitable fall protection.
- The set-up site must be sufficiently illuminated.
- The set-up site must be sufficiently ventilated.
- The set-up site must not be within the danger zone of higher places of work.

  Falling items endanger the machine operator and can damage the machine.

- Fire-fighting resources must be available near the set-up site.
- The delivery line must be laid in wide arches and must not be kinked.
- Hoses and lines should not lie on top of each other and must not be laid along sharp edges or pointed objects.
- Hoses and lines should be as short as possible.

1. Carefully check the intended set-up site.
2. Reject the set-up site if it does not meet the requirements.

5.4.2 Setting up and securing the machine

Prerequisites:

✓ Machine set down with crane at unloading point
✓ Machine uncoupled from the truck

NOTICE

Machine damage if the tilt angle is too large!

The full range of machine functions is not available with large tilt angles. These conditions will lead to increased wear or machine damage.

- ▸ Only set up the machine in accordance with the tilt tolerance in the technical data.
- ▸ Do not operate the machine if the tilt tolerance cannot be observed.

1. Remove the chocks and insert them into the holders.
2. Release the machine's parking brake.

⚠ WARNING

Risk of crushing and becoming trapped while manoeuvring the machine!

- ▸ Always manoeuvre the machine with an assistant.
- ▸ Make sure that there are no persons in the danger zone.
- ▸ Stop the machine when people enter the danger zone.

3. Push the machine onto the set-up site with an assistant.

4. Apply the machine's parking brake.
5. Additionally secure the machine against rolling away with chocks.
6. Remove the cam buckle strap securing the feeder.

5.4.3 Supporting the machine

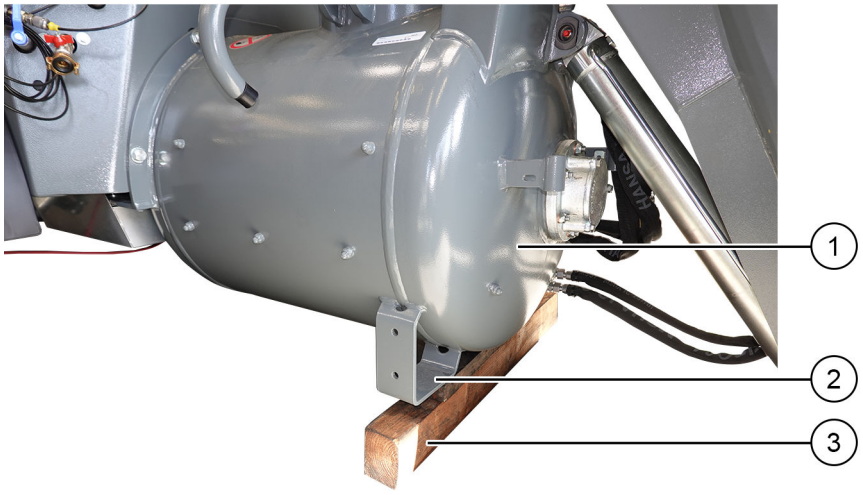


Figure 40: Machine without support feet

Item	Designation
1	Mixing vessel
2	Support foot holder
3	Timber block

1. Align the machine as horizontally as possible with the support wheel.
2. Place a suitable timber block under the support foot holders or lower the support feet (option) to the ground.
3. Retract the support wheel until it is completely relieved.
   ⇒ The machine rests on the timber block or on the support feet (option).

Figure 41: Lighting equipment socket

Item	Designation
1	Socket

4. Pull the plug of the lighting equipment out of the socket on the machine.

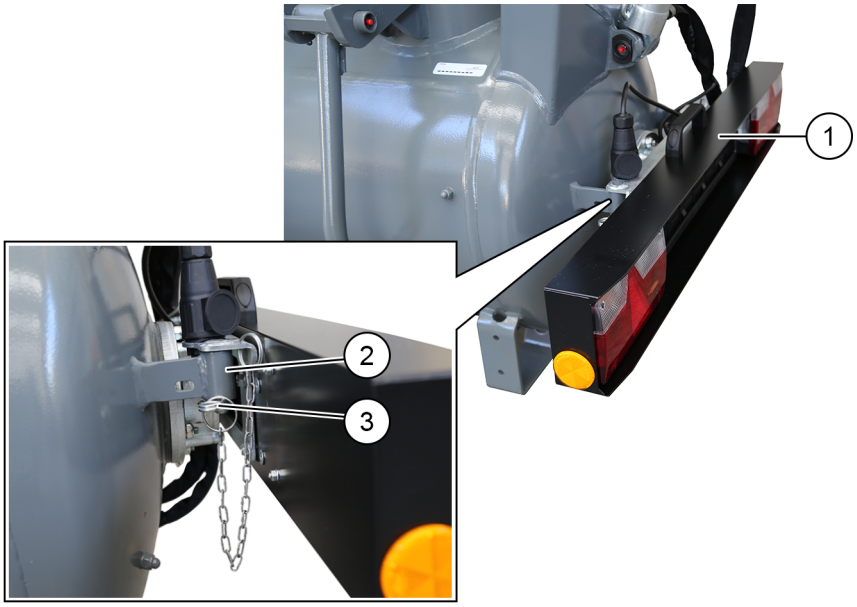


Figure 42: Lighting equipment

Item	Designation
1	Lighting equipment
2	Mixing vessel retainer
3	Spring cotter pin

5. Pull the spring pins out of the bolts of the lighting equipment.
6. Remove the lighting equipment from the retainers.
7. Insert the lighting equipment with the bolts into the retainers on the side of the frame.
8. Insert the spring pins in the bolts through the bores.
9. Wind up the electrical cable of the lighting equipment.

5.4.4 Connecting the delivery line

Use only original Putzmeister delivery lines designed for the prescribed operating and burst pressures. The delivery line must be laid carefully from the machine to the placement site.

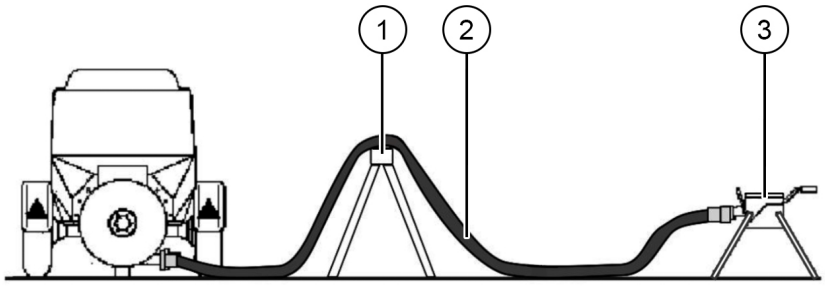


Figure 43: Delivery line laid

Item	Designation
1	Support trestle
2	Delivery line
3	Discharge stand

1. Set up the discharge stand at the placement site.
2. Clean the sealing surfaces on the delivery line and on the wear connection of the mixing vessel.
3. Connect the delivery line to the wear connection and secure it.
4. Set up a support trestle near the machine.
5. Lay the delivery line over this support trestle.
6. For long delivery distances, set up a support trestle every 20 metres.
7. Lay the delivery line over these support trestles.

Laying the delivery line over the support trestles supports the plug formation in the delivery line. If the delivery line is laid straight, there is a risk that the air cushion will overtake the plug, causing the output to drop and more blockages to form.

With a short delivery line or if the delivery line is routed upwards to the placement site shortly after the machine, you can also lay the delivery line over the drawbar of the machine without support trestles.

8. Secure the delivery line on the drawbar, the support trestles or the scaffolding with hose clamps so that the forces occurring can be absorbed and dissipated.
9. Secure the delivery line in the coupling areas to ensure you are not constricting the delivery line.
10. Clean the sealing surface on the delivery line and discharge stand.
11. Connect the delivery line to the discharge stand and secure it.

6 Starting up the machine

This chapter contains information on starting up the machine. In addition to information on initial commissioning, you will receive an overview of how to prepare the machine for use after a long period of downtime.

The operating personnel must be instructed on the machine during the initial commissioning.

The machine operating company assumes full responsibility for the safety of persons working with and on the machine every time it is used. The operating company is under an obligation to ensure the operational safety of the machine.

6.1 Inspection prior to commissioning in line with the BetrSichV

Putzmeister Mortar Machines GmbH has been supplying compressed-air conveyors for the German market with successfully completed inspection prior to commissioning in accordance with Section 15 of the German Ordinance on Industrial Safety and Health (BetrSichV) since 1st March 2005. The machine is therefore ready for immediate use. The inspection certificate is a constituent part of the documentation for the machine.

The conditions of use for the machine must not deviate from those on which the inspection prior to commissioning by Putzmeister Mortar Machines GmbH was based. In the event of deviating conditions of use, the correct installation of the machine must be inspected and certified by a subject expert.

Machines that are used outside Germany must be inspection in accordance with the regulations applicable in the country of use.

6.1.1 Recurring inspections

The mixing vessel on the machine is a pressure vessel and therefore requires monitoring. It must be inspected regularly to ensure that it is safe to operate. Recurring inspections include external inspections, internal inspections and strength tests. The recurring inspections must be carried out by an authorised supervision institution, e.g. TÜV or Dekra.

The maximum intervals for recurring inspections in accordance with the BetrSichV are 60 months (5 years) for the internal inspection and 120 months (10 years) for the strength test.

Mixing vessel

The wall thickness of the mixing vessel must be checked at regular intervals. If the wall thickness is less than 7 mm, the mixing vessel must be replaced.

Load cycle (duty cycle)

A duty cycle of the machine (filling, mixing, pumping) is described as a load cycle. The mixing vessel must be subjected to an internal inspection when half of the permitted load cycles have been reached, from a wall thickness of 8.5 mm or after 60 months at the latest. This inspection can be supplemented with suitable non-destructive tests.

Highly stressed areas such as the filling dome – vessel casing weld seam and the weld seams of the hinges must be included in the inspection.

The operating company must record the number of load cycles and initiate the necessary inspections. When the permitted number of load cycles is reached, the mixing vessel must be inspected again. If cracks or damage are detected, the mixing vessel must be replaced. If necessary, minor damage can be repaired with suitable measures, provided this is compatible with the nationally applicable regulations.

Hydraulic strength test

Strength tests must be carried out in Germany in accordance with BetrSichV or TRBS 1201 Part 2. The pressure used is usually 1.3 times the maximum permitted pressure (PS). Water is used as the test medium.

In other countries, the national regulations applicable there must be taken into account.

6.2 Checks before starting up

Before starting up, you must check the condition of the machine and then carry out a test run. During the test run, different functions are checked. If defects are identified during the test run, these must be rectified immediately.

1. Unlock and open the machine hood.
2. Unlock and remove the rear cover of the machine.
3. Switch off the machine at the MAIN SWITCH and secure it to prevent accidental switch-on.

6.2.1 General visual check

1. Check the general condition of the machine.
2. Note the results of the inspection if necessary.

For machines with a feeder (B, BS), the lighting equipment at the rear of the machine must be removed. Only then can the feeder be lowered completely without damaging the lighting equipment.

Visual check	Reference	Result ✓ / –
Suitability of the machine's set-up site	*(Selecting the set-up site P. 5 — 18)*	
Condition of the machine (e.g. damage, defects)	–	
Warning and information plates on the machine	*(Warning plates P. 2 — 15)*	
Condition and position of EMERGENCY STOP button and safety grid	–	
Filling levels of the operating equipment	*(Checking functional fluid levels P. 10 — 8)*	
Condition of the wear parts in the mixing vessel Mixer blades and wear plates: e.g. deformations, holes, increased wear, distance between the mixer blades and the wear plates (15±2 mm) Mixer shaft bearings: e.g. torn sealing washers, leakage of cement slick-pak on the gearbox side, loss of compressed air via the mixer shaft bearings	–	
Condition of the radiator assembly, clean the radiator assembly if necessary	*(Cleaning the radiator P. 10 — 30)*	
Condition and installation of the delivery line	–	
Lubrication points, lubricate machine if necessary	*(Lubricating the machine P. 10 — 15)*	
Condition of electrical system	–	
Condition of hydraulic system	–	
Condition of the compressed air system	–	
Condition of connecting elements (e.g. bolted connections, terminals)	–	

Table 7: Visual inspection checklist

If defects or damage to the machine have been detected:

3. Remedy any defects found or commission repairs. Only start up the machine if it is free of defects.

6.3 Refuelling the machine

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

Figure 44: Fuel tank

Item	Designation
1	Lid
2	Fuel tank

DANGER

Risk of fire from fuel igniting!

Fuel can vaporise on hot surfaces and then ignite or be ignited by open fire or sparks.

- Switch off the engine.
- Have a fire extinguisher ready.
- Stop any work that generates sparks in the vicinity of the machine.
- If applicable, stop smoking.
- Keep any sources of ignition well away (e.g. mobile phone, naked flames).
- Cover hot machine components with heatresistant materials.

If you fill up with fuel from tanks:

- Use a funnel to fill in the fuel.
- Wipe up any spilled or escaping fuel with an absorbent material.

DANGER

Risk of death if fuel is swallowed or enters the respiratory passage!
Risk of injury from contact with skin or eyes!

Fuel is harmful to health.

- Wear protective gloves and protective goggles.
- Only fill the machine with fuel outdoors or in sufficiently ventilated spaces.
- Do not breathe in fuel vapours.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.
- **If swallowed:** Consult a doctor immediately or contact the Poisons Information Centre.

NOTICE

Machine damage due to using the wrong fuel!

- Only fill the fuel tank with fuel that fulfils the necessary specifications.
- Use the appropriate fuel for the ambient temperature.

1. Unscrew the fuel tank lid from the filler pipe.

2. Fill the fuel tank with fuel *(Fuel P. 12 — 2)*.
3. Seal the fuel tank filler pipe with the lid.

6.4 Starting up the compressor again

After the compressor has been out of operation for a longer period (more than two months), approx. 0.1 litres of compressor oil must be filled into the draw-in controller before commissioning. The compressor oil must wet the rotors of the compressor.

Prerequisites:

✓ The engine is switched off
✓ The machine hood is open
✓ Rear machine cover removed

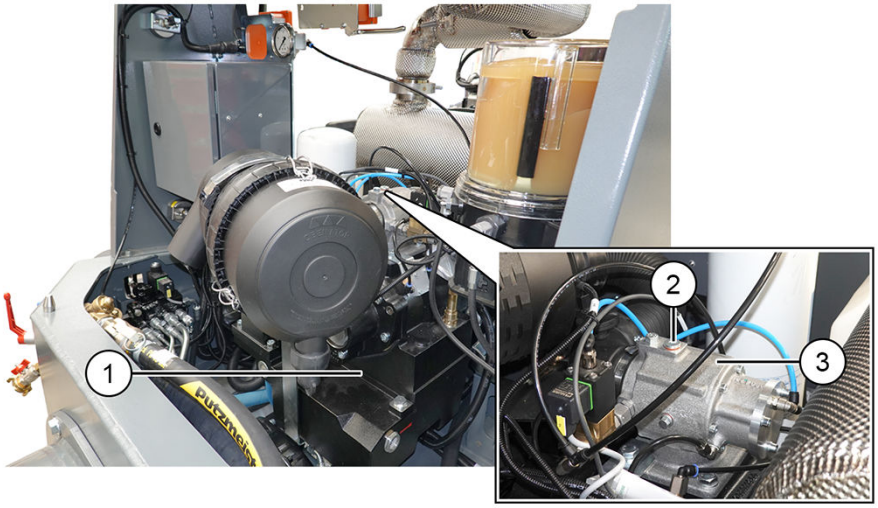


Figure 45: Compressor draw-in controller

Item	Designation
1	Compressor
2	Bolt
3	Draw-in controller

1. Unscrew the bolt from the draw-in controller housing.
2. Insert a suitable hose into the opening.
3. Place a suitable funnel on the other end of the hose.
4. Add approx. 0.1 litres of compressor oil into the compressor via the draw-in controller *(Compressor oil P. 12 — 3)*.

5. Remove the funnel with the hose.
6. Screw the bolt into the draw-in controller housing.
7. Wait approx. 10 minutes until the compressor oil has dispersed.
8. Start the engine briefly before the test run and switch it off again immediately *(Carrying out a test run P. 6 — 8)*.

➔ The compressor is ready for use again.

6.5 Carrying out a test run

The machine test run must be carried out each time before starting work. During the test run, all machine functions are checked. If malfunctions, defects or faults are identified during the test run, these must be rectified immediately. The machine must only be started up if it is free of defects.

Prerequisites:

✓ The machine hood is open
✓ Visual checks on the machine are complete
✓ The machine has no recognisable defects
✓ Machine refuelled

6.5.1 Switching on the machine, starting the engine

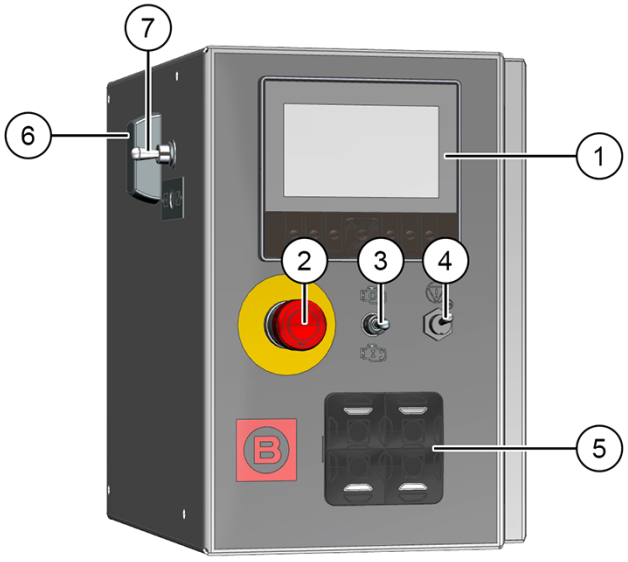


Figure 46: Control box

Item	Designation
1	Display
2	EMERGENCY STOP button
3	Engine toggle switch
4	“Acknowledge” toggle switch
5	Keypad
6	Main switch
7	Radio remote control toggle switch

NOTICE

Damage to components when pumping without load!

If the machine is operated for a longer period (more than 5 min) in delivery operation without load, the oil trap can become clogged with compressor oil. The oil trap may need to be replaced.

- ▶ Do not run the machine for longer than 5 minutes without back pressure.

1. Press the green button of the MAIN SWITCH on the control box.
   ⇒ The control box and engine management are supplied with power.
2. Position and lock the rear cover of the machine.

3. Close and lock the machine hood.

If the machine has just been switched on:

4. Press the ACKNOWLEDGE TOGGLE SWITCH on the control box.
5. Press the ENGINE TOGGLE SWITCH on the control box.
   ⇒ The engine starts.

The ACKNOWLEDGE TOGGLE SWITCH only needs to be pressed when the engine is started for the first time after switching on the machine.

After an EMERGENCY STOP, its triggering reason must be eliminated, the EMERGENCY STOP BUTTON unlocked and the process acknowledged. Only then can the engine be started.

When recommissioning after more than two months:

6. Switch the engine off again immediately after it has started up.
7. Then restart the engine and continue with the test run.

6.5.2 Checking the EMERGENCY STOP function

1. Check the general condition of the EMERGENCY STOP BUTTON visually.
2. Press the MIXING IN CONTINUOUS OPERATION BUTTON.
   ⇒ The LED on the MIXING IN CONTINUOUS OPERATION BUTTON lights up green.
   ⇒ The mixing process is started and the mixer starts up.
3. Press one of the EMERGENCY STOP BUTTONS while the engine is running.
   ⇒ All hydraulically powered functions are switched off. The engine continues to run.
   ⇒ The message SAFETY CIRCUIT OPENED is shown on the display.
   ⇒ The LEDs of all keypad buttons flash red.
4. Unlock and pull the EMERGENCY STOP BUTTON by turning it anticlockwise.
5. Press the ACKNOWLEDGE TOGGLE SWITCH.
   ⇒ The main menu appears on the display.
   ⇒ All functions that are hydraulically powered can be restarted.

6.5.3 Checking the function for switching off the mixer when the safety grid is opened

When opening the safety grid of the mixing vessel, the rotating mixer must be switched off. A safety switch detects the status of the safety grid.

Prerequisites:

✓ Mixing vessel lid open

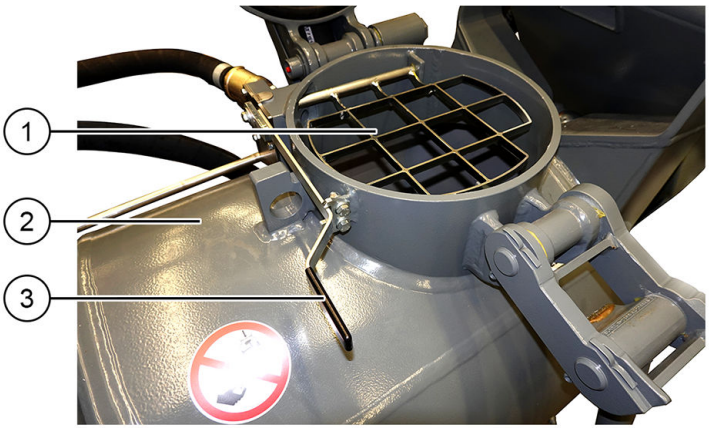


Figure 47: Safety grid

Item	Designation
1	Safety grid
2	Mixing vessel
3	Lever

1. Start the engine.
2. Press the MIXING IN CONTINUOUS OPERATION BUTTON.
   ⇒ The LED on the MIXING IN CONTINUOUS OPERATION BUTTON lights up green.
   ⇒ The mixer starts to run.
3. Unlock the lever and open the safety grid.
   ⇒ All hydraulically powered functions are switched off. The engine continues to run.
   ⇒ The message SAFETY CIRCUIT OPENED and the safety grid symbol are shown on the display.
   ⇒ The LEDs of all keypad buttons flash red.
4. Close the safety grid.
5. Lock the safety grid with the lever.

6. Press the ACKNOWLEDGE TOGGLE SWITCH.
   ⇒ The main menu appears on the display.
   ⇒ The mixing function can be restarted.

   If you detect defects or damage to the machine:
7. Switch off the engine.
8. Remedy any defects found or commission repairs. Only start up the machine if it is free of defects.

6.5.4 Carrying out function tests

1. Check the hydraulically powered functions (e.g. mixing, raising and lowering feeder (B, BS), scraper cable winch (BS)).
2. Check the operation of the machine using the keypad buttons and the radio remote control.
3. Check the readings on the display and the pressure gauges.
4. Note the result of the function tests.

6.5.5 Switching off the engine, switching off the machine

1. Press the ENGINE TOGGLE SWITCH.
   ⇒ The engine runs for a further 5 seconds at a speed of 2000 rpm.
   ⇒ All functions that require the engine to run are switched off. The engine is then switched off.
2. Press the red button on the MAIN SWITCH.

6.6 Spraying the machine with barrier agent (e.g. mould oil)

The machine can be sprayed with a suitable barrier agent before the start of work. The barrier agent prevents concrete from sticking to the machine during operation. The machine can then be cleaned more easily. The barrier agent can be applied with a commercially available pump spray bottle or with a spray gun (compressed air).

Applying barrier agent with a spray gun

1. Switch on the machine at the MAIN SWITCH.
2. Close and lock the machine hood.

3. Start the engine.
4. Close the header air and delivery air valves.
5. Start delivery operation in idle mode *(Delivery P. 7 — 18)*.
6. Connect the compressed air hose to the spray gun.
7. Connect the compressed air hose to the air port on the machine.
8. Fill the spray gun container with barrier agent and seal it.
9. Open the shut-off valve of the air port.

⚠ DANGER

Risk of death from swallowing or breathing in mould oil!

Mould oil can be fatal if it is swallowed or enters the respiratory passages.

- Wear protective gloves, protective goggles and respiratory protection when applying mould oil to the machine.
- **If swallowed:** Immediately call a poisons information centre or doctor. Do not induce vomiting.

NOTICE

Damage to machine components due to mould oil!

Mould oil releases plasticisers from plastics and can loosen adhesive bonds on machine components (e.g. display, operating elements).

- Do not apply any mould oil to the display or operating elements.
- Clean the display and the operating elements with water if they have been wetted with mould oil.

10. Cover the display and operating elements on the control box with suitable auxiliaries.
11. Apply mould oil evenly to the surface of the machine.
12. Close the shut-off valve of the air port.
13. End the delivery operation.
14. Disconnect the compressed air hose from the air port on the machine.
15. Disconnect the compressed air hose from the spray gun.

After finishing work, clean the areas and components that have not been sprayed with barrier agent with clean water and a sponge.

7 Operation

This chapter contains information on safely operating the machine.

A basic distinction is made between the following machine operating modes:

- Mixing
- Delivery

7.1 Requirements for the safe operation of the machine

Before working with the machine, make sure that the following conditions are met:

- The machine is set up safely.
- The machine has been started up.
- The delivery line is connected and laid properly.

NOTICE

Damage to components when pumping without load!

If the machine is operated for a longer period (more than 5 min) in delivery operation without load, the oil trap can become clogged with compressor oil. The oil trap may need to be replaced.

▶ Do not run the machine for longer than 5 minutes without back pressure.

If a fault occurs during operation, refer to the “Rectifying faults” chapter. Contact the manufacturer’s After Sales department if you are unable to rectify the fault yourself.

7.2 Shutting down the machine in an emergency

7.2.1 EMERGENCY STOP button

In situations where persons are directly at risk or the machine itself could be damaged, the machine must be stopped immediately – EMERGENCY STOP. An EMERGENCY STOP can be triggered manually via an EMERGENCY STOP button. The machine is then brought into a safe state.

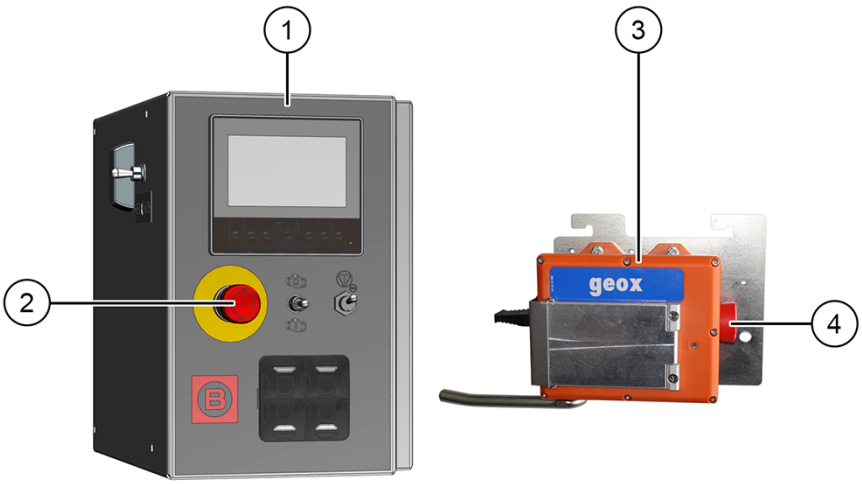


Figure 48: EMERGENCY STOP button

Item	Designation
1	Control box
2	EMERGENCY STOP button
3	Radio remote control (BS)
4	EMERGENCY STOP button (scraper)

Only press the EMERGENCY STOP BUTTON if people or the machine are actually at risk. Familiarise yourself with the position of the EMERGENCY STOP buttons on the machine.

7.2.2 Triggering the EMERGENCY STOP

If danger is imminent:

1. Press an EMERGENCY STOP BUTTON.
   ⇒ The machine is brought into a safe state.

If required:

2. Take first aid measures.
3. Note down the incident and report it in line with company guidelines.
4. Find and rectify the cause of the fault. If necessary, contact the manufacturer's After Sales department.

7.2.3 Cancelling the EMERGENCY STOP

Once the cause of the fault has been rectified:

1. UNLOCK AND PULL THE EMERGENCY STOP BUTTON that was operated by turning it anti-clockwise.
2. Press the ACKNOWLEDGE TOGGLE SWITCH.
   ⇒ The machine is now ready for use again.

7.3 Displaying operating parameters

While operating the machine, you can have various operating parameters shown on the display.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

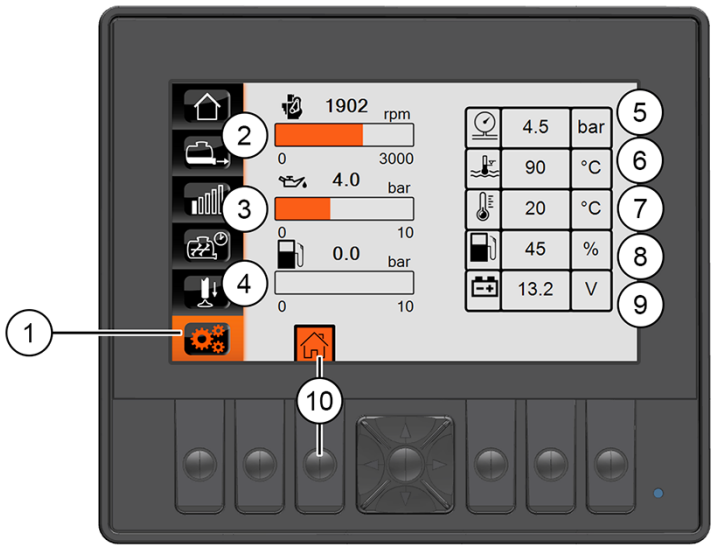


Figure 49: “Technology” menu

Item	Designation
1	“Technology” menu
2	Engine speed
3	Engine oil pressure
4	Fuel inlet pressure
5	Pressure in the mixing vessel (delivery pressure)
6	Engine coolant temperature
7	Ambient temperature
8	Fill level in fuel tank
9	Battery voltage
10	Back to the main menu

1. Select the TECHNOLOGY menu using the buttons on the D-pad.
   ⇒ The TECHNOLOGY menu is displayed.
2. Select the “Back to the main menu” option to stop displaying the operating parameters.

7.4 Flushing the delivery line with water

The entire delivery line must be flushed with water before you start the delivery operation. This prevents the screed that is transported through the delivery line from sticking. If the delivery line has been heated, for example by strong sunlight, semi-dry floor screed tends to

stick to the dry inner wall. Blockages are the result. The water cools the delivery line and at the same time reduces the sliding friction of the semi-dry floor screed on the inner wall.

Prerequisites:

✓ Machine switched on

✓ Discharge stand and delivery line connected

✓ Feeder (B, BS) lowered

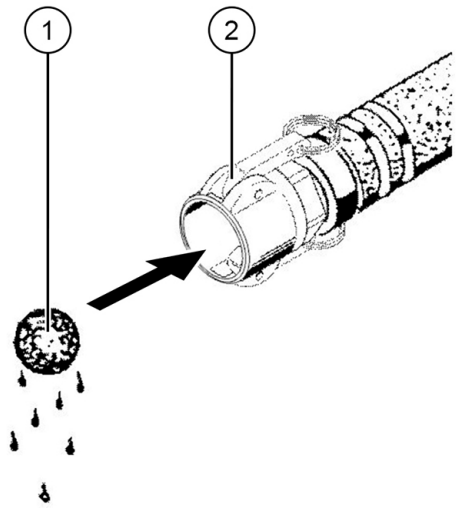


Figure 50: Sponge ball in delivery line

Item	Designation
1	Sponge ball
2	Delivery line

1. Disconnect the delivery line from the wear connection on the mixing vessel.
2. Soak a sponge ball in water.
3. Push the sponge ball into the delivery line.
4. Connect the delivery line to the wear connection.

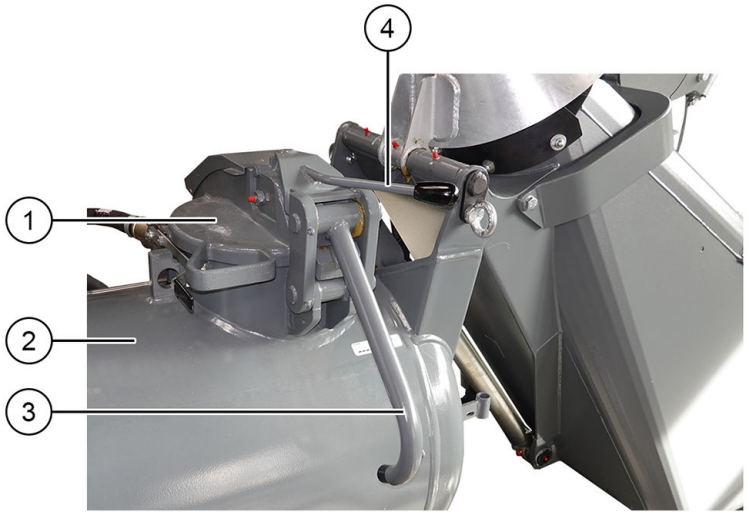


Figure 51: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

5. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.
6. Pull the quick-release lever upwards and unlock the lid of the mixing vessel.
7. Open the lid of the mixing vessel.
8. Fill the mixing vessel with water .

Required water volume: approx. 10% of the total volume of the delivery line. Only then is it possible to sufficiently wet the inner wall of the delivery line. One metre of delivery line holds approximately 2 litres of water. If the delivery line is 50 m long, you must fill at least 10 l of water into the mixing vessel.

9. Close the lid of the mixing vessel.
10. Lock the lid of the mixing vessel with the quick-release lever.
11. Lock the quick-release lever with the securing lever.

12. Position a container of sufficient size underneath the discharge stand.
13. Start the engine.
14. Start pumping in manual operation *(Manual delivery P. 7 — 18)*.
    ⇒ This forces the sponge ball through the delivery line to the discharge stand.
15. Stop pumping in manual operation when the sponge ball has emerged from the discharge stand and the water has run out.
    ⇒ The delivery line is now ready for use.

7.5 Mixing

When mixing, the mixer in the mixing vessel rotates. The mixer is hydraulically driven and can be moved in the forward or reverse direction of rotation. Mixing mode is operated using the MIXING IN CONTINUOUS OPERATION BUTTON (forward) or the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON (reverse) on the keypad.

If the coolant temperature of the engine rises above 110 °C, mixing cannot be started.

7.5.1 Switching mixing in continuous operation on and off

Prerequisites:

✓ Engine is running
✓ Safety circuit closed and acknowledged
✓ Mixer stationary

1. Press the MIXING IN CONTINUOUS OPERATION BUTTON.
   ⇒ The LED on the MIXING IN CONTINUOUS OPERATION BUTTON lights up green.
   ⇒ The mixer rotates in the forward direction of rotation.
2. Press the MIXING IN CONTINUOUS OPERATION BUTTON again or press the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON.
   ⇒ The LED on the MIXING IN CONTINUOUS OPERATION BUTTON lights up blue.
   ⇒ The mixer is switched off.

If you keep pressing the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON, the mixer starts to run in the reverse direction of rotation after 1 s of standstill.

7.5.2 Setting the mixing time extension (option)

Extending the mixing time results in more even mixing of the material in the mixing vessel. The mixing time can be extended by up to 15 min (900 s). The mixing time extension is set in the MIXING TIME EXTENSION menu and starts when delivery operation is switched on.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

Figure 52: “Mixing time extension” menu

Item	Designation
1	“Mixing time extension” menu
2	Value in seconds
3	Increase the value
4	Delete the value

Item	Designation
5	Reduce the value
6	Back to the main menu

1. Select the MIXING TIME EXTENSION menu using the buttons on the D-pad.
   ⇒ The MIXING TIME EXTENSION menu is displayed.
2. Set the value for the mixing time extension. The possible options are shown on the display.
   ⇒ The set value is saved.

The mixing time extension is displayed in minutes and seconds. In the range from 0 to 60 s, the value is increased or decreased by 5 s each time the button is pressed. From 60 s, the value is changed in steps of 15 s. If the respective button is held down, the value changes automatically.

7.5.3 Switching mixing in hold-to-run command mode on and off

Prerequisites:

✓ Engine is running

✓ Mixer stationary

1. Press and hold the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON.
   ⇒ The LED on the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON lights up green.
   ⇒ The mixer rotates in the reverse direction of rotation.
2. Release the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON.
   ⇒ The LED on the MIXING IN HOLD-TO-RUN COMMAND MODE BUTTON lights up blue.
   ⇒ The mixer is switched off.

7.5.4 Preparing the mix, filling the mixing vessel

Machines with a feeder (B, BS) can be utilised very effectively. The feeder can be filled with sand during the mixing process. As soon as the screed is completely delivered, the sand can be poured directly from the feeder into the mixing vessel. For machines without a feeder, the sand must be filled into the mixing vessel by hand using a shovel.

Prerequisites:

✓ Lighting equipment removed

✓ Engine is running

⚠ WARNING

Risk of injury due to lowering the feeder!

- Do not reach between moving parts.
- Make sure that there are no persons or objects in the danger zone.

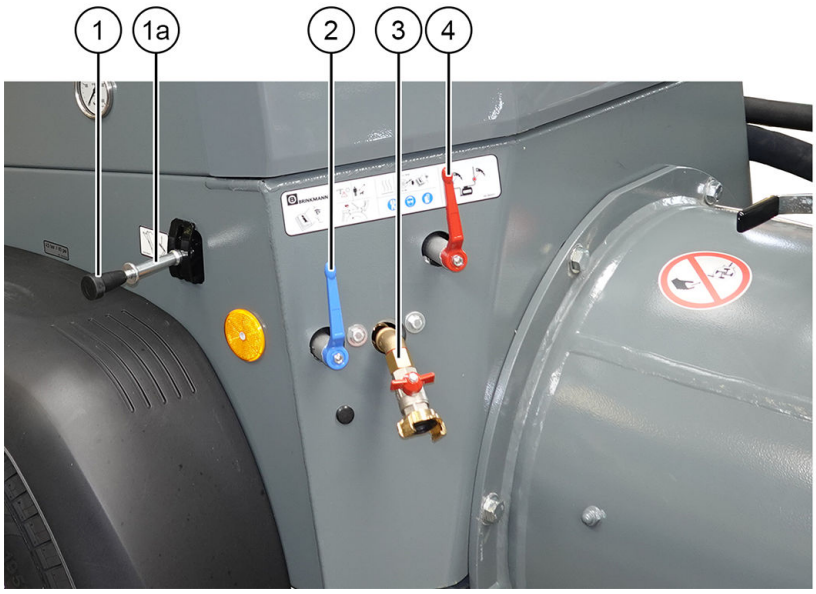


Figure 53: Operating elements on the machine

Item	Designation
1	Feeder lever (B, BS)
1a	Safety device
2	Delivery air valve lever
3	Air port with shut-off valve
4	Header air valve lever

1. Pull the feeder lever safety device towards the handle and push the feeder lever downwards.
   ⇒ The feeder is lowered to the ground.

2. Fill the feeder with sand. If necessary, use the scraper (BS) *(Filling the feeder with the scraper (BS) P. 7 — 14)*.
3. Switch on the mixer *(Mixing P. 7 — 8)*.

The mixing vessel must only be filled if the mixer is running and must not be overfilled. Overfilling the mixing vessel leads to overloading of the machine and increased wear.

4. If necessary, end the delivery process by pressing the AUTOMATIC DELIVERY BUTTON (if this was not ended automatically) or the MANUAL DELIVERY BUTTON (if the machine is already delivering).

In automatic operation, the delivery process ends automatically when the set switch-off pressure is reached.

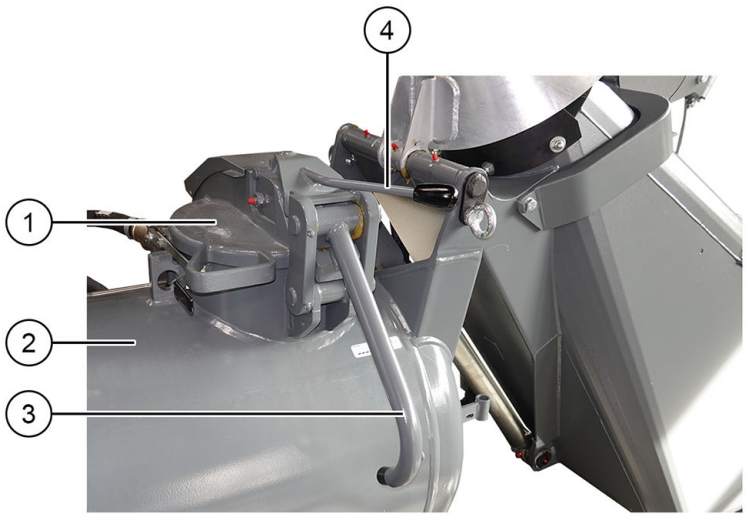


Figure 54: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

5. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.

6. Pull the quick-release lever upwards and unlock the lid of the mixing vessel.
7. Open the lid of the mixing vessel.
8. Fold the hopper onto the filler opening of the mixing vessel.
9. Make sure that the traction cable of the scraper cable winch does not interfere when raising the feeder. If necessary, unwind the traction cable from the scraper cable winch.
10. Pull the feeder lever safety device towards the handle and push the feeder lever upwards.
    ⇒ The feeder is raised.
    ⇒ The sand slides into the mixing vessel.

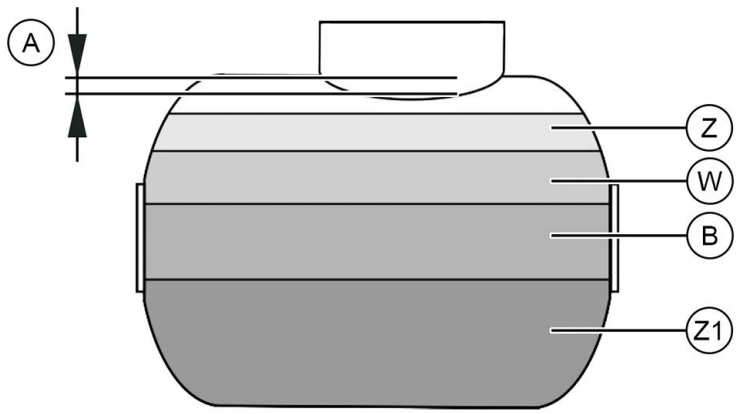


Figure 55: Mixing vessel filling

Item	Designation
A	Distance between maximum filling height and casing plate (15 mm)
B	Binder (cement)
W	Water
Z	Aggregate (e.g. sand), remainder in the feeder
Z1	Aggregate (e.g. sand)

11. Fill the mixing vessel no more than halfway with sand.
12. Pull the feeder lever safety device towards the handle and push the feeder lever downwards until no more sand is pouring in.

13. Fill the required amount of concrete additive into the mixing vessel.

⚠ CAUTION

Risk of injury when tearing open the bagged goods at the metal toothed strip!

- Always wear personal protective equipment (PPE).
- Ensure that you are standing safely.
- Grasp the bagged goods with both hands by the short sides and drop them onto the metal toothed strip above the safety grid of the mixing vessel.

14. Fill the required amount of binder (cement) into the mixing vessel.
15. Fill the required amount of water into the mixing vessel.
16. Pull the feeder lever safety device towards the handle and push the feeder lever upwards and allow the rest of the sand to pour into the mixing vessel. Observe the maximum filling height!
17. Pull the feeder lever safety device towards the handle and push the feeder lever downwards.
18. Fold the hopper upwards.
19. Close the lid of the mixing vessel.
20. Lock the lid of the mixing vessel with the quick-release lever.
21. Lock the quick-release lever with the securing lever.
    ⇒ The material in the mixing vessel is now mixed together.

7.5.5 Filling the feeder with the scraper (BS)

Machines with a feeder and a scraper can be utilised very effectively. Large quantities of sand can be filled into the feeder much faster with the scraper than by hand. The scraper also requires much less energy to use. The scraper is pulled to the feeder by a cable winch. The cable winch is operated using a radio remote control on the scraper.

The sand should be piled behind the machine, as close to the centre as possible, so that it can be pushed to the feeder directly in the pulling direction of the cable winch. If the sand is piled up at the side behind the machine and has to be pulled from there, the cable winch and the traction cable are subjected to much greater strain. This causes the cable winch and traction cable to wear out more quickly.

Prerequisites:

✓ Engine is running

Switching on the radio remote control

1. Unlock and open the machine hood.

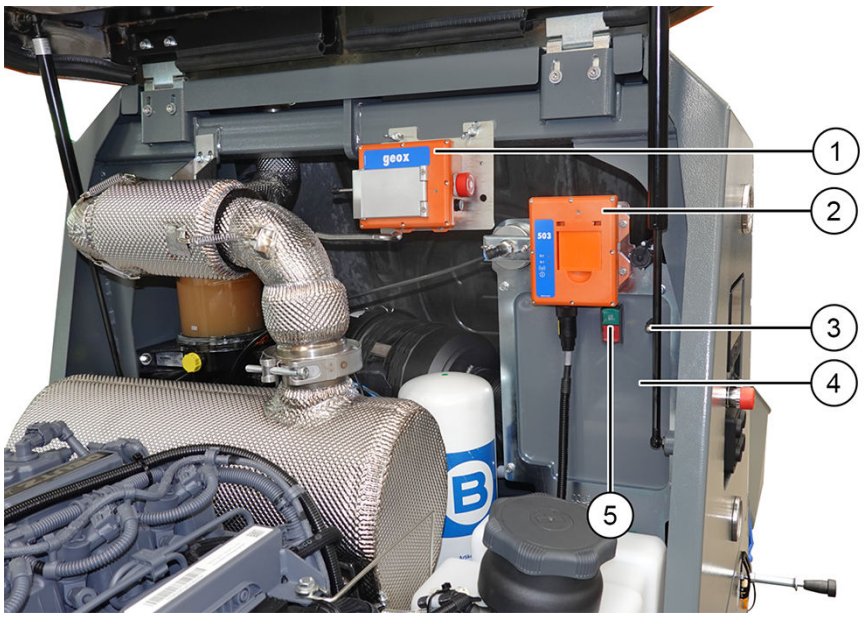


Figure 56: Control box and radio remote control

Item	Designation
1	Radio remote control (in rest position)
2	Radio remote control receiver
3	Radio remote control toggle switch
4	Control box
5	Main switch

2. Press the RADIO REMOTE CONTROL TOGGLE SWITCH on the control box.
3. Remove the radio remote control from the bracket.

4. Unlock the EMERGENCY STOP BUTTON on the radio remote control.
   ⇒ After a few seconds, the status display on the radio remote control lights up.
5. Check the condition of the radio remote control battery and replace it if necessary.

The radio remote control battery can be charged in the charging station on the radio remote control receiver.

6. Close and lock the machine hood.
7. Press the ACKNOWLEDGE TOGGLE SWITCH on the control box.
   ⇒ The radio remote control is now ready for use.

Operating the scraper

8. Attach the radio remote control to the scraper and secure it.
9. Attach the traction cable to the scraper.
10. Pull the scraper to the sand pile.
    ⇒ The traction cable is unwound from the cable winch.
11. Position the scraper.
12. Press the SCRAPER CABLE WINCH TOGGLE SWITCH on the radio remote control.
    ⇒ The cable winch pulls the scraper to the feeder and winds up the traction cable as long as the SCRAPER CABLE WINCH TOGGLE SWITCH is actuated.
13. Guide the scraper so that it hits the slide rail on the feeder and is then pulled up.
    ⇒ The scraper tilts and is swivelled forwards.
    ⇒ The sand falls into the feeder.
    ⇒ When the stop on the traction cable reaches the cable winch, the cable winch is switched off.
14. Release the SCRAPER CABLE WINCH TOGGLE SWITCH.
15. Pull the scraper back to the sand pile.

7.5.6 Switching the mix counter on and off

The mix counter records and saves the number of mixing processes.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

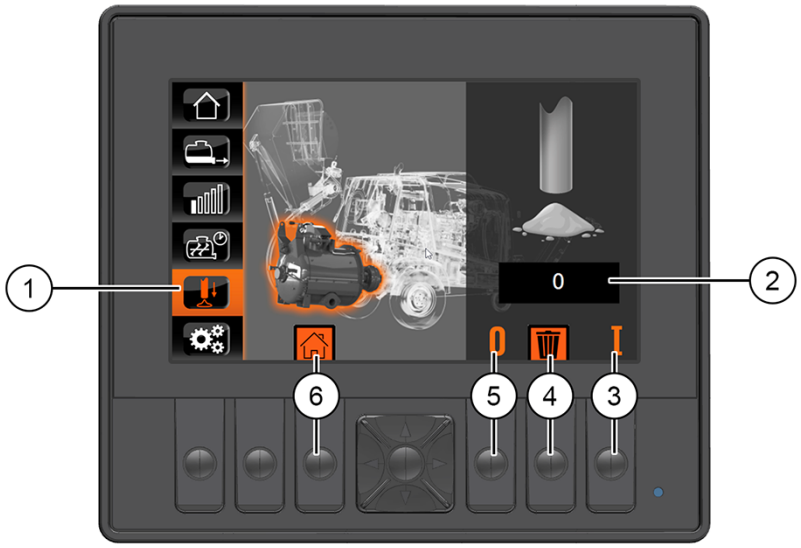


Figure 57: “Mix counter” menu

Item	Designation
1	“Mix counter” menu
2	Counter value
3	Mix counter ON
4	Delete the counter value
5	Mix counter OFF
6	Back to the main menu

1. Select the MIX COUNTER menu using the buttons on the D-pad.
   ⇒ The MIX COUNTER menu is displayed.
2. Switch the mix counter on or off. The possible options are shown on the display.
   ⇒ When switching on, the counter field is highlighted in green; when switching off, it is highlighted in white.
3. Press the “Delete counter value” button to reset the counter value.

7.6 Delivery

In delivery operation, compressed air is used to transport the semi-dry floor screed through the delivery line to the discharge stand at the placement site. The mixer in the mixing vessel must continue to rotate during delivery operation. The delivery process is operated using the AUTOMATIC DELIVERY BUTTON or the MANUAL DELIVERY BUTTON on the keypad.

Delivery operation can also be started when the mixer is stationary and is not stopped when the mixer is switched off.

Delivery operation cannot be started if the coolant temperature of the engine rises to over 110 °C or if the delivery pressure has already risen to 8 bar.

The pressure in the mixing vessel is continuously monitored. If the pressure rises above 8 bar in delivery operation, the speed of the engine is reduced and the draw-in controller on the compressor is switched off. The compressor then no longer draws in air (idling) and therefore does not generate any compressed air. Delivery is interrupted. When the pressure in the mixing vessel has subsequently dropped to below 7.5 bar, the delivery operation is continued.

If a mixing time extension has been set, delivery is delayed by the set time. Delivery operation can be switched on, but only starts after the mixing time has elapsed. The mixing time extension can be switched off by switching the delivery operation on and off again. The next time delivery operation is switched on, it starts immediately.

7.6.1 Manual delivery

When delivering in manual operation, the delivery process remains active as long as manual operation is switched on. The machine operator controls the delivery process manually.

Prerequisites:

✓ Engine is running
✓ Mixer running (recommended)
✓ Delivery line flushed with water

1. Press the MANUAL DELIVERY BUTTON.
   ⇒ The delivery process starts.
   ⇒ The LED on the MANUAL DELIVERY BUTTON lights up green.
   ⇒ The engine speed is increased.
2. Press the MANUAL DELIVERY BUTTON again.
   ⇒ The delivery process stops.
   ⇒ The LED on the MANUAL DELIVERY BUTTON lights up blue.
   ⇒ The engine speed is reduced.

7.6.2 Automatic delivery

During automatic delivery, the delivery process is controlled by the pressure in the mixing vessel. If the pressure in the mixing vessel falls below the set switch-off pressure, the delivery process is terminated. This reduces the dust ingress at the placement site at the end of the delivery process. The pressure in the mixing vessel drops when the mixing vessel is almost empty. The machine operator does not have to continuously monitor the machine.

Prerequisites:

✓ Engine is running
✓ Mixer running (recommended)
✓ Delivery line flushed with water

1. Press the AUTOMATIC DELIVERY BUTTON.
   ⇒ The LED on the AUTOMATIC DELIVERY BUTTON lights up green.
   ⇒ The engine speed is increased.
   ⇒ The delivery process starts.
2. Press the AUTOMATIC DELIVERY BUTTON again.
   ⇒ The LED on the AUTOMATIC DELIVERY BUTTON lights up blue.
   ⇒ The engine speed is reduced.
   ⇒ The delivery process stops.

Automatic operation can also be cancelled by pressing the MANUAL DELIVERY BUTTON.

7.6.3 Setting the delivery pressure

The delivery pressure is adjusted using the valves for header air and delivery air.

The pressure gauge located at the top of the frame indicates the pressure in the mixing vessel (delivery pressure).

Use the pressure gauge to check the settings you have made.

The required delivery pressure depends on:

- Length of delivery line
- Delivery height
- Material composition

Prerequisites:

✓ Mixer running (recommended)

✓ Delivery process started (manual, automatic operation)

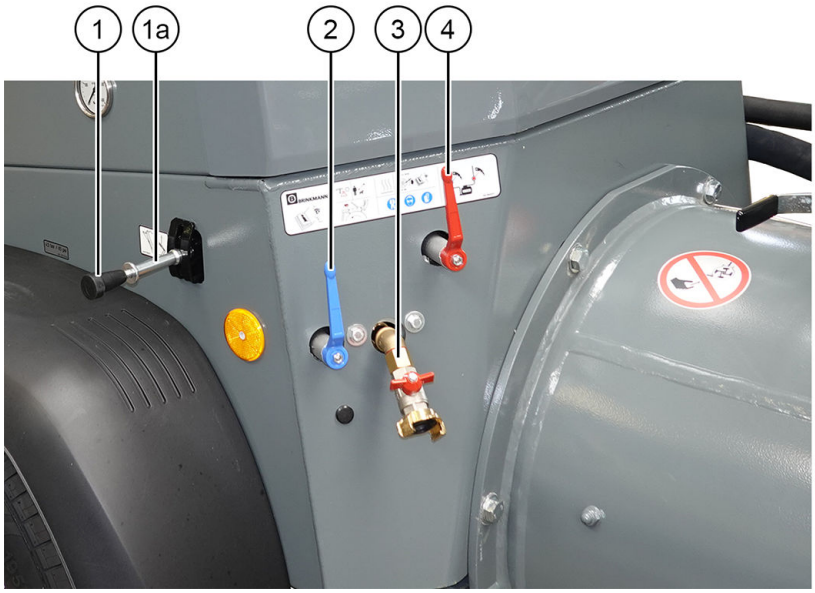


Figure 58: Operating elements on the machine

Item	Designation
1	Feeder lever (B, BS)
1a	Safety device
2	Delivery air valve lever
3	Air port with shut-off valve
4	Header air valve lever

The air valves are open in the vertical position and closed in the horizontal position.

1. Open the delivery air valve and header air valve approximately halfway.
2. Set the delivery pressure between 4 and 7 bar using the delivery air valve.

If the pressure in the mixing vessel does not rise:

3. Close the delivery air valve.
   ⇒ The air cannot escape via the delivery line. The pressure rises in the mixing vessel.
4. Open the header air valve a little further.
   ⇒ The pressure continues to rise in the mixing vessel.
5. Open the delivery air valve.

If the pressure rises to over 7 bar:

6. Open the delivery air valve further or close the header air valve partially or completely.

If the pressure drops below 4 bar:

7. Close the delivery air valve slightly or open the header air valve slightly more.

Once you have set the delivery air, retain the position of the air valves, even if the delivery process has ended or you have to interrupt it.

7.6.4 Ending delivery operation

At the end of the working day, the mixing vessel and the delivery line must be completely emptied. Emptying the delivery line is only possible in manual operation.

1. Switch from automatic operation to manual operation *(Manual delivery P. 7 — 18)*.
2. Run the mixing vessel empty.
3. Allow the delivery operation to continue until the delivery line is completely empty.

4. Check the pressure gauge display for the pressure in the mixing vessel.

   If the pressure gauge displays a value of 0 bar:

5. Press the MANUAL DELIVERY BUTTON.
   ⇒ The LED on the MANUAL DELIVERY BUTTON lights up blue.
   ⇒ The delivery process stops.

7.6.5 Setting the switch-off pressure

The switch-off pressure of the compressor is set to 2.4 bar by the manufacturer. This corresponds to a delivery line length of approx. 40 to 60 metres. A higher shut-off pressure must be set for longer delivery lines and poorly flowing screed. A lower shut-off pressure can be set for shorter delivery lines and when the screed is flowing well.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

Figure 59: "Switch-off pressure" menu

Item	Designation
1	"Switch-off pressure" menu
2	Set switch-off pressure
3	Increase the value

Item	Designation
4	Reduce the value
5	Back to the main menu

1. Select the SWITCH-OFF PRESSURE menu using the buttons on the D-pad.
   ⇒ The SWITCH-OFF PRESSURE menu is displayed.
2. Set the value for the switch-off pressure. The possible options are shown on the display.
   ⇒ The set value is saved.

7.6.6 Setting the output

If the machine is equipped with power management, you can change the output of the machine. This is done by increasing or decreasing the engine speed. The higher the engine speed, the higher the output. The power management system keeps the engine speed virtually constant and the output remains at the set level.

The following power levels can be set:

- ECO – 1900 rpm
- ECO intermediate level – 2100 rpm
- REGULAR – 2450 rpm
- POWER intermediate level – 2525 rpm
- POWER – 2600 rpm

The set power level is saved even after the machine is switched off.

The power management is set to REGULAR by the manufacturer.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

Figure 60: “Power management” menu

Item	Designation
1	“Power management” menu
2	Power level display (engine operating speed)
3	Increase the engine operating speed
4	Reduce the engine operating speed
5	Back to the main menu

1. Select the POWER MANAGEMENT menu using the buttons on the D-pad.
   ⇒ The POWER MANAGEMENT menu is displayed.
2. Set the power level (engine operating speed). The possible options are shown on the display.
   ⇒ The set power level is saved.

7.6.7 Connecting compressed air devices

The machine has a separate air port for operating various compressed air devices (e.g. compressed air gun).

Prerequisites:

✓ Engine is running

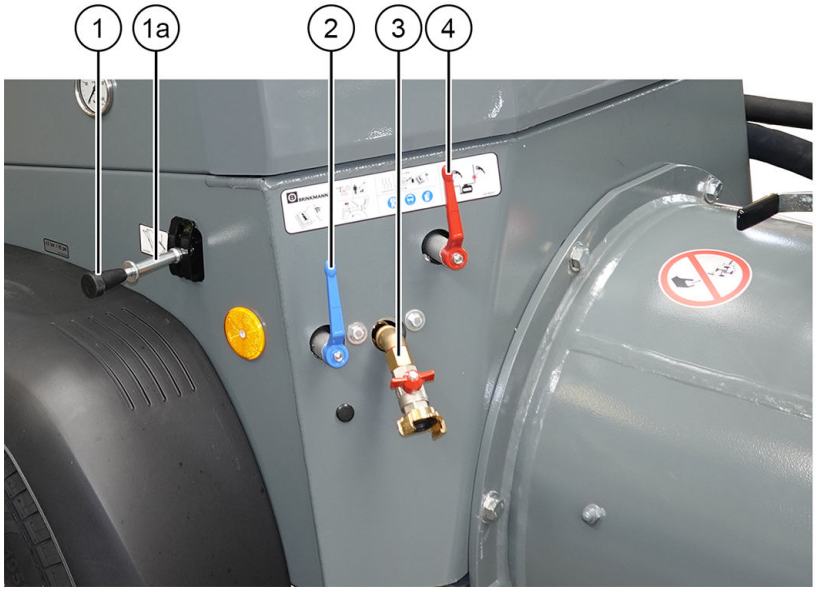


Figure 61: Operating elements on the machine

Item	Designation
1	Feeder lever (B, BS)
1a	Safety device
2	Delivery air valve lever
3	Air port with shut-off valve
4	Header air valve lever

⚠ WARNING

Risk of injury when handling compressed air devices!

- Always wear personal protective equipment (PPE).
- Do not direct the air jet, e.g. from a compressed air gun, at people.
- Do not use compressed air as breathable air.
- Do not use compressed air to clean clothing.

NOTICE

Damage to the compressor!

The air port does not have a check valve. Water ingress can damage the compressor.

- Make sure that no foreign bodies can enter the compressed air line.

1. Close the header air and delivery air valves.
2. Connect the compressed air consumer to the air port.
3. Open the shut-off valve.
4. Start pumping in manual operation *(Manual delivery P. 7 — 18)*.
   ⇒ The compressed air consumer can now be used as designated.

7.6.8 Delivery operation faults

During delivery, semi-dry floor screed can block the vessel outlet and the delivery line. If so-called blockages occur, semi-dry floor screed no longer emerges from the discharge stand. The pressure rises quickly in the mixing vessel. As soon as the switch-off pressure is reached, the compressor is switched off. Blockages can be prevented.

The following conditions favour the formation of blockages:

- Heated, dry delivery line
- Incorrect delivery line connection
- Awkwardly routed delivery line
- Leaks at the delivery line couplings
- Incorrect material composition
- Hard to pump or slightly segregating material
- Large stones or other foreign bodies that have entered the mixing vessel
- Solid clumps or chunks of ice

7.6.8.1 Locating blockages

DANGER

Risk of death from bursting delivery line and material shooting out!

If a blockage is removed using compressed air or water, the delivery line may burst. The material shooting out can cause fatal injuries.

- You must wear protective goggles.
- Depressurise the delivery system.
- Locate the position of the blockage to narrow down the danger zone.
- Only disconnect line couplings if you are sure that the delivery system is depressurised.
- Disconnect line couplings so that the openings face away from the body.
- Loosen and crush the blockage and allow it to trickle out of the delivery line.

1. Stop the delivery process.
2. Switch off the engine.
3. Unlock and open the machine hood.
4. Switch off the machine at the MAIN SWITCH and secure it to prevent accidental switch-on.

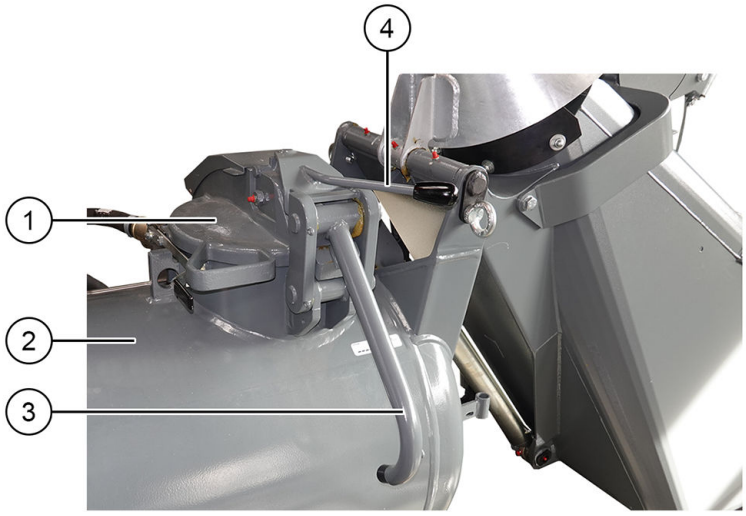


Figure 62: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

5. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.
6. Check the pressure gauge display for the pressure in the mixing vessel.
   ⇒ If the pressure gauge displays a value of 0 bar, the mixing vessel is vented.
7. Tap the delivery line with a hammer to find hard spots.
   ⇒ If the delivery line deforms when tapping, you have located the blockage.
   ⇒ If you cannot locate a blockage in the delivery line, the blockage is located in the mixing vessel outlet.
   ⇒ If you locate a blockage in the delivery line that appears to be relatively long, it may be two consecutive blockages with an air pocket.

7.6.8.2 Rectifying a blockage in the delivery line

⚠ DANGER

Risk of death from material shooting out!

If air pockets between blockages are not released, material can shoot out when the line coupling is disconnected and cause fatal injuries.

- You must wear protective goggles.
- Depressurise the delivery system.
- Locate the position of the blockage to narrow down the danger zone.
- Release air pockets by tapping and shaking.
- Only disconnect line couplings if the delivery line can be deformed between the blockages.
- Disconnect line couplings so that the openings face away from the body.

1. Loosen the blockage in the delivery line with light hammer blows.
2. Disconnect the delivery line near the location of the blockage.
3. Dislodge blockages in the delivery line by shaking and tapping.
4. If necessary, also tap the couplings with a rubber mallet.
5. Collect loosened blockages in a suitable container.
6. Rinse out stuck blockages with water. Collect any material that leaks out in a suitable container.
7. Dispose of collected material in the containers in an environmentally friendly manner in accordance with local regulations.

7.6.8.3 Removing blockages in the vessel outlet

1. Disconnect the delivery line from the wear connection.
2. If necessary, remove the reducer (stone trap).
3. Clean the reducer if necessary.
4. Clean the vessel outlet.
5. Rinse out stuck blockages with water.

7.6.8.4 Restarting after removing a blockage

1. Couple the delivery line.
2. Check the delivery line routing and correct it if necessary.
3. Switch on the machine at the MAIN SWITCH.
4. If necessary, cancel the EMERGENCY STOP.
5. Close and lock the machine hood.
6. Start the engine .
7. Start the delivery process *(Manual delivery P. 7 — 18)*.
8. Check the pressure gauge display for the pressure in the mixing vessel.
   ⇒ If the pressure rises above 8 bar again, another blockage must be removed.

8 Cleaning and maintenance

At the end of work, the machine and delivery line must be cleaned. A clean machine and delivery line are indispensable to permit fault-free delivery when the machine is operating. Material deposits and contamination inside the machine and delivery line can impair the function of the machine. The machine is designed to be splashproof but not watertight.

8.1 General

NOTICE

Environmental pollution from cleaning agents!

Cleaning agents can cause environmental damage if they enter the soil or groundwater.

- Observe the information on the cleaning agent packaging.
- Observe the locally applicable waste water regulations.

NOTICE

Machine damage from water!

When cleaning the machine with a high-pressure cleaner, penetrating water can cause damage to the machine.

- Make sure that the control box is closed.
- If necessary, cover at risk areas.
- Do not point the water jet directly at the electrical system components.
- Do not point the water jet directly at electronic components (e.g. display, keypad).
- Do not point the water jet directly into the openings, for example openings for the air inlet or exhaust air system.

Notes on cleaning:

- Only clean the machine when it is switched off and cooled down.
- Do not use sea water or water containing salt for cleaning.
- Rinse the machine immediately with clean water if it comes into contact with sea water.

8.2 Clean the machine

The machine is splashproof.

Prerequisites:

✓ Mixing vessel and delivery line empty
✓ Feeder (B, BS) lowered
✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

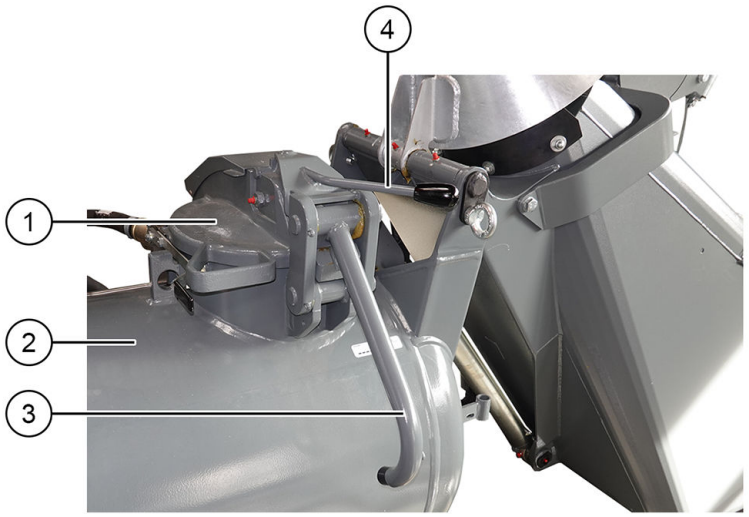


Figure 63: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

1. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.
2. Pull the quick-release lever upwards and unlock the lid of the mixing vessel.
3. Open the lid of the mixing vessel.
4. Disconnect the delivery line from the wear connection of the mixing vessel.
5. Clean the inside of the mixing vessel with water.
6. Clean the bearing points of the mixer shaft.
7. Flush the vent line.
8. Clean the machine from top to bottom with water.

8.3 Cleaning the machine with a highpressure cleaner (option)

You can use the high-pressure cleaner to clean the outside of the machine.

Prerequisites:

✓ Machine switched on at the MAIN SWITCH

✓ The engine is switched off

⚠ WARNING

Risk of injury from high-pressure water jet!

The high-pressure cleaner works with high water pressure. Direct contact with the high-pressure water jet can cause injuries.

- Wear your personal protective equipment (PPE) including protective goggles.
- Watch out for people in the vicinity.
- Never direct the high-pressure jet at other people.
- Hold the high-pressure spray gun firmly with both hands during operation.
- Ensure that you are standing safely.

NOTICE

Paint damage to the machine due to high-pressure cleaning!

The paint on the machine may not be fully cured on delivery. Cleaning with steam or high-pressure cleaners can damage the paint layer.

- In the first six working weeks, clean all painted surfaces with cold water and at a maximum water pressure of 5 bar.

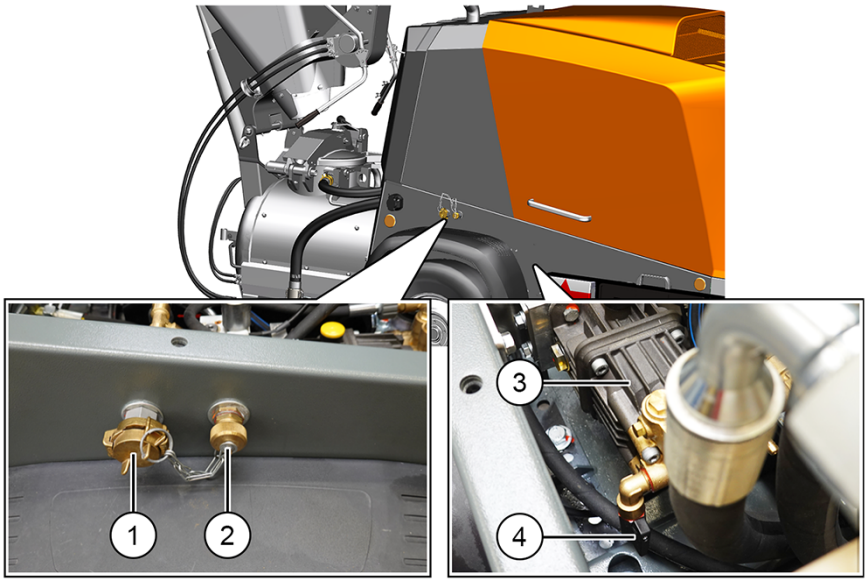


Figure 64: Highpressure water pump (option)

Item	Designation
1	Water connection
2	High-pressure hose connection
3	Highpressure water pump
4	Ball valve

Connecting the high-pressure cleaner

1. Connect the high-pressure hose to the high-pressure spray gun.
2. Connect the high-pressure hose to the high-pressure hose connection on the frame.
3. Connect the water hose to the water connection on the frame.
4. Open the water supply.
5. Operate the high-pressure gun until water emerges from the nozzle.
6. Open the main menu on the display.
7. Start the engine.
8. Select the “High-pressure cleaner” option in the main menu and switch it on.
9. Operate the high-pressure gun.
   ⇒ The high-pressure water pump starts.

Adjusting the operating pressure of the high-pressure cleaner

10. Unlock and open the machine hood.
11. Set the operating pressure on the handwheel of the high-pressure pump.
12. Close and lock the machine hood.

If the machine is configured with the optional software package, the maximum water pressure of the high-pressure cleaner can be increased via the engine speed. For this, the POWER MANAGEMENT menu must be opened via the selection button under the corresponding symbol. The power management system then activates the “POWER” power level. The engine speed is increased accordingly. The high-pressure water pump delivers a higher output.

Clean the machine

13. Clean the machine and try to peel off the layer of dirt from the painted surface. Do not direct the high-pressure water jet vertically onto the surface to be cleaned and maintain a minimum clearance of 30 cm.

Dismantling the high-pressure cleaner

NOTICE

Machine damage due to freezing water!

Freezing water can damage water-bearing components of the machine.

- Drain the water from all water-bearing components.
- Drain the water from the high-pressure water pump if necessary.

14. Switch off the engine.
15. Unlock and open the machine hood.
16. Switch off the machine at the MAIN SWITCH.
17. Block the water supply.
18. Operate the high-pressure spray gun until no more water emerges from the nozzle (depressurising).

19. Disconnect the water hose from the water connection.
20. Disconnect the high-pressure hose from the high-pressure gun.
21. Disconnect the high-pressure hose from the high-pressure hose connection.
22. Stow away the high-pressure hose and high-pressure gun.
23. Open the ball valve on the high-pressure water pump and drain the residual water.

    When no more water comes out:
24. Close the ball valve.
25. Close and lock the machine hood.

8.4 Cleaning the delivery line

Material deposits inside the delivery line can cause damage and can continue to accumulate and thereby reduce the cross section of the delivery line. To allow faultfree machine operation, it is vital that all delivery lines are clean.

Prerequisites:

✓ Mixing vessel and delivery line empty
✓ Feeder (B, BS) lowered
✓ The engine is switched off
✓ The machine hood is open
✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

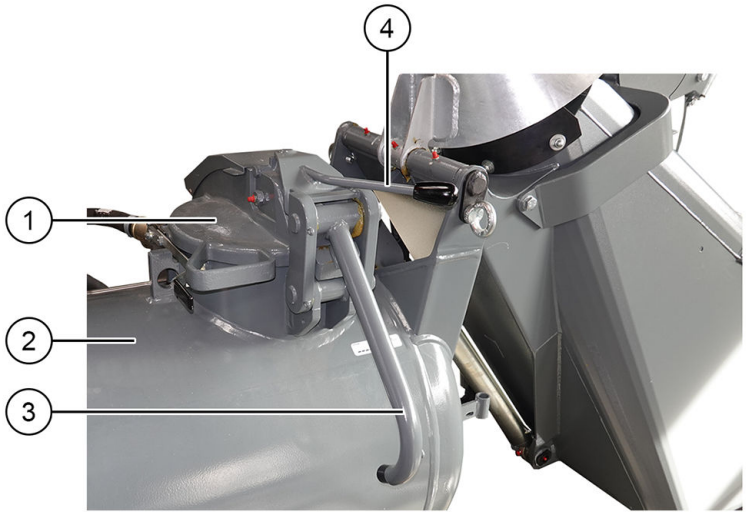


Figure 65: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

1. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.
2. Pull the quick-release lever upwards and unlock the lid of the mixing vessel.
3. Open the lid of the mixing vessel.

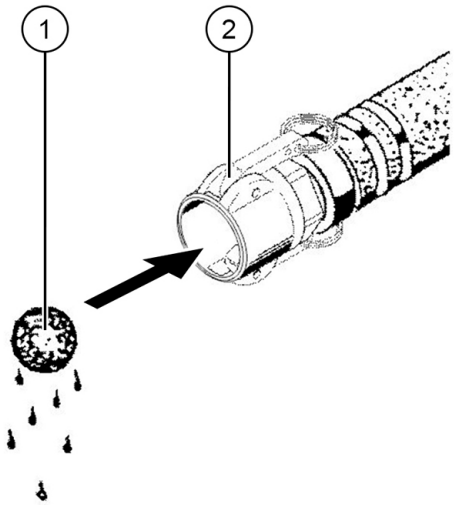


Figure 66: Sponge ball in delivery line

Item	Designation
1	Sponge ball
2	Delivery line

4. Disconnect the delivery line from the wear connection of the mixing vessel.
5. Soak a sponge ball in water.
6. Push the sponge ball into the delivery line.
7. Connect the delivery line to the wear connection again.

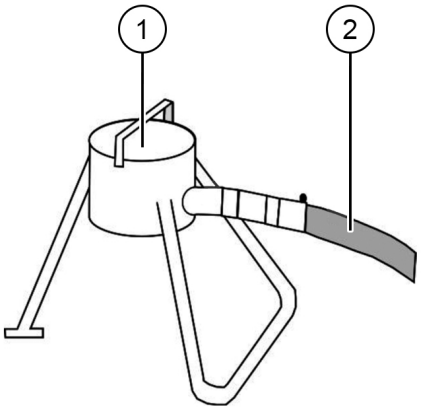


Figure 67: Connecting the discharge stand

Item	Designation
1	Discharge stand
2	Delivery line

If the delivery line is not connected to the discharge stand:

8. Connect the delivery line to the discharge stand.
9. Position a container of sufficient size underneath the discharge stand.
10. Half fill the mixing vessel with water.
11. Close the lid of the mixing vessel.
12. Lock the lid of the mixing vessel with the quick-release lever.
13. Lock the quick-release lever with the securing lever.
14. Switch on the machine at the MAIN SWITCH.
15. Close and lock the machine hood.
16. Start the engine.
17. Start pumping in manual operation *(Manual delivery P. 7 — 18)*.
    ⇒ This forces the sponge ball through the delivery line to the discharge stand.
18. Stop the delivery process when the sponge ball emerges from the discharge stand.
19. Repeat this process until clean water emerges from the discharge stand.
20. End the washing out process.

21. Switch off the engine.
22. Unlock and open the machine hood.
23. Switch off the machine at the MAIN SWITCH.

8.5 Moving the machine to the transport position

Prerequisites:

✓ Machine and delivery line cleaned

1. Unlock and open the machine hood.
2. Switch on the machine at the MAIN SWITCH.
3. Close and lock the machine hood.

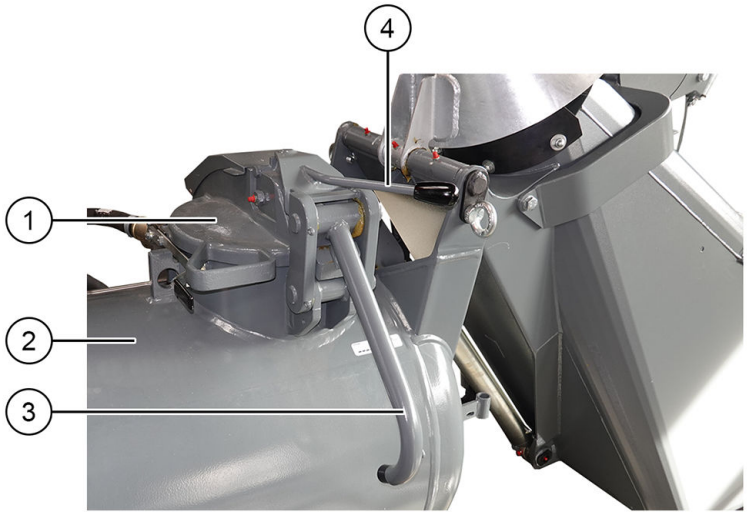


Figure 68: Mixing vessel lid

Item	Designation
1	Mixing vessel lid
2	Mixing vessel
3	Quick-release lever
4	Securing lever

4. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel escapes and the quick-release lever is enabled.
5. Pull the quick-release lever upwards and unlock the lid of the mixing vessel.

6. Open the lid of the mixing vessel.
7. Fold the hopper onto the filler opening of the mixing vessel.
8. Start the engine.
9. Move the scraper (BS) to the transport position.
10. Raise the feeder (B, BS) to the transport position.
11. Switch off the engine.
12. Unlock and open the machine hood.
13. Switch off the machine at the MAIN SWITCH.
14. Close and lock the machine hood.

If the air tap is open:

15. Close the air tap.

Figure 69: EstrichBoy side view

9 Detecting and eliminating faults

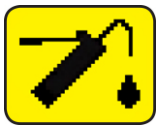
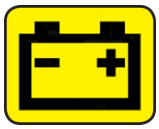
This chapter provides you with an overview of faults that may occur during operation of the machine, their possible causes and assistance in rectifying them.

Faults that only require simple measures to be rectified can be rectified under your own responsibility. The authorised personnel must have completed training relevant to working with the machine and be conversant with the contents of the Operating Instructions. If parts must be replaced, use only genuine parts and spare parts that have been approved by the manufacturer.

Diagnostic and repair work, for which special knowledge is required, may only be carried out by qualified personnel. This work is labelled as “Inspection, repair by Service department!”in the “Remedy” column. Contact the manufacturer’s After Sales department or a specialist dealer authorised by the manufacturer.

9.1 Control and warning messages

The main display area of the display shows the machine system status and warnings or faults. Function feedback and notes are displayed with yellow symbols. In addition, the LEDs of the keypad buttons flash yellow.

Display	Meaning	Remedy
	Service display	Have a service performed on the machine
	Acknowledgement lacking Acknowledgement is required when the machine is started up again after an EMERGENCY STOP and when the engine is started up for the first time after the machine has been switched on.	Press the “Acknowledge” toggle switch
	Fuel level low – fuel level below 10%	Refuelling
	Central lubrication system was triggered manually	–
	Indicator when engine is running – battery is not being charged (voltage below 13 V)	Inspection, repair by Service department!
	Compressor air filter blocked	Replacing the air filter *(Cleaning and replacing the compressor air filter P. 10 — 25)*

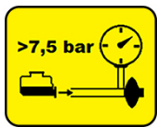
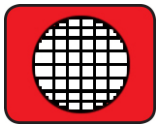
Display	Meaning	Remedy
	Engine fault A fault code may also be displayed.	Switch off the machine for 2 minutes. If the fault is still displayed after restarting – inspection, repair by Service department!
	Too fast an increase in delivery pressure – blockage! Delivery pressure over 7.5 bar	Locate and remove the blockage *(Delivery operation faults P. 7 — 26)*. If necessary, adjust the delivery pressure.

Table 8: Control messages

Warnings and faults that may require an immediate response from the machine operator are displayed with red symbols. In addition, the LEDs of the keypad buttons light up red continuously.

Display	Meaning	Remedy
	Safety circuit open EMERGENCY STOP triggered. All hydraulically powered functions are switched off. The engine is not switched off.	Cancelling the EMERGENCY STOP *(Cancelling the EMERGENCY STOP P. 7 — 4)*
	Safety circuit open (BS) EMERGENCY STOP triggered. All hydraulically powered functions are switched off. The engine is not switched off. Cause: • EMERGENCY STOP button on radio remote control actuated • Radio remote control toggle switch in middle position • Radio remote control switched off due to inactivity	Cancelling the EMERGENCY STOP *(Cancelling the EMERGENCY STOP P. 7 — 4)*
	Safety grid open EMERGENCY STOP triggered. All hydraulically powered functions are switched off. The engine is not switched off.	Close the safety grid, cancel the EMERGENCY STOP *(Cancelling the EMERGENCY STOP P. 7 — 4)*

Display	Meaning	Remedy
	Fuel level very low Fill level below 5%.	Refuel the machine
	Water in the fuel pre-filter If too much water has accumulated in the fuel pre-filter, the mixer is switched off and can no longer be switched on. Only the LEDs of the Mixing in hold-to-run command mode button and the Mixing in continuous operation button light up red continuously. Delivery operation can be switched on so that the mixing vessel can be emptied.	Drain the fuel pre-filter *(Draining the fuel pre-filter P. 10 — 33)*
	Engine oil pressure too low The engine oil pressure is checked approx. 18 seconds after start-up. If the required oil pressure is not reached, the engine is switched off.	*(Engine faults P. 9 — 5)*
	Coolant level too low The engine is switched off immediately. The engine cannot be started as long as the fault is present.	Check the cooling system, top up with coolant *(Checking the coolant level P. 10 — 9)*
	Engine temperature too high	*(Engine faults P. 9 — 5)*
	Engine fault The engine is switched off immediately. The engine cannot be started as long as the fault is present.	Inspection, repair by Service department!
	Engine fault The engine is switched off immediately. The engine cannot be started as long as the fault is present. Fault codes are shown on the display.	Inspection, repair by Service department!
	Network error Communication error: Engine management – display	Switch off the machine for two minutes and switch it on again. If this is not successful, inspection, repair by Service department!

Display	Meaning	Remedy
	Network error Communication error: Display – controller	Inspection, repair by Service department!
	Compressor temperature too high The engine is switched off immediately. The engine cannot be started as long as the fault is present.	Switch off the machine and allow the compressor to cool down; if necessary, find and rectify the cause of the temperature rise. If necessary, inspection, repair by Service department!
	Hydraulic fluid level too low The engine is switched off immediately. The engine cannot be started as long as the fault is present.	Check the hydraulic system, top up the hydraulic fluid *(Checking the hydraulic fluid level P. 10 — 11)*

Table 9: Warnings

9.2 Engine faults

Fault	Cause	Correction
Engine struggles to start or does not start	Ambient temperature too low	Stop operation, observe the operating conditions of the machine.
	Battery voltage too low, battery discharged or defective	Check the battery, charge or replace it
	Starter or wiring harness defective	Inspection, repair by Service department!
	No fuel	Refuelling
	Poor fuel quality, incorrect fuel	Change the fuel, repair by Service department if necessary!
	Fuel supply interrupted, fuel injection fault	Inspection, repair by Service department!
	Air in the fuel system	Venting the fuel system *(Replacing the fuel filters P. 10 — 34)*
	Intake system fault	*(Cleaning and replacing the air filter P. 10 — 21)* or inspection, repair by Service department!
	Exhaust after treatment fault	Inspection, repair by Service department!

Fault	Cause	Correction
	Internal engine damage	Inspection, repair by Service department!
Engine starts, but runs erratically and stops completely	Poor fuel quality, incorrect fuel	Change the fuel, repair by Service department if necessary!
	Fuel filter clogged	*(Replacing the fuel filters P. 10 — 34)*
	Fuel supply interrupted, fuel injection fault	Inspection, repair by Service department!
	Air in the fuel system	Venting the fuel system *(Replacing the fuel filters P. 10 — 34)*
	Exhaust after treatment fault	Inspection, repair by Service department!
	Internal engine damage	Inspection, repair by Service department!
Engine does not start, engine indicator light flashes	Engine management has detected a serious fault, start lockout	Inspection, repair by Service department!
Speed changes not possible, engine indicator light ON	Engine management has detected a fault, emergency operation	Inspection, repair by Service department!
Engine gets hot	High outside temperature, poor or blocked heat dissipation, operation with open machine hood	Set up the machine in a well-ventilated location, remove obstacles in the airflow, close and lock the machine hood
	Continuous machine operation under high load	Reduce the load requirement
	Engine cooling system fault, defect	Inspection, repair by Service department!
	Radiator contaminated, defective	*(Cleaning the radiator P. 10 — 30)*, repair by Service department if necessary!
	Fan wheel defective, V-belt torn or spinning	Inspection, repair by Service department!
	Engine oil level too high or too low	Correct the engine oil level
	Oil filter clogged	Change the engine oil and oil filter
	Fuel injection fault	Inspection, repair by Service department!
	Intake system fault	*(Cleaning and replacing the air filter P. 10 — 21)* or inspection, repair by Service department!
	Exhaust after treatment fault	Inspection, repair by Service department!
Engine has no power	Engine oil level too high	Correct the engine oil level
	Poor fuel quality, incorrect fuel	Change the fuel, repair by Service department if necessary!

Fault	Cause	Correction
	Fuel supply, fuel injection fault	Inspection, repair by Service department!
	Intake system fault	*(Cleaning and replacing the air filter P. 10 — 21)* or inspection, repair by Service department!
	Exhaust after treatment fault	Inspection, repair by Service department!
	Fan wheel defective, V-belt torn or spinning	Inspection, repair by Service department!
Engine has no power. Engine indicator light ON	Engine management has detected a fault, emergency operation	Inspection, repair by Service department!
Engine does not run on all cylinders	Fuel injection fault	Inspection, repair by Service department!
	Engine electronics, engine cable set defective	Inspection, repair by Service department!
	Internal engine damage	Inspection, repair by Service department!
Engine – no oil pressure or oil pressure too low	Engine oil level too low	Correct the engine oil level
	Excessively sloping position of the machine	Align the machine horizontally
	Oil filter blocked	Inspection, repair by Service department!
	Engine oil circuit faulty, oil pressure regulation defective	Inspection, repair by Service department!
Engine – high oil consumption, engine oil in exhaust gas (blue smoke)	Engine oil level too high	Correct the engine oil level
	Excessively sloping position of the machine	Align the machine horizontally
	Crankcase ventilation defective	Inspection, repair by Service department!
	Engine permanently operated at insufficient load	Check and adjust the load factor
	Internal engine damage or exhaust gas turbocharger defective	Inspection, repair by Service department!
Exhaust gas with white smoke	Poor fuel quality, incorrect fuel	Change the fuel, repair by Service department if necessary!
	Condensation in the exhaust gas	Allow the engine to run warm
	Coolant in the exhaust gas	Inspection, repair by Service department!

Fault	Cause	Correction
	Fuel injection fault	Inspection, repair by Service department!
Exhaust gas with black smoke	High soot content in exhaust gas	Inspection, repair by Service department!

9.3 Reading out the fault memory

The engine management system analyses the signals from various sensors. If the engine management system detects a fault, it saves the fault code and the ambient conditions under which the fault occurred. The fault codes can be read out. Faults are indicated by the engine indicator light lighting up or flashing on the display.

9.4 Compressor faults

Fault	Cause	Correction
Compressor does not reduce power requirement, engine runs at maximum speed, safety valve opens to dump pressure	Safety valve opens too soon	Inspection, repair by Service department!
	Pressure sensor defective or contaminated	Inspection, repair by Service department!
Compressor supply volume lower than usual	Air filter clogged	*(Cleaning and replacing the compressor air filter P. 10 — 25)*
	Engine does not run at maximum speed	Check the speed setting, replace fuel filter if necessary. Inspection, repair by Service department!
	Air consumption is excessive for compressor capacity, there may be a leak	Eliminate the cause of the high air consumption; if necessary, inspection, repair by Service department!
Compressor supply volume low, pressure excessively high	Oil trap blocked	Inspection, repair by Service department!
Air and fluid stream out of the air filter after the engine is switched off	Check valve of intake control valve is leaking	Inspection, repair by Service department!
Compressor overheated	High ambient temperature	Switch off the machine and set it up in a wellventilated location
	Heat dissipation impeded	Remove objects and obstacles in the area where heat is dissipated, close and lock and the machine hood if necessary

Fault	Cause	Correction
	Continuous machine operation under high load	Reduce the load requirement
	Compressor oil level too low	*(Checking the compressor oil level P. 10 — 13)*
	Compressor oil filter blocked	Inspection, repair by Service department!
	Oil trap blocked	Inspection, repair by Service department!
	Radiator contaminated	Clean the radiator. Inspection, repair by Service department!
	Cooling system fault, defect	Inspection, repair by Service department!
	Fan wheel defective, V-belt torn or spinning	Inspection, repair by Service department!
	Thermostat does not switch	Inspection, repair by Service department!

9.5 Mixer faults

Fault	Cause	Correction
Poor mixing of the material	Mixer blade incorrectly adjusted, worn, worn out	Replace the wear parts. Inspection, repair by Service department!
Mixer blocked	Foreign bodies in mixing vessel, e.g. stones	Switch off the mixer, remove foreign bodies
	Mixture too dry	Switch off the mixer, remove material from the mixing vessel, clean the mixing vessel, observe the concrete mix proportions
	Mixture too firm	Improve the flowability of the mixture by adding water or additives, switch off the mixer if necessary, remove material from the mixing vessel, clean the mixing vessel
	Mixing vessel too full	Switch off the mixer, remove material from the mixing vessel, clean the mixing vessel if necessary

9.6 Electronic system faults

Fault	Cause	Correction
MAIN SWITCH on, machine cannot be started up, charge monitor does not light up	Battery voltage too low, battery discharged or defective	Check the battery, charge or replace it
	Battery terminals loose, oxidised	Fasten, clean or replace the battery terminals
	Battery cable defective	Inspection, repair by Service department!
	MAIN SWITCH defective	Inspection, repair by Service department!
The engine does not start again following an EMERGENCY STOP	EMERGENCY STOP BUTTON not unlocked	Unlock the EMERGENCY STOP BUTTON
The engine cannot be started	ACKNOWLEDGE TOGGLE SWITCH not pressed	Switch on the MAIN SWITCH, wait 10 to 15 s, press the ACKNOWLEDGE TOGGLE SWITCH and press the ENGINE TOGGLE SWITCH
	Battery voltage too low, battery discharged or defective	Check the battery, charge or replace it
	Battery terminals loose, oxidised	Fasten, clean or replace the battery terminals
	Battery cable defective	Inspection, repair by Service department!
	Starter, starter switch or wiring harness defective	Inspection, repair by Service department!
Engine starts, but switches off again immediately	ENGINE TOGGLE SWITCH pressed too briefly	Only release the ENGINE TOGGLE SWITCH when the engine is running
	Ambient temperature below -5 °C	Stop operation, observe the operating conditions of the machine.
	Oil pressure switch, thermostatic switch defective	Inspection, repair by Service department!
The compressor is switched off automatically, engine oil pressure/engine oil temperature symbol ON	Open circuit in the wiring harness	Inspection, repair by Service department!
	Fuse tripped	Inspection, repair by Service department!

9.7 Keypad failure

If the keypad has a defect, the mixing and delivery process can no longer be operated via the buttons of the keypad. In this case, the mixing and delivery process can also be operated by inputs via the display.

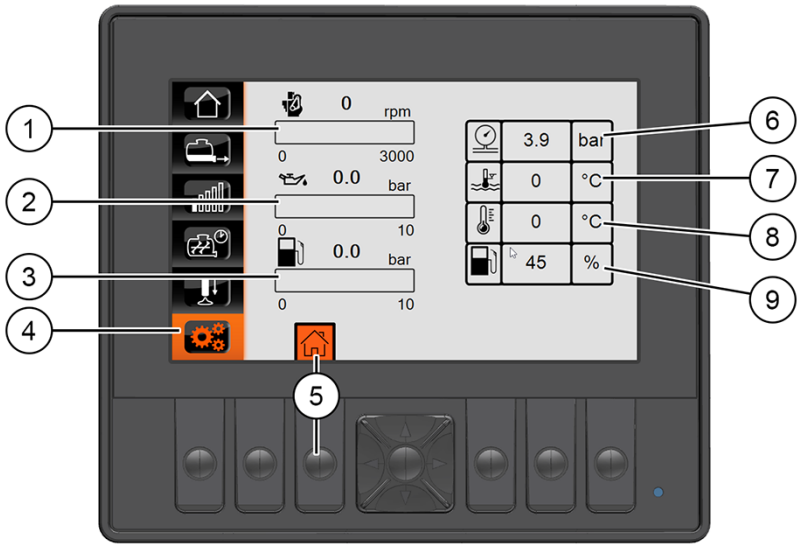


Figure 70: Emergency operation

1. Open the main menu.
2. Press the right-hand button on the D-pad for 10 s.
   ⇒ The “Emergency operation” menu is displayed.
3. Select the function that you want to switch on. The possible options are shown on the display.

9.8 Chassis faults

Fault	Cause	Correction
The ball hitch cannot be disconnected	Ball on truck deformed	Align the truck and machine in a line, uncouple the machine, clean and grease the locking mechanism
Ball hitch does not lock or has too much play	Locking mechanism dirty or stiff	Clean and grease the locking mechanism, replace the ball hitch if necessary
	Diameter of the ball on the truck greater than 50 mm	Change the towing gear on the truck
	Diameter of the ball on the truck smaller than 49 mm	Change the towing gear on the truck

Fault	Cause	Correction
	Ball hitch worn or defective	Inspection, repair by Service department!
Poor braking effect	Brake shoes, brake drum worn, damaged or dirty	Inspection, repair by Service department!
	Brake system damaged	Inspection, repair by Service department!
	Towing bar bent, damaged	Inspection, repair by Service department!
	Friction losses in the overrunning brake equipment	Inspection, repair by Service department!
Unbalanced driving behaviour and jerky braking	Shock absorber defective	Inspection, repair by Service department!
	Too much play in the braking system	Inspection, repair by Service department!
Trailer brakes when the accelerator is released	Shock absorber defective	Inspection, repair by Service department!
Wheel brake gets hot	Parking brake lever was not released or was only partially released	Release the parking brake completely
	Brake system incorrectly adjusted	Inspection, repair by Service department!
	Braking system not completely released when driving forwards	Inspection, repair by Service department!
	Crank lever jammed	Inspection, repair by Service department!
	Linkage bracket bent	Inspection, repair by Service department!
	Wheel brake contaminated	Inspection, repair by Service department!
	(Bowden) cable kinked	Inspection, repair by Service department!
	Return springs worn or broken	Inspection, repair by Service department!
	Rust formation in the brake drum	Inspection, repair by Service department!
Poor braking effect of the parking brake	Pneumatic spring defective	Inspection, repair by Service department!
	Brake linings not run in	Continue driving carefully and run in the brakes
	Friction losses too high	Inspection, repair by Service department!

Fault	Cause	Correction
	Brake system incorrectly adjusted	Inspection, repair by Service department!
Reverse travel is sluggish or not possible	Braking system set too tightly	Inspection, repair by Service department!
	Reset lever is stuck	Inspection, repair by Service department!
Height adjustment difficult	Hinges of control rod jammed	Release the hinges, clean and lubricate
	Adjusting lever jammed	Inspection, repair by Service department!

10 Maintenance and repair

This chapter contains information on maintenance work, its intervals and repair work.

10.1 Maintenance schedule

Regular maintenance on the machine increases its service life. Damage to the machine is recognised at an early stage and can be repaired immediately.

The following maintenance schedules contain all the necessary maintenance work.

The personnel carrying out the work must have authorisation from the operating company and the necessary technical qualification.

The work carried out and its results must be recorded and documented in a suitable format.

Repair work which requires special subject knowledge and which therefore can only be completed by qualified personnel is marked with “Repair by Service department!” in the “Notes” column. This work must be completed by the manufacturer’s After Sales department or by a dealer authorised by the manufacturer.

The SERVICE maintenance schedule lists maintenance work that must only be carried out by the manufacturer’s After Sales department or by a dealer authorised by the manufacturer.

Use only genuine parts and spare parts that have been approved by the manufacturer.

Inspections that must be carried out at regular intervals by an inspection authority or an authorised inspector are not included in the maintenance schedule.

Before every job	Result ✓ / –	Note
General visual inspection: Condition of the machine, hydraulic system and compressed air system		Note down any defects. Repair by Service department!
Visual inspection of electrical system and lines		

Before every job	Result ✓ / –	Note
Visual inspection of hydraulic line/hydraulic fluid radiator condition, leak tightness		Hydraulic lines must not be repaired. Leaking, brittle or damaged hydraulic lines must be replaced. Service!
Visual inspection of compressor condition, leak tightness		Repair by Service department!
Visual inspection of delivery line: Suitability, wear, damage		–
Check the air valve fitting and air lines, clean if necessary		*(Cleaning the air valve fitting P. 10 — 27)*
Lubricating the machine		*(Lubricating the machine P. 10 — 15)*
Check functional fluid levels and correct them if necessary • Fuel • Engine oil • Coolant • Hydraulic fluid • Compressor oil • Highpressure water pump oil (option) • Grease		*(Checking functional fluid levels P. 10 — 8)*
Check the radio remote control battery compartment (BS): Condition, ease of movement of the contact pins		Clean the battery compartment if necessary. Grease the contact pins with contact spray.
Safety equipment		
Visual inspection of safety grid, covers: Condition, damage		–

Before every job	Result ✓ / –	Note
Check the condition and function of the EMERGENCY STOP buttons		Do not start up the machine if there are safety equipment malfunctions! Safety-relevant components must **not** be repaired. *(Checking the EMERGENCY STOP function P. 6 — 10)*
Check the mixer safety shutdown function		*(Checking the function for switching off the mixer when the safety grid is opened P. 6 — 11)*
Engine		
General visual inspection: Check the condition and leak tightness of the exhaust system in particular		–
Check the dust discharge valve air filter, clean if necessary		*(Cleaning and replacing the air filter P. 10 — 21)*
Check the condition and tension of the V-belts		For the inspection, the tension of the V-belts only needs to be checked by hand.
Radiator assembly visual inspection Contamination, condition, clean if necessary		
Chassis		
Visual inspection of wheels and tyres: Condition, wear		If necessary, tighten the wheel bolts and correct the inflation pressure *(Chassis, wheels, tyres P. 4 — 3)*.
Check the function of the lighting equipment		Note down any defects and have them rectified if necessary. Service!
Visual inspection of support wheel		

Before every job	Result ✓ / –	Note
Visual inspection of towing gear: Condition, wear		If there are signs of wear, have it checked. Service! Lubricate moving parts if necessary *(Lubricating the machine P. 10 — 15)*.
Check the seat of the height adjustment locking toggle, tighten if necessary		Check again 50 km after the height adjustment.
Check the condition, layout of the brake safety cable		Note down any defects and have them rectified if necessary. Service!
Check the parking brake function		Note down any defects and have them rectified if necessary. Service!

Table 10: Maintenance work before every job

Weekly	Result ✓ / –	Note
Check, clean the air valve fitting • Filter • Check valves		*(Cleaning the air valve fitting P. 10 — 27)*

Table 11: Weekly maintenance activities

Additional work for the Service department	Result ✓ / –	Note
Service every 500 operating hours or annually		
Change the engine oil and filter		–
Change the fuel filter		*(Replacing the fuel filters P. 10 — 34)*
Replace the engine air filter		*(Cleaning and replacing the air filter P. 10 — 21)*

Additional work for the Service department	Result ✓ / –	Note
Check the antifreeze coolant		The antifreeze content must be checked at the latest before the onset of winter. Target: -20 to -41 °C
Read out the engine management fault memory and delete it if necessary		–
Clean the compressor air filter, replace if necessary		*(Cleaning and replacing the compressor air filter P. 10 — 25)*
Check the mixing vessel bolted connections		*(Check the mixing vessel bolted connections P. 10 — 39)*
Check the safety valve function		–
Check the brake pads		–
Service every 1000 operating hours or annually		
Change the engine oil and filter		–
Change the fuel filter		*(Replacing the fuel filters P. 10 — 34)*
Replace the engine air filter		*(Cleaning and replacing the air filter P. 10 — 21)*
Check the antifreeze coolant		The antifreeze content must be checked at the latest before the onset of winter. Target: -20 to -41 °C
Replace the fan V-belt and alternator V-belt		–
Read out the engine management fault memory and delete it if necessary		–
Change the compressor oil		–
Change the compressor oil filter		–
Replace the compressor air filter		*(Cleaning and replacing the compressor air filter P. 10 — 25)*
Change the oil trap		–

Additional work for the Service department	Result ✓ / –	Note
Check the mixing vessel bolted connections		*(Check the mixing vessel bolted connections P. 10 — 39)*
Check the safety valve function		–
Check the brake pads		–
Service the brake system after 1500 operating hours or six months, then annually		
Check the brake system setting		–
Service the engine cooling system every four years		
Change the coolant		–
Service the hydraulic hose lines every six years		
Change the hydraulic hose lines		Hydraulic lines must not be repaired, they must be replaced. –

Table 12: Additional maintenance work for the Service department

10.2 Maintenance work

The following instructions describe work that may be carried out by the machine's operating personnel.

10.2.1 General information

NOTICE

Machine damage due to non-approved spare parts!

Spare parts that do not meet the requirements of the machine use can lead to machine damage.

- Use only original parts and spare parts that have been tested by the manufacturer and approved for the intended machine use.

NOTICE

Machine damage caused by unapproved functional fluids!

Functional fluids that are not approved for use in the machine can damage the machine.

- Use only functional fluids that have been approved for the machine by the manufacturer.
- Contact the manufacturer if you want to use alternative functional fluids.

10.2.2 Checking functional fluid levels

The functional fluid fill levels must be checked during initial commissioning and then, as a minimum, each time before the start of work.

Prerequisites:

✓ Feeder (B, BS) lowered to the ground (hydraulic fluid level check)
✓ The engine is switched off
✓ The machine hood is open
✓ Rear cover removed
✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on
✓ The machine has cooled down

⚠ WARNING

Risk of burning from hot surfaces or liquids!

Parts of the machine and functional fluids become very hot during operation.

- Always wear personal protective equipment (PPE).
- Allow the machine to cool down before carrying out any work on the machine.
- Cover hot machine components with heatresistant materials.

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

1. Align the machine horizontally with the support wheel.
2. Allow the machine to cool down if it was previously in operation.

10.2.2.1 Checking the coolant level

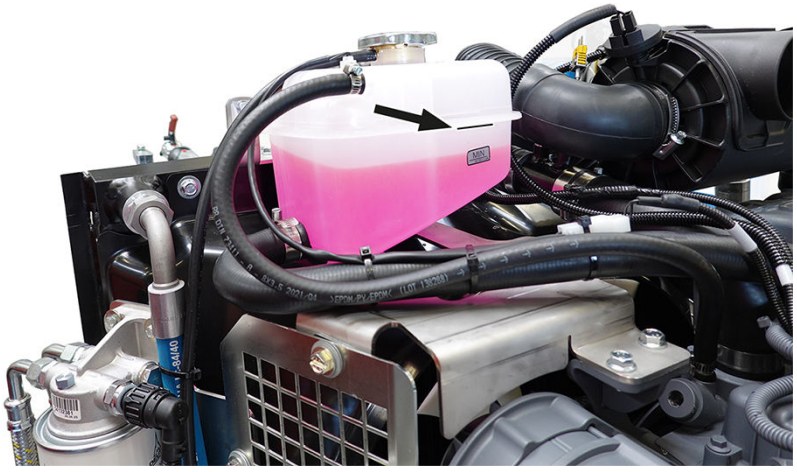


Figure 71: Expansion tank

1. Check the coolant level in the expansion tank. The expansion tank must be filled with coolant up to the MAX marking.

If a significant amount of coolant is missing:

2. Eliminate the cause of the coolant loss or commission a repair if necessary.

Filling up with coolant

3. Slowly and carefully unscrew the lid and allow the pressure in the expansion tank to escape in a controlled manner.
4. Remove the lid from the expansion tank. Make sure that no foreign bodies enter the expansion tank.
5. Fill the expansion tank with coolant up to the MAX marking *(Coolant P. 12 — 2)*.
6. Screw the lid onto the expansion tank.

10.2.2.2 Checking the engine oil level

Check the engine oil level either after a long standstill (before starting work) or a few minutes after switching off the engine. If you check the engine oil level immediately after switching off the engine, you will obtain an incorrect measured result. The engine oil must first flow back into the oil pan and accumulate there.

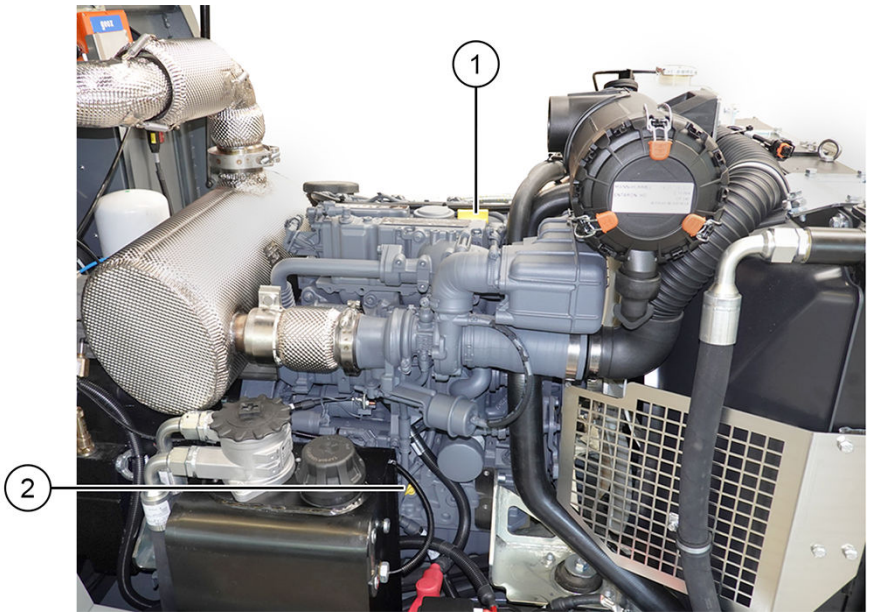


Figure 72: Engine

Item	Designation
1	Lid
2	Oil dipstick

1. Pull the oil dipstick out of the engine block.
2. Wipe the oil dipstick with a cloth.

3. Insert the oil dipstick into the engine block and pull it out again.
4. Read off the engine oil level on the oil dipstick (fill level must be between “MIN” and “MAX” markings).

If a significant amount of engine oil is missing:

5. Eliminate the cause of the fluid loss or commission a repair if necessary.

Topping up the engine oil

6. Unscrew the lid from the engine oil filler pipe. Make sure that no foreign bodies enter the engine.
7. Fill the missing quantity of engine oil into the engine via the engine oil filler pipe *(Engine oil P. 12 — 2)*.
8. Wait a few minutes until the engine oil has collected in the oil pan.
9. Pull out the oil dipstick and read off the engine oil level again (fill level must be between “MIN” and “MAX” markings).
10. Correct the engine oil level if necessary.
11. Screw the lid onto the engine oil filler pipe.

10.2.2.3 Checking the hydraulic fluid level

Prerequisites:

✓ Feeder (B, BS) lowered to the ground

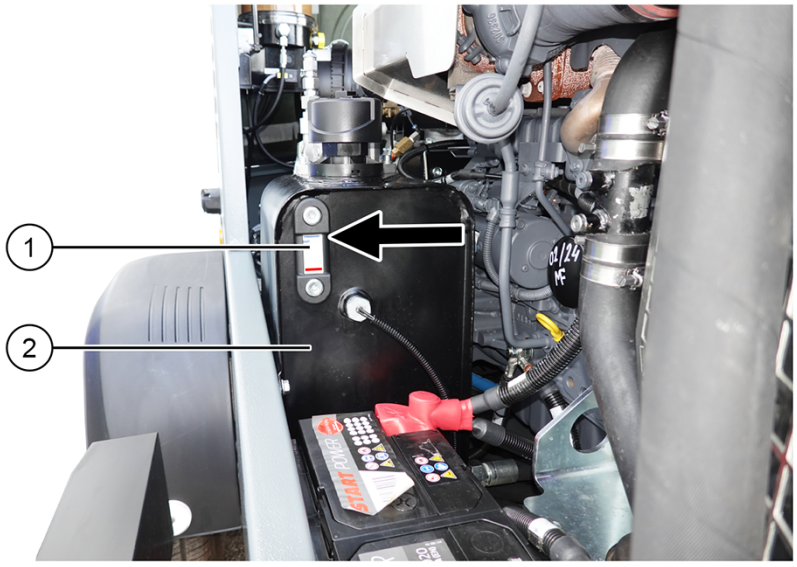


Figure 73: Hydraulic fluid reservoir

Item	Designation
1	Inspection glass
2	Hydraulic fluid reservoir

1. Check the hydraulic fluid level via the inspection glass on the hydraulic fluid reservoir. The hydraulic fluid must be visible below the upper edge of the inspection glass (arrow).

If a significant amount of hydraulic fluid is missing:

2. Eliminate the cause of the fluid loss or commission a repair if necessary.

Topping up hydraulic fluid

3. Unscrew the cap from the filler pipe. Make sure that no foreign bodies enter the hydraulic fluid reservoir.
4. Add the missing amount of hydraulic fluid to the hydraulic fluid reservoir until the hydraulic fluid is visible between the two markings in the inspection glass *(Hydraulic fluid P. 12 — 2)*.
5. Screw the cap onto the filler pipe.

10.2.2.4 Checking the compressor oil level

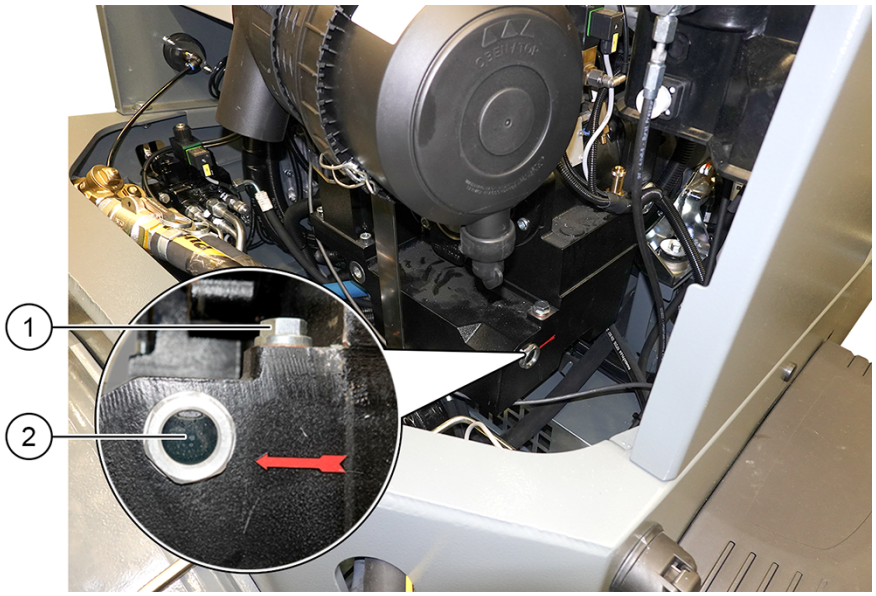


Figure 74: Inspection glass for compressor oil

Item	Designation
1	Bolt
2	Inspection glass

1. Check the compressor oil level via the inspection glass in the compressor housing. The compressor must be filled with compressor oil at least up to the upper edge of the inspection glass.

If the compressor oil level is low:

2. Start the engine, let it run for 2 minutes, switch it off and check the compressor oil level again after 30 seconds.

If a significant amount of compressor oil is missing:

3. Eliminate the cause of the fluid loss or commission a repair if necessary.

Topping up compressor oil

4. Unscrew the bolt on the compressor. Make sure that no foreign bodies enter the compressor.
5. Insert a suitable hose into the opening.
6. Place a suitable funnel on the other end of the hose.
7. Fill the compressor with compressor oil up to the top edge of the inspection glass *(Compressor oil P. 12 — 3)*.
8. Remove the funnel with the hose.

9. Clean the bolt.
10. Screw the bolt into the compressor housing.

10.2.2.5 Checking the oil level in the high-pressure water pump (option)

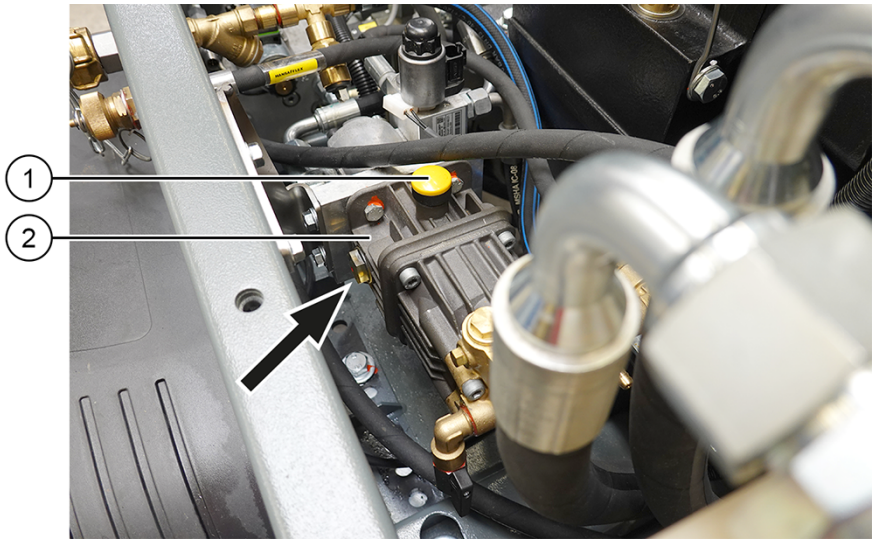


Figure 75: Highpressure water pump

Item	Designation
1	Filler pipe bolt
2	Highpressure water pump

1. Check the oil level, e.g. with a mirror via the inspection glass in the housing of the high-pressure water pump. The high-pressure water pump must be filled with oil up to the centre of the inspection glass.

If a significant amount of oil is missing:

2. Eliminate the cause of the fluid loss or commission a repair if necessary.

Topping up the oil

3. Unscrew the bolt from the filler pipe. Make sure that no foreign bodies enter the high-pressure water pump.
4. Fill the high-pressure water pump with oil up to the centre of the inspection glass *(Highpressure water pump oil (option) P. 12 — 3)*.
5. Screw the bolt into the filler pipe.

10.2.2.6 Checking the fill level in the central lubrication system

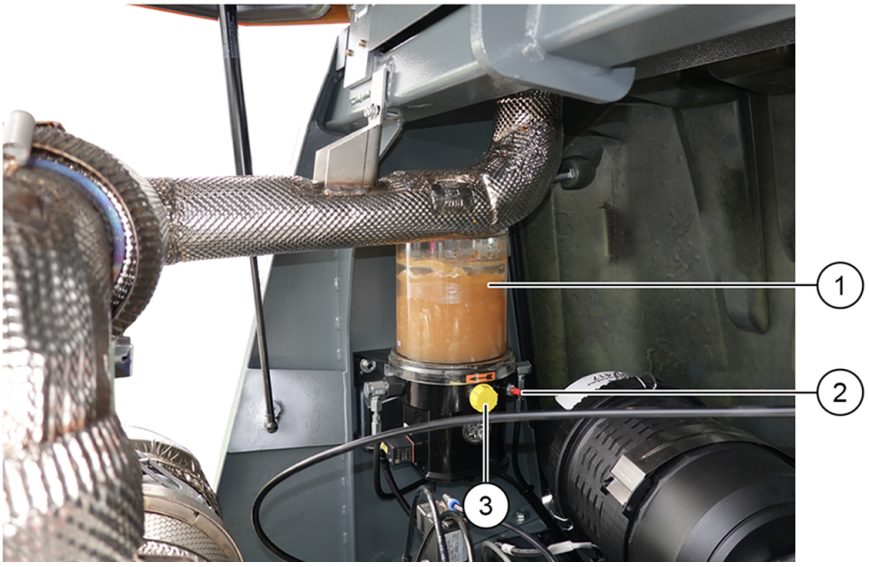


Figure 76: Central lubrication system

Item	Designation
1	Lubricant reservoir
2	Lubrication nipple
3	Filler pipe cap

1. Check the fill level on the lubricant reservoir.

Topping up the lubricant reservoir

2. Fill the lubricant reservoir with grease up to the “MAX” marking via the lubrication nipple or the filler pipe *(Grease P. 12 — 3)*.

10.2.3 Lubricating the machine

The central lubrication system only supplies the mixer shaft bearings with grease. All moving machine parts that require additional lubrication can be identified by the red protective cap on the lubrication nipple. These lubrication points must be lubricated manually with the grease gun. The machine must be lubricated before the start of work. Use only grease recommended by the manufacturer *(Grease P. 12 — 3)*.

Prerequisites:

✓ The engine is switched off

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

NOTICE

Machine damage caused by unapproved functional fluids!

Functional fluids that are not approved for use in the machine can damage the machine.

- Use only functional fluids that have been approved for the machine by the manufacturer.
- Contact the manufacturer if you want to use alternative functional fluids.

Figure 77: Lubrication points on the machine

Item	Designation
1	Towing gear
2	Support wheel
3	Hopper
4	Feeder (B, BS)
5	Feeder hydraulic cylinder (B, BS)
6	Lid
7	Quick-release lever

Lubrication points on the machine:

- Towing gear (4x)
- Feeder (B, BS) (5x)
- Mixing vessel lid (2x)
- Quick-release lever (2x)
- Safety grid (1x)
- Securing lever of the quick-release lever (1x)
- Support wheel (1x)
- Hopper (1x)

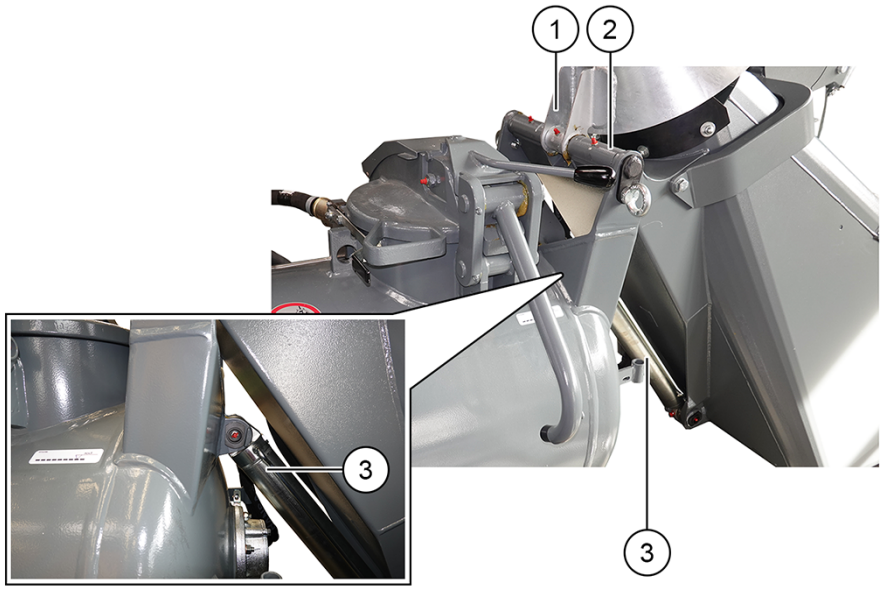


Figure 78: Feeder lubrication points (B, BS)

Item	Designation
1	Hopper
2	Feeder shaft
3	Feeder hydraulic cylinder

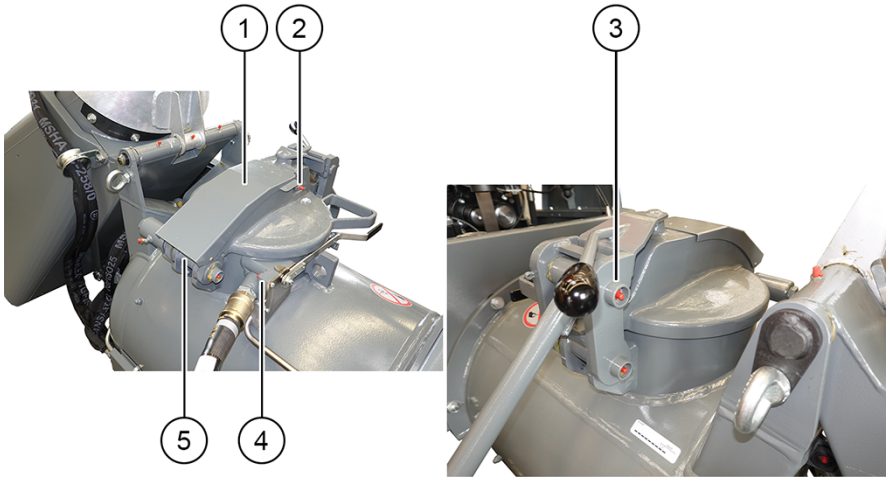


Figure 79: Mixing vessel lid lubrication points

Item	Designation
1	Lid
2	Securing lever shaft
3	Quick-release lever hinge

Item	Designation
4	Safety grid shaft
5	Lid shaft

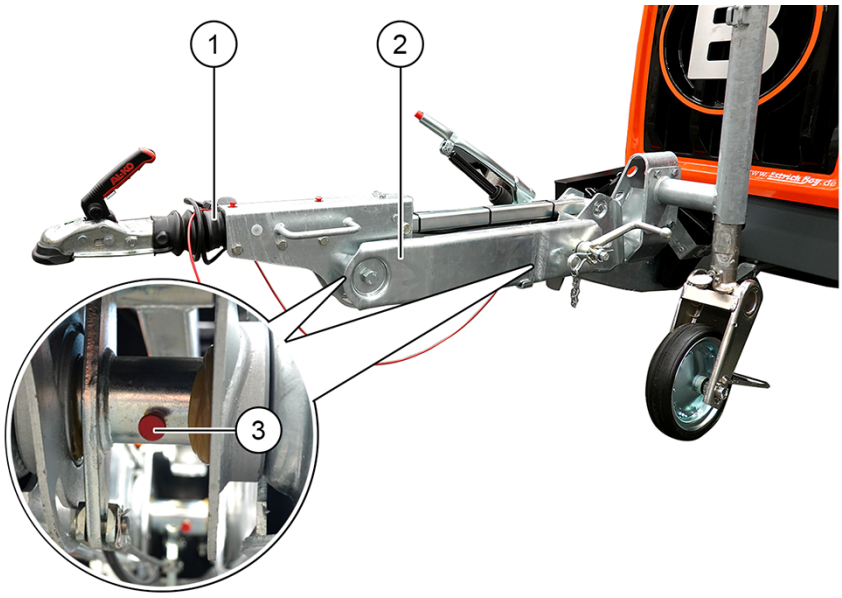


Figure 80: Towing gear lubrication points

Item	Designation
1	Overrunning brake equipment
2	Articulated arm height adjustment
3	Lubrication nipple protective cap

1. Clean the area around the lubrication point.
2. Remove the protective cap from the lubrication nipple.
3. Clean the lubrication nipple.
4. Position the end piece of the grease gun on the lubrication nipple and press grease through the lubrication nipple until it escapes from the lubrication point.
5. Remove the end piece of the grease gun from the lubrication nipple.
6. Remove excess grease from the lubrication nipple.
7. Press the protective cap onto the lubrication nipple.
8. Lubricate all other lubrication points.
9. Replace any missing or damaged protective caps.

10.2.4 Checking the hydraulic hose lines

The hydraulic system operates at very high pressures. The flexible lines are exposed to heavy loads due to vibrations and pressure peaks. The machine's hydraulic hose lines must be replaced every six years. Work on the hydraulic system may only be carried out by trained and qualified personnel. Irrespective of this, you must check the condition of the hydraulic hose lines regularly.

Prerequisites:

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

⚠ WARNING

Risk of burning from hot surfaces or liquids!

Parts of the machine and functional fluids become very hot during operation.

- Always wear personal protective equipment (PPE).
- Allow the machine to cool down before carrying out any work on the machine.
- Cover hot machine components with heatresistant materials.

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

1. Check the pressure in the hydraulic system on the pressure gauge. Work on the hydraulic system may only be carried out when it is depressurised.
2. Expose the hydraulic hose lines to be checked and their threaded unions.

Checking for leak tightness

3. Check the surfaces of the hydraulic hose lines for kinks, cracks or porous sections.
4. Check the leak tightness of the hydraulic hose line threaded unions (dark, damp spots).
5. Check that the hydraulic hose lines are laid without tension or chafing.

Checking the threaded unions on the pipeline

6. Check the leak tightness of the threaded unions (dark, damp spots).
7. Tighten leaky threaded unions with suitable open-ended spanners and, if necessary, visit a specialist workshop.

10.2.5 Cleaning and replacing the air filter

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

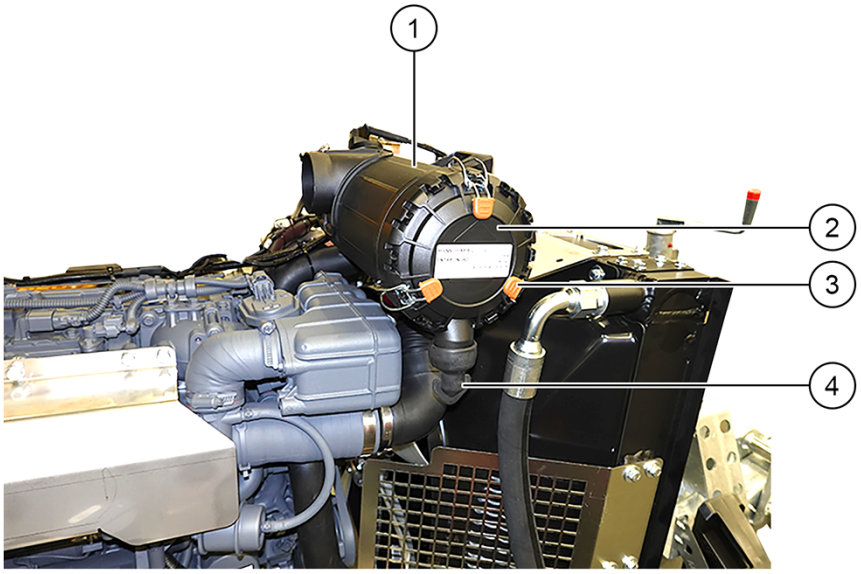


Figure 81: Air filter housing

Item	Designation
1	Air filter housing
2	Lid
3	Retaining clips (3x)
4	Dust discharge valve

1. Open the retaining clips on the cover and fold to the side.
2. Remove the cover from the air filter housing.

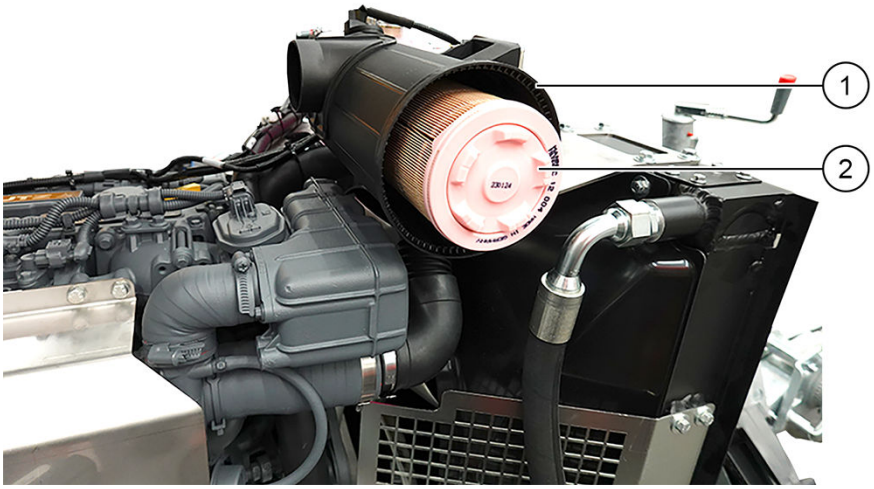


Figure 82: Engine air filter element

Item	Designation
1	Air filter housing
2	External filter element

3. Pull the external filter element out of the air filter housing.

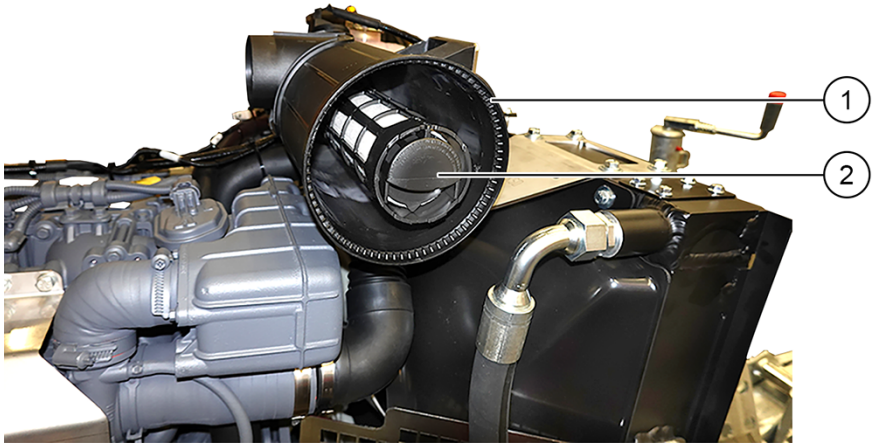


Figure 83: Engine air filter element

Item	Designation
1	Air filter housing
2	Internal filter element

4. Pull the internal filter element out of the air filter housing.
5. Clean the inside of the air filter housing and cover.
6. Blow out the external filter element with compressed air from the inside to the outside along the pleats.
7. Check the filter elements for damage.

In case of damage:

8. Replace the filter elements.
9. Insert the filter elements into the air filter housing.
10. Place the cover in the correct position on the air filter housing. The dust discharge valve must point vertically downwards.
11. Close the retaining clips.

Cleaning the dust discharge valve

12. Knead the upper area of the dust discharge valve by hand.
    ⇒ Existing dust accumulations are loosened.
13. Press the discharge slot of the dust discharge valve together.
    ⇒ The discharge slot is opened, dust falls out of the dust discharge valve.
14. Clean the discharge slot.

10.2.6 Cleaning and replacing the compressor air filter

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

1. Unlock and remove the rear cover of the machine.

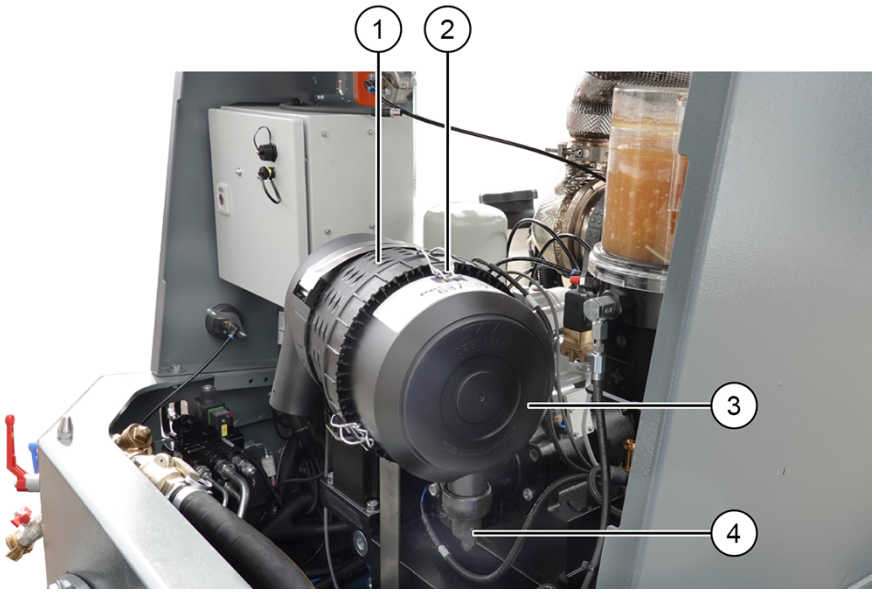


Figure 84: Compressor air filter housing

Item	Designation
1	Air filter housing
2	Retaining clips (3x)
3	Lid
4	Dust discharge valve

2. Open the retaining clips on the cover and fold to the side.
3. Remove the cover from the air filter housing.

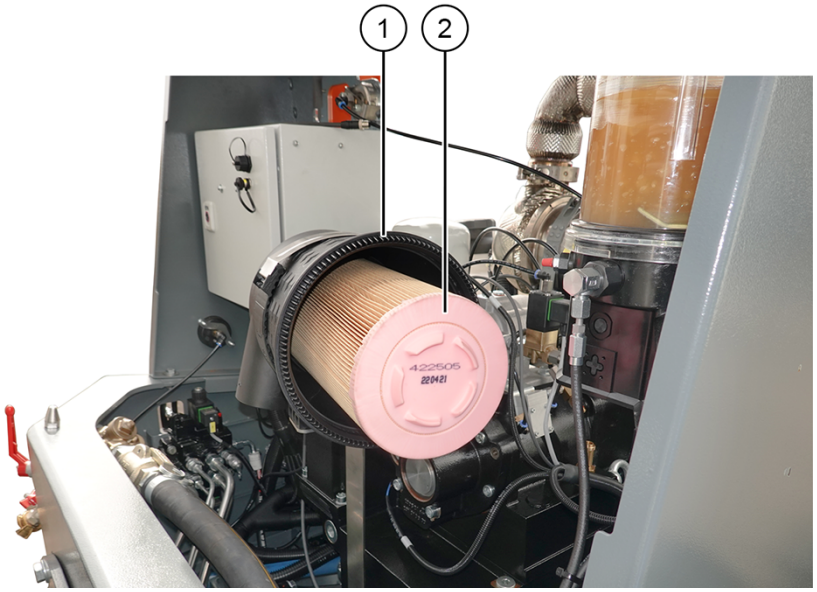


Figure 85: Compressor air filter

Item	Designation
1	Air filter housing
2	Filter element

4. Pull the filter element out of the air filter housing.
5. Clean the inside of the air filter housing and cover.
6. Blow out the filter element with compressed air from the inside to the outside along the pleats.
7. Check the filter element for damage.

In case of damage:

8. Replace the filter element.
9. Insert the filter element into the air filter housing.
10. Place the cover in the correct position on the air filter housing. The dust discharge valve must point vertically downwards.
11. Close the retaining clips.

Cleaning the dust discharge valve

12. Knead the upper area of the dust discharge valve by hand.
    ⇒ Existing dust accumulations are loosened.
13. Press the discharge slot of the dust discharge valve together.
    ⇒ The discharge slot is opened, dust falls out of the dust discharge valve.

14. Clean the discharge slot.
15. Position and lock the rear cover of the machine.

10.2.7 Cleaning the air valve fitting

Prerequisites:

✓ The engine is switched off
✓ The machine hood is open
✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

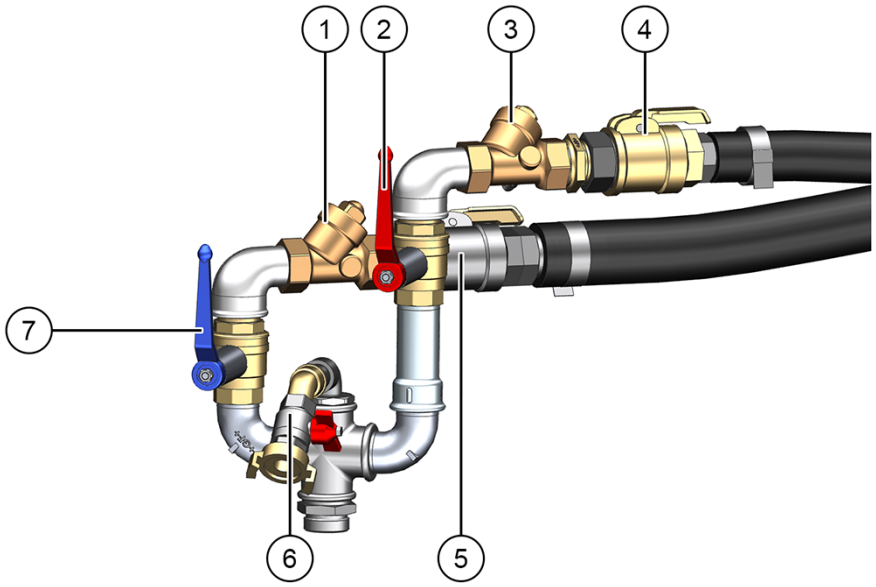


Figure 86: Air valve fitting

Item	Designation
1	Delivery air line check valve
2	Header air valve lever
3	Header air line check valve
4	Header air line coupling
5	Delivery air line coupling
6	Air port
7	Delivery air valve lever

1. Unlock and remove the rear cover of the machine.

2. Check the pressure gauge display for the pressure in the mixing vessel. Work on the compressed air system may only be carried out when it is depressurised.
3. Push the securing lever to the side.
   ⇒ The pressure in the mixing vessel is dumped.
   ⇒ The air valve fitting can now be cleaned.

Hardened contamination must be scraped out with a suitable tool. The material surface must not be damaged in the process. If cleaning is not possible, replace the dirty component.

After completion of cleaning:

4. Position and lock the rear cover of the machine.

10.2.7.1 Cleaning the header air and delivery air line couplings

Prerequisites:

✓ Compressed air system depressurised

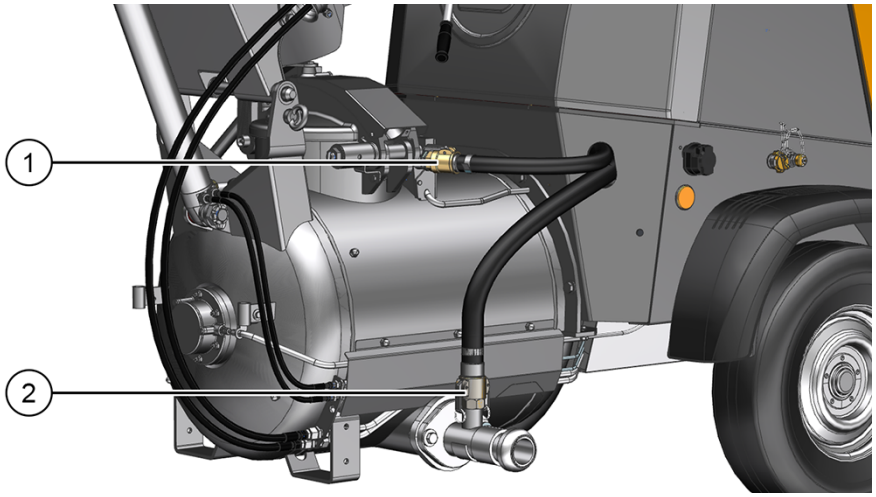


Figure 87: Header air line, delivery air line

Item	Designation
1	Header air line coupling
2	Delivery air line coupling

1. Disconnect the header air line from the mixing vessel.
2. Disconnect the delivery air line from the wear connection.

3. Clean the couplings.
4. Connect the delivery air line to the mixing vessel.
5. Connect the delivery air line to the wear connection.

10.2.7.2 Cleaning the check valve

Prerequisites:

✓ Compressed air system depressurised

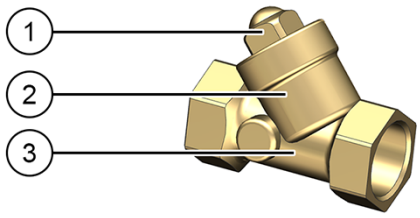


Figure 88: Check valve

Item	Designation
1	Screw plug
2	Valve core
3	Housing

1. Unscrew the screw plug on the housing of the check valve.
2. Remove the valve core from the housing.
3. Clean the valve core.
4. Check the seals of the valve core for damage.
5. Replace damaged seals.
6. Insert the valve core into the housing.
7. Screw the screw plug into the housing.

10.2.8 Cleaning the radiator

The radiator may become dirty while the machine is in operation. The cooling fins become clogged and the cooling capacity of the radiator decreases. This is the case especially in a dusty environment. For this reason, the cooling fins must be cleaned at regular intervals. Use only water and, if necessary, a cold cleaner for cleaning.

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

NOTICE

Machine damage due to poor cooling performance!

Cleaning with high water pressure or aggressive cleaning agents or diesel can damage the radiator. The poorer cooling performance can cause damage to the machine.

- Clean with a maximum water pressure of 4 bar.
- Use only cold cleaner in addition to water for stubborn dirt.
- Do not use high-pressure cleaners or steam jets. The cooling fins could be damaged.

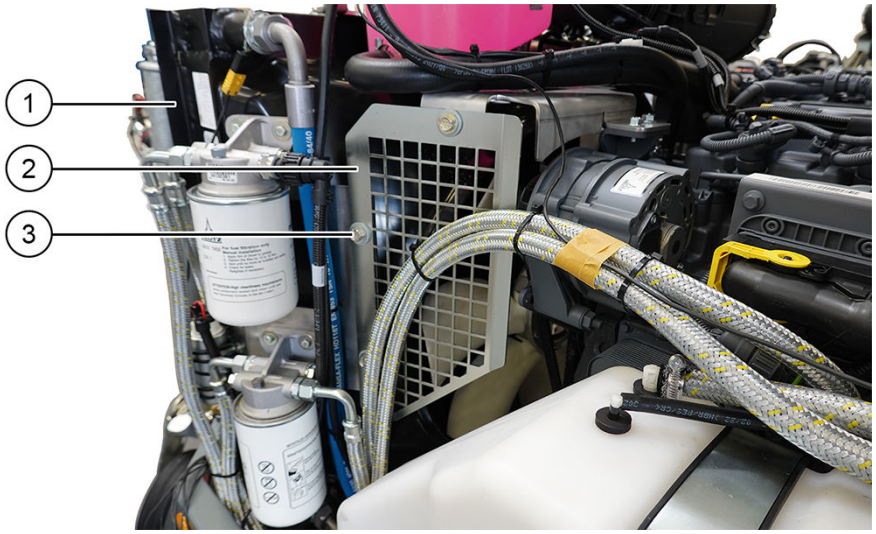


Figure 89: Left-hand radiator safety grid

Item	Designation
1	Radiator
2	Safety grid
3	Bolt (3x)

1. Undo the bolts of the left-hand safety grid and remove the safety grid.

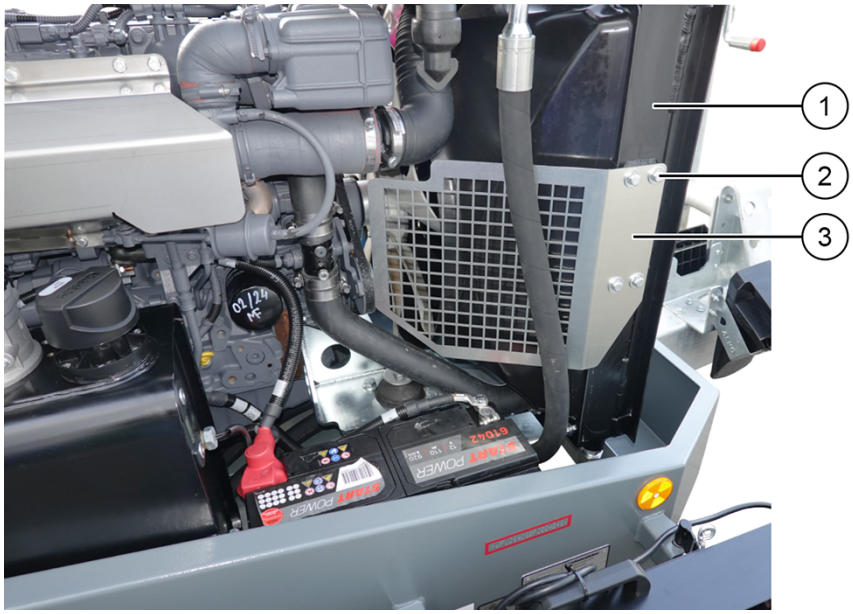


Figure 90: Right-hand radiator safety grid

Item	Designation
1	Radiator
2	Bolt (4x)
3	Safety grid

2. Unscrew the bolts of the right-hand safety grid and remove the safety grid.
3. Check the degree of contamination of the radiator.

If the radiator is very dirty:

4. Spray the surface of the radiator with cold cleaner.
5. Rinse the radiator with water from the outside inwards (against the direction of air flow).

If the contamination is difficult to remove:

6. Remove stubborn contamination from the surface with a paint-brush or a soft brush.
7. Carefully blow off the radiator with compressed air.
8. Position the left-hand safety grid and tighten the bolts.
9. Position the right-hand safety grid and tighten the bolts.

10.2.9 Draining the fuel pre-filter

The fuel pre-filter is equipped with a water-separating filter with water level sensor. The water is separated from the fuel here. The engine management system analyses the signals from the water level sensor. If a lot of water has accumulated, a corresponding message appears on the display. The fuel pre-filter must then be drained.

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

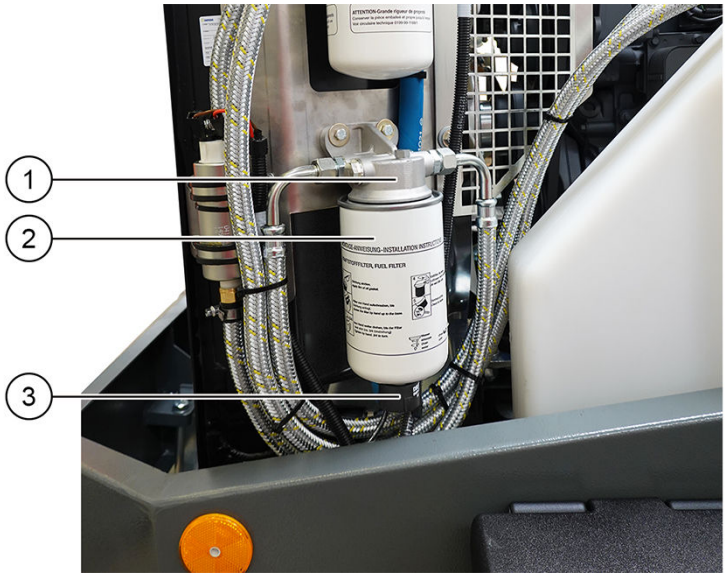


Figure 91: Fuel pre-filter

Item	Designation
1	Filter head
2	Fuel pre-filter
3	Water level sensor

1. Hold a suitable container under the fuel pre-filter to collect the draining liquid.
2. Turn the ring on the water level sensor anti-clockwise and allow the liquid to drain into the container until only fuel emerges.
3. Tighten the ring of the water level sensor clockwise.
4. Clean the working area.
5. Dispose of the drained liquid in an environmentally friendly manner in accordance with local regulations.

10.2.10 Replacing the fuel filters

Prerequisites:

✓ The engine is switched off

✓ The machine hood is open

✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

1. Place a suitable oil sump pan under the machine in the area of the fuel filters.

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

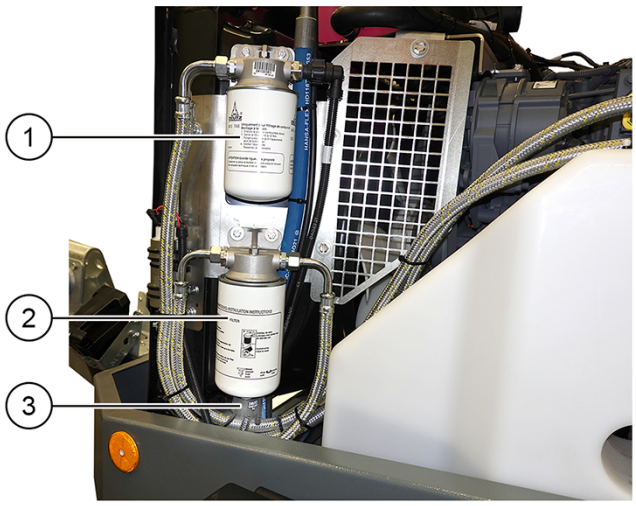


Figure 92: Fuel filter

Item	Designation
1	Fuel main filter
2	Fuel pre-filter
3	Water level sensor

Fuel pre-filter

2. Hold a suitable container under the fuel pre-filter or cover the work area with cleaning cloths to collect the draining fuel.
3. Unlock and disconnect the electrical plug-in connection of the water level sensor.
4. Turn the ring of the water level sensor on the fuel pre-filter anticlockwise and allow the fuel to drain.
5. Collect the draining fuel.

6. Loosen the fuel pre-filter with the filter strap wrench.
7. Unscrew the fuel pre-filter from the filter head by hand and remove it.
8. Clean the sealing surface of the filter head.
9. Wet the seal ring of the new fuel pre-filter with clean fuel.
10. Screw the new fuel pre-filter onto the filter head until the seal ring is in place.
11. Continue turning the fuel pre-filter by a ¾ turn.
12. Connect the electrical plug-in connection of the water level sensor.

Fuel main filter

13. Loosen the fuel main filter with the filter strap wrench.
14. Unscrew the fuel main filter from the filter head by hand and remove it.
15. Collect the draining fuel.
16. Clean the sealing surface of the filter head.
17. Wet the seal ring of the new fuel main filter with clean fuel.
18. Screw the new fuel main filter onto the filter head until the seal ring is in place.
19. Continue turning the fuel main filter by a ¾ turn.
20. Dispose of the collected fuel, the fuel filters and any soiled cleaning cloths in an environmentally friendly manner in accordance with local regulations.

Venting the fuel system

21. Switch on the machine at the MAIN SWITCH.
    ⇒ The fuel pump starts up and delivers fuel to the fuel filters.
22. Keep the fuel pump running until it is switched off.
23. Switch off the machine at the MAIN SWITCH.
24. Repeat the process four times.
    ⇒ The fuel system is vented.

Leakage check

25. Switch on the machine at the MAIN SWITCH.
26. Close and lock the machine hood.
27. Start the engine and let it run for 2 minutes.

28. Switch off the engine.
29. Unlock and open the machine hood.
30. Switch off the machine at the MAIN SWITCH.
31. Check the leak tightness of the fuel filters.

    If you detect leaks:
32. Eliminate the cause of the leak.
33. Clean the working area.

10.2.11 Frost protection measures for the highpressure cleaner (option)

All water-conducting parts of the machine must be completely drained if there is a risk of freezing.

Prerequisites:

✓ Machine cleaned with the high-pressure cleaner
✓ The engine is switched off
✓ The machine hood is open
✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on

NOTICE

Machine damage due to freezing water!

Freezing water can damage water-bearing components of the machine.

- ▸ Drain the water from all water-bearing components.
- ▸ Drain the water from the high-pressure water pump if necessary.

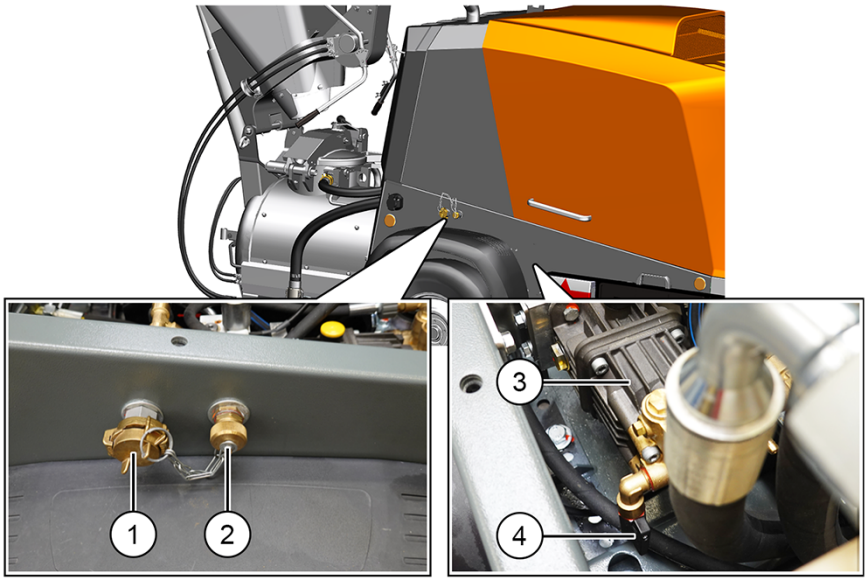


Figure 93: Highpressure water pump (option)

Item	Designation
1	Water connection
2	High-pressure hose connection
3	Highpressure water pump
4	Ball valve

1. Close the water supply.
2. Operate the high-pressure spray gun until no more water emerges from the nozzle (depressurising).
3. Disconnect the water hose from the water connection.
4. Disconnect the high-pressure hose from the high-pressure hose connection.
5. Disconnect the high-pressure hose from the high-pressure gun.
6. Stow away the high-pressure hose and high-pressure gun.
7. Open the ball valve on the high-pressure water pump and drain the residual water.

   When no more water comes out:
8. Close the ball valve.

10.2.12 Check the mixing vessel bolted connections

Prerequisites:

✓ The engine is switched off

✓ Compressed air system depressurised

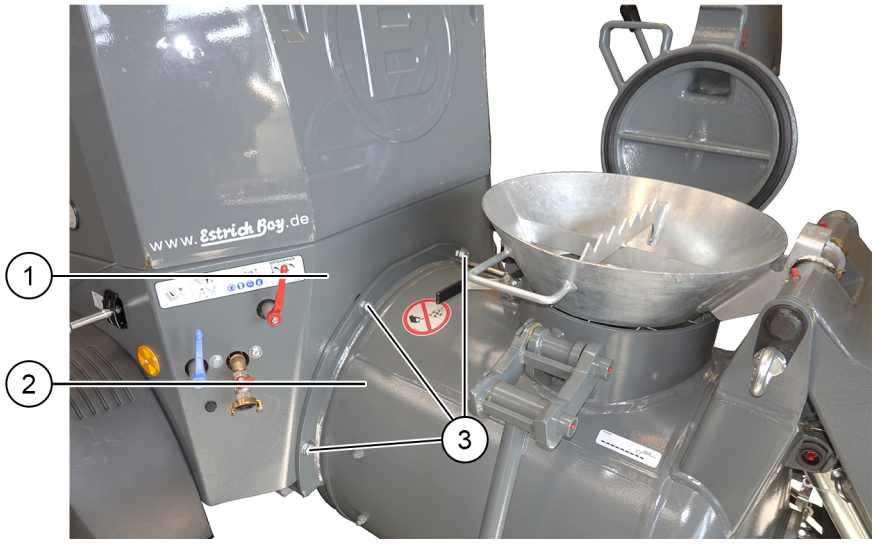


Figure 94: Mixing vessel, frame bolted connection

Item	Designation
1	Frame
2	Mixing vessel
3	Bolts (4x)

⚠ DANGER

Risk of death due to mixing vessel coming loose!

If the mixing vessel detaches from the frame of the machine during transport on the road, this can cause an accident with fatal consequences. If the mixing vessel comes loose during operation, the pressure in the mixing vessel can escape uncontrollably and throw material around. This can result in serious injuries or even death.

- Do not retighten loose bolted connections.
- Always use new self-locking nuts.
- Replace the bolted connections if the mixing vessel has been loosened or removed.
- Use only original spare parts from the manufacturer.

1. Check the tightening torque of the bolted connections of the mixing vessel and frame using the torque wrench on the nut.

If a bolted connection is loose:

2. Replace the self-locking nut.

3. Tighten the new self-locking nut with a torque of 210 Nm.

New bolted connections must be checked after 50 operating hours.

10.2.13 Checking the safety grid wear

Prerequisites:

✓ Feeder (B, BS) lowered to the ground
✓ The engine is switched off
✓ The machine hood is open
✓ The machine is switched off at the MAIN SWITCH and has been secured to prevent accidental switch-on
✓ Mixing vessel drained and cleaned

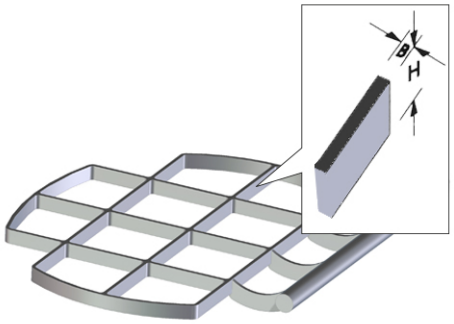


Figure 95: Checking the protective grille wear

1. Fold the hopper upwards.
2. Check the safety grid for external damage (broken bars, cracked seams).
3. Measure the height and width of the safety grid rods at points with high wear and at points without wear (edge area).
4. Compare the measured values with each other.

   In the event of damage or if the material thickness is less than 50%:
5. Replace the safety grid.

11 Shutting down the machine

This chapter provides information on how to shut down the machine temporarily or permanently.

11.1 Shutting down the machine temporarily

If the machine will not be used for a foreseeable period of time, the machine must be brought into a defined state. The machine should be parked in a dry, frost-free area.

Prerequisites:

✓ The engine is switched off
✓ Machine switched off
✓ Machine cleaned

⚠ WARNING

Risk of burning from hot surfaces or liquids!

Parts of the machine and functional fluids become very hot during operation.

- Always wear personal protective equipment (PPE).
- Allow the machine to cool down before carrying out any work on the machine.
- Cover hot machine components with heatresistant materials.

⚠ WARNING

Risk of injury due to skin or eye contact with functional fluids!

Oils and other functional fluids can be harmful to health.

- Always wear personal protective equipment (PPE).
- Take note of the safety instructions on the functional fluid packaging.
- **In case of eye contact:** Immediately wash the affected eye with sufficient water and seek medical attention if necessary.

NOTICE

Machine damage caused by unapproved functional fluids!

Functional fluids that are not approved for use in the machine can damage the machine.

- Use only functional fluids that have been approved for the machine by the manufacturer.
- Contact the manufacturer if you want to use alternative functional fluids.

1. Unlock and open the machine hood.
2. Check and, if necessary, correct the fill levels of the functional fluids *(Checking functional fluid levels P. 10 — 8)*.
3. Disconnect the battery from the machine's electrical system.
4. Lubricate the machine *(Lubricating the machine P. 10 — 15)*.
5. Preserve the machine with suitable agents.
   ⇒ The machine is now protected against corrosion.

11.2 Decommissioning and disposing of the machine

If the machine is to be decommissioned permanently, all functional fluids must be drained and the machine must be dismantled into individual components. All parts of the machine and the drained functional fluids must be disposed of in accordance with the regionally applicable regulations.

Material	Used in
Copper	Cables and lines
Steel, cast iron, aluminium	Chassis and frame of the machine
	Mixing vessel
	Feeder (B, BS)
	Scraper (BS)
	Parts of the hydraulic system

Material	Used in
	Parts of the compressed air system, the compressor
	Parts of the engine
	Parts of the exhaust system
Plastic, rubber, PVC	Hoses and lines
	Seals
	Tyres

Table 13: Materials used

Material	Used in
Electronic waste	Battery
	Control box, display
	Lines and cables
	Parts of the lighting system
	PCBs and electrical components
Functional fluids	Hydraulic fluid
	Fuel
	Engine oil
	Coolant
	Compressor oil
	Grease
	Battery acid

Table 14: Functional fluids used

- Have the machine dismantled and disposed of by a certified specialist company.

12 Functional fluids

This chapter describes the functional fluids required for machine operation and their specifications.

The “Technical data” chapter gives details of the fill volumes *(Technical data P. 4 — 1)*.

12.1 Fuel

Fuel	Specifications
Diesel	DIN EN 590:2017

12.2 Coolant

Coolant	Specifications
Fuchs Maintain Frico-fin DP	Contains silicate
	Mix ratios: • -20 °C at 33% coolant • -27 °C at 40% coolant • -40 °C at 50% coolant

12.3 Engine oil

Engine oil	Specifications
HD Part no.: 621189	Mineral
	DIN 51502
	Requirement: API CJ-4 or ACEA E9
	Viscosity: SAE 10W-40

12.4 Hydraulic fluid

Hydraulic fluid	Specifications
HLP 46 Part no.: 000171007	Mineral
	DIN EN ISO 6743-4:2015

Hydraulic fluid	Specifications
HLP 46 Part no.: 000171007	Requirement: DIN 51524-2:2017
	Viscosity: DIN ISO 3448:2010, ISO VG 46

12.5 Compressor oil

Compressor oil	Specifications
HLP 46 Part no.: 000171007	Mineral
	DIN EN ISO 6743-4:2015
	Requirement: DIN 51524-2:2017
	Viscosity: DIN ISO 3448:2010, ISO VG 46

12.6 Grease

Grease	Specifications
K2K–20	Mineral, lithium soap
	DIN 51825:2004
	NLGI Class 2, DIN 51818:1981
Part no.: 000113007	400 g for grease gun
Part no.: 000174004	18 kg for central lubrication system

12.7 Highpressure water pump oil (option)

High-pressure water pump oil	Specifications
CLP 100 Part no.: 476042	Mineral
	DIN 51517-3:2018

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