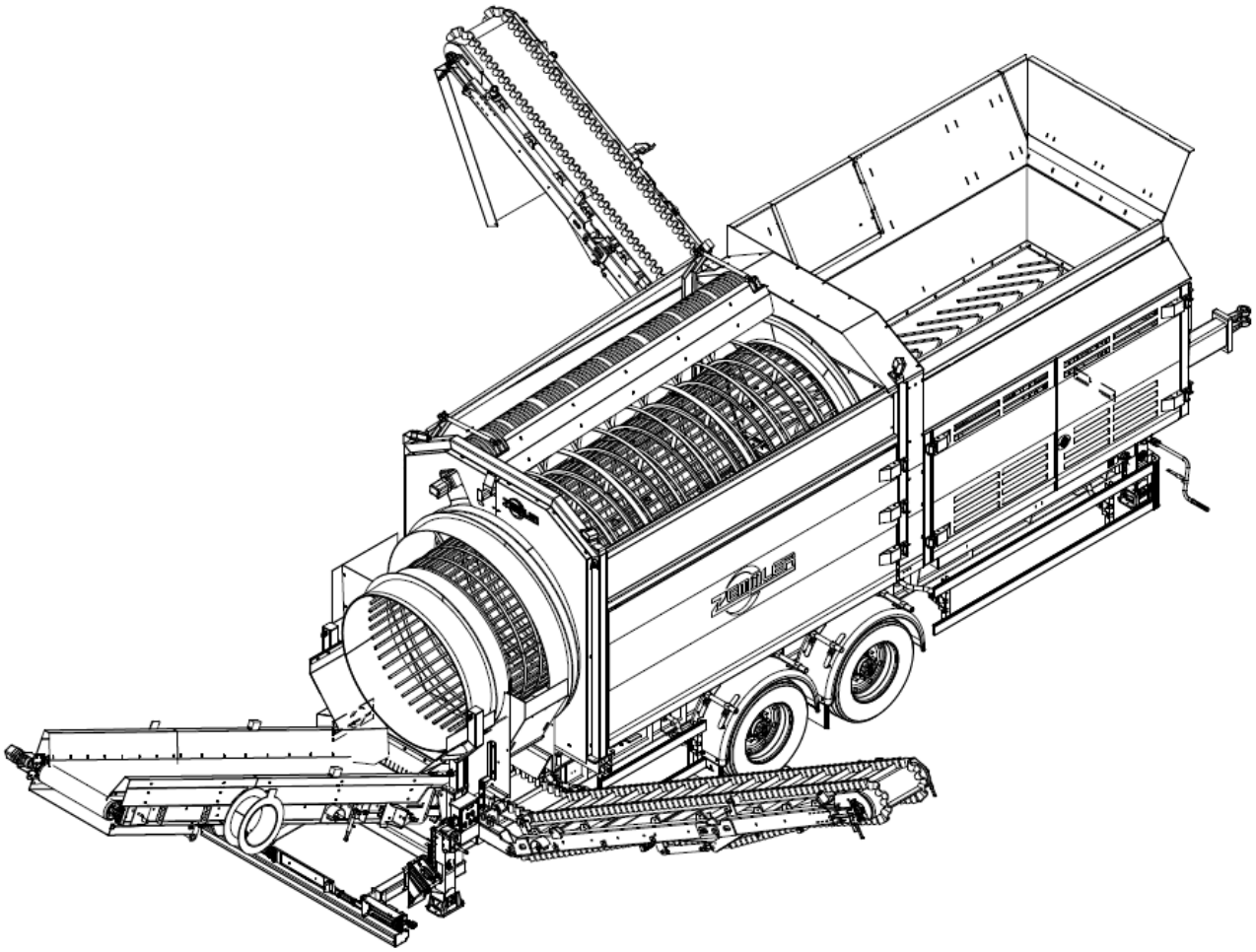


Operating instructions

Mobile double drumscreening machine

ZEMMLER® MULTI SCREEN® 61

MS 4200 / MS 5200 / MS 6700

04.24

Original operating instructions

Read the operating instructions before starting any work!

Keep for future reference!

Product name	**:**	**double drumscreening machine**
Type	**:**	**MS 4200 / MS 5200 / MS 6700**

1 Product and manufacturer

1.1 Product

The following products are described in these operating instructions:
ZEMMLER® MULTI SCREEN® MS 4200 / MS 5200 / MS 6700
All technical data and instructions given refer to the standard version of the ZEMMLER® MULTI SCREEN® MS 4200 / MS 5200 / MS 6700 with stand: April 2024 (04.24)

1.2 Manufacturer/Contact

Name Address:	**ZemmlerSiebanlagen GmbH** **Nobelstrasse 11** **03238 Massen/Niederlausitz**
Contact:	**+49 3531 7906 0**
Contact e-mail:	**info@zemmler.de**
Web:	**www.zemmler.de**
Service:	**+49 3531 7906 66**
Service e-mail:	**service@zemmler.de**

Information about regional partners can be obtained by telephone.

Please note!
When corresponding with ZEMMLER® employees, please always have the machine details such as serial number and year of manufacture from the type plate and the operating hours from the machine display at hand.

1.3 Overview of Machine Sides

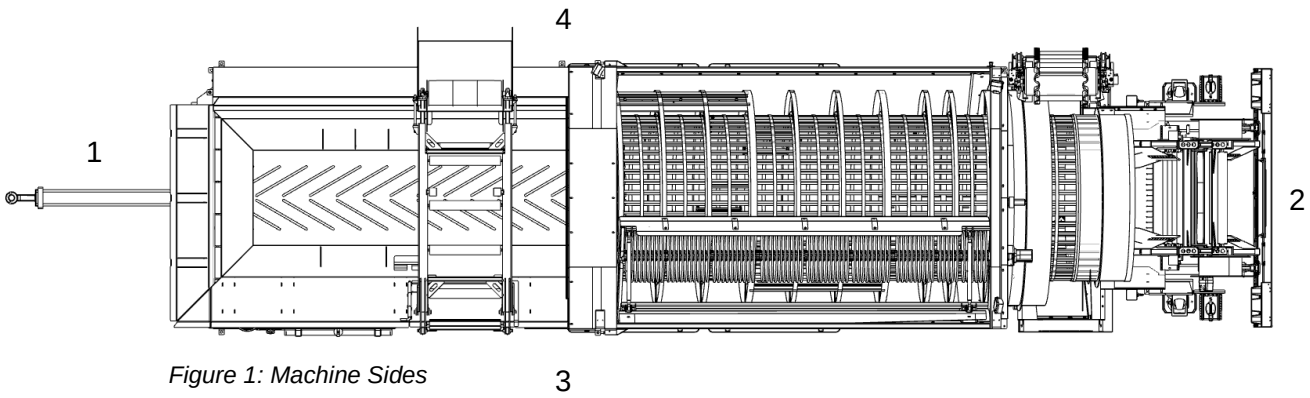


Figure 1: Machine Sides

1: Front
2: Rear
3: Left
4: Right

1.4 Overview Complete Machine

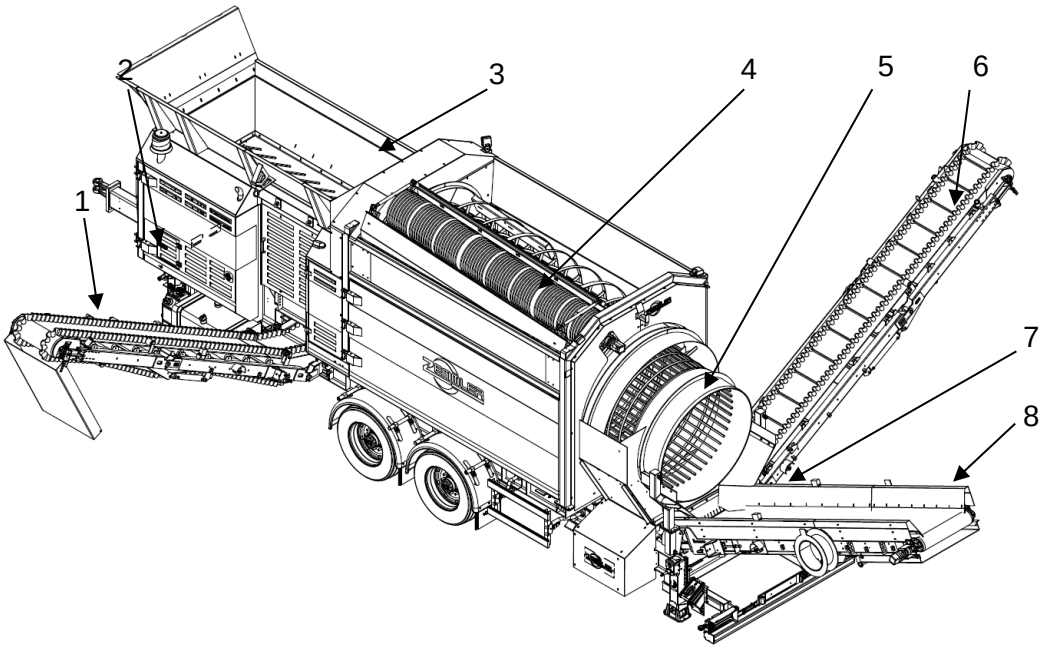


Figure 2: Assembly overview

1: Fine fraction
2: Motor and main control unit
3: Hopper with belt feeder
4: Cleaning brush
5: Double drum
6: Centre fraction
7: Rear operating unit
8: Coarse fraction

1.5 Standard Equipment

Standard Machine With:

- Central axis trailer chassis with 2 axis and tyres
- Brake system incl. ABS
- Vehicle lighting
- Towing eye 50mm
- Stop blocks (2x)
- Hooks for hopper door
- Hopper with belt feeder (BAG)
- Double drum with wire screen outside (can be supplied in different mesh sizes)
- Mechanical supports front and rear
- Mudguard with splash guard
- Removable underride guard at the rear
- Removable side protection
- central main control unit with modern touch display
- Auxiliary control unit with membrane switch
- Diesel engine with hydraulic pump (DH)
- Fuel tank 200 litres
- AdBlue tank 19 litres
- Cleaning brush with hydraulic drive
- Drum take-off belt (TAB)
- Rear discharge belt coarse fraction (GF, 3. Fraction):
  hydraulically foldable, rear
  Width 800mm
- Lateral support band centre fraction (MF, 2. Fraction):
  hydraulically foldable, right
  Width 650mm
- Side discharge conveyor fine fraction (FF, 1. Fraction):
  hydraulically foldable, left
  Width 650mm

1.6 Scope of Delivery

The ZEMMLER® MULTI SCREEN® MS 4200 / MS 5200 / MS 6700 is supplied with the following accessories as standard:

- Operating instructions with EU Declaration of Conformity (1x)
- Type plate with CE marking
- Triangular key for opening the hopper doors (1x)
- Tank spanner (2x)
- MS2 spanner for screen change actuator (2x)
- Padlock (3x)

1.7 Variants/Options

Drive

- Diesel-electric with hydraulic power pack (DE)
- Diesel-hydraulic (DH)
- Electro-hydraulic (EH)
- Electric (E)
- Spiral fan for diesel engine
- Spiral fan hydraulic oil cooler incl. reversing control

Chassis

- 25 km/h centre-axis trailer chassis with 2 axis
- Skid
- Tracked undercarriage with cable remote control (R, caterpillar)

Drum

- Ripper knife in 1. Drum section
- Inner basket partition screwable
- Welded inner basket partition
- Single drum
- Drum without clamping station
- Weather protection roof for drum/brush (removable)
- Wire screen inside for double drum

Tapes

- Profile belt for belt feeders (BF)
- Permanent drum magnet
- Conversion to 2 fractions
  (shortened inner drum, omission of 3rd fraction)
- Conversion to 2 fractions
  (shortened inner drum, elimination of 2nd fraction + widening of 3rd fraction)
- Extended 3rd fraction
- Extended 2nd fraction

Funnel

- Stone grid, hydraulically mounted with chute on hopper
- Wear plates in the hopper (screwable)

Miscellaneous

- Worklights
- Gusset shoe extension
- Standard remote control
- Maxi remote control
- Remote data transmission
- Hydraulic supports
- TopSpin Pre-Cleaner
- Compressor
- Additional hydraulic connection
- SKF centralised lubrication system
- VBG towing eye
- Fire extinguisher
- Special paintwork

2 Information on the operating instructions

2.1 Use of the operating instructions

NOTE!
Prerequisite for working on/with the ZEMMLER® MULTI SCREEN®
MS 4200/ MS 5200/ MS6700 is to understand the functions of the trommel screening machine.

When operating the trommel screening machine and during inspection and maintenance work, it is particularly important to observe the safety aspects. Personnel must therefore have carefully read and understood these operating instructions before starting any work. In addition, the applicable local accident prevention regulations and general safety regulations at the place of use of the machine must be observed. Illustrations in these operating instructions are for basic understanding and may differ from the actual design of the machine. No claims can be derived from this.

2.2 Purpose of the operating instructions

These operating instructions are an integral part of the machine and are essential for successful and safe operation. The operating instructions contain important information on how to operate the drum screening machine safely, properly and economically. Observing them helps to avoid hazards, reduce repair costs and downtimes and increase the reliability and service life of the system. These operating instructions also help the operator of the drum screening machine to take organisational measures in their company that are a prerequisite for the safe operation of the machine and form the basis for efficient and high-quality production. These operating instructions contain information on the safe, trouble-free and economical use of the machine.

2.3 Availability

The operating instructions must be available to the operator of the machine and must be read and applied by every person who is involved in work with/on the machine, e.g: Operation, rectification of malfunctions in the work process, disposal of operating and auxiliary materials, maintenance (servicing, care, repair), quality assurance and/or transport. The operator shall make these operating instructions or extracts thereof available to persons who carry out tasks with or in connection with the machine. The operator must keep these operating instructions or relevant parts of them within easy reach in the immediate vicinity of the machine. If the machine is handed over to another person, the operator passes these operating instructions on to this person.

2.4 Target group

The operating instructions are a reference work for the information of the operating personnel, the operator and, if applicable, specialised personnel who work on the drum screening machine for maintenance, troubleshooting and quality assurance purposes. These operating instructions are intended to make it easier for the machine operator to work safely and professionally on the machine.

2.5 Components of the operating instructions

The operating instructions for the drum screener consist of the following parts:

1. The operating instructions (hereinafter also abbreviated to “OI ") provide information on the function, installation, commissioning, transport, operation, maintenance, servicing and decommissioning of the machine.
   The operating instructions are not a textbook, but a reference work.
2. A copy of the machine's EU Declaration of Conformity.
3. The customer service documents.
4. The vehicle documents.
5. The diagrams consist of the spare parts list, the hydraulic diagram and the electrical circuit diagram. These documents provide the operator's specialised personnel with assistance when ordering spare parts and rectifying faults.
6. The supplier documentation (applicable documents) is included in the appendix.

2.6 Applicable documents

The machine consists of a large number of individual components and parts from different manufacturers. Operating or assembly instructions as well as declarations of conformity or installation declarations from the manufacturer are available for vendor parts and/or assemblies.
The individual components and parts are designed in accordance with the technical specifications of their respective manufacturers for the loads to be expected when the machine is used as intended. The information and notes contained in the assembly, installation, operating and maintenance instructions of the manufacturers of the individual components and parts have been taken into account in the design and assembly of the machine. The supplier's documents also require attention when operating the machine and therefore form part of these operating instructions. The information and instructions contained therein must be observed by the operator. The work specified in the maintenance and repair instructions in the supplier documentation must be carried out.

2.7 Presentation conventions

Sign

The following symbols are used in these operating instructions:

- Enumerations, calls to action

7. Action steps

1 Item number

In the illustrations, arrows and circles draw attention to certain things.

Warning and safety instructions
The general warning and safety instructions in these operating instructions are structured as follows:

SIGNAL WORD!
Origin of the danger!
Consequences of ignoring the danger.
- Behavioural instructions to avoid the danger.

Warnings and safety instructions that describe a danger or cause of material damage that exists directly during the activity are structured as follows:

Signal words
The symbols in conjunction with the signal words mean:

DANGER!

This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING!

This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION!

This symbol indicates a potentially hazardous situation which, if not avoided, could result in minor injury.

NOTE!

This symbol indicates all instructions that refer to regulations, guidelines or work processes that must be observed. Non-observance can result in damage to or destruction of the double drum screen and/or other system components, faulty production and environmental hazards.
Application tips and other particularly useful information in these operating instructions are also emphasised.

Magnetic field warning
DIN EN ISO 7010-W006
Take care not to be exposed to a strong magnetic field.

Warning of electrical voltage
DIN EN ISO 7010-W012
Take care not to come into contact with electrical voltage.

Warning of hot surface
DIN EN ISO 7010-W017
Take care not to come into contact with hot surfaces.

Warning of counter-rotating rollers
DIN EN ISO 7010-W025
Be careful in the vicinity of counter-rotating rollers

Warning of crushing hazard
DIN EN ISO 7010-W019
Be careful not to get caught between parts of a device that could move towards each other

Warning of hand injuries
DIN EN ISO 7010-W024
Take care to avoid hand injuries caused by closing mechanical parts of a machine/equipment.

2.8 Liability and warranty guarantee

The system documentation, including all its parts, is protected by copyright. Any use outside the narrow limits of copyright law without the consent of Zemmler Siebanlagen GmbH is not permitted and is punishable by law. This applies in particular to reproductions and adaptations. The transfer of these operating instructions to third parties is prohibited and will result in liability for damages. All information and instructions for the operation and maintenance of the system are provided to the best of our knowledge, taking into account our previous experience and findings. We reserve the right to make technical changes as part of the further development of the system described in these operating instructions. Only spare parts approved by us and specified in the spare parts catalogue may be used. Zemmler Siebanlagen GmbH shall be liable for any errors or omissions, to the exclusion of further claims, within the scope of the warranty obligations stipulated in the main contract. Claims for compensation also exist to the extent of the compensation obligations agreed in the main contract. Translations are carried out to the best of our knowledge. Zemmler Siebanlagen GmbH cannot accept any liability for translation errors. The printed German version of the documentation supplied shall remain authoritative. The textual and graphic representations do not necessarily correspond to the scope of delivery or a possible spare parts order. The drawings, graphics and photomontages do not correspond to the 1:1 scale. The actual scope of delivery may differ from the explanations and illustrations described here in the case of special versions, the utilisation of additional ordering options or due to the latest technical changes. The contractually agreed obligations apply.

Guarantee
In addition to the seller's statutory liability for material defects, Zemmler Siebanlagen as the manufacturer guarantees the perfect durability of properly used products from ZEMMLER® Siebanlagen under the following conditions. The warranty covers the function of ZEMMLER® Siebanlagen products and includes all defects that are demonstrably attributable to manufacturing or material defects.

Zemmler Siebanlagen GmbH accepts no liability for consequential damage!
Zemmler Siebanlagen GmbH accepts no liability for damage to property or personal injury caused by improper handling or ignoring of safety instructions. In such cases, all warranty claims are void.

Declaration of Conformity
The design and construction of the machine complies with the basic safety and health requirements of the EC Machinery Directive, including the amendments applicable at the time of declaration. The EU Declaration of Conformity is part of the appendix to the operating instructions.

Warranty conditions

Our warranty consists exclusively in repairing the product free of charge for the first end user and/or delivering a replacement free of charge within the warranty period, at our discretion. Costs, expenses, postage and the like incurred by the warrantee shall not be reimbursed. The warranty claim only exists against presentation of the defective component. The replacement of a defective component is carried out exclusively by ZEMMLER® Siebanlagen GmbH or an authorised service company commissioned by us. The warranty claim expires as soon as repairs are carried out by unauthorised service companies and/or non-original spare parts are used. The warranty only applies if the maintenance and care instructions contained in the operating instructions are properly observed.

Warranty period

The contractually agreed obligations apply.
Excerpt, from our contracts: The warranty period is 12 months from delivery of the machine or before 1,000 operating hours have been reached. The valid basis for recording the machine hours is the hour counter of the diesel engine, or alternatively the hour counter of the control unit for electric machines. Damage caused by improper operation and maintenance as well as natural wear and tear due to operational wear and tear and all parts in contact with the material are excluded from the warranty. All consequential damage is also excluded from the warranty. Warranty periods may differ contractually.

Warranty disclaimer

All replaceable individual parts, e.g. screws, connecting pins, etc. are excluded from this warranty. Furthermore, no liability is accepted for damage caused by:

- Non-observance of the operating instructions
- Use of untrained personnel and uninstructed personnel
- Unauthorised modifications
- Technical changes
- Non-intended, unsuitable and improper use
- Use of unauthorised spare/wear parts
- Wear parts (belts, edge rubbers, scrapers, screen linings, brush elements) Wear parts are all components that come into direct contact with the to be processed material during normal operation.
- faulty and negligent handling
- Non-observance of maintenance and operating instructions, modifications, Self-repairs and inspections, chemical, physical and improper use of the material surface, e.g. damage caused by sharp objects.

2.9 Copyright protection

3 Security

3.1 General safety information

The chapter on safety provides an overview of the safety aspects to be observed when operating the drum screen machine. The general safety instructions refer to the safety-related condition of the drum screening machine, the requirements for operation and maintenance as well as the handling of operating and auxiliary materials. In addition to these general instructions, the individual chapters of the operating instructions contain descriptions of procedures or opertional instructions with specific safety instructions where necessary. Only the observance of all safety instructions (general and specific) enables the optimum protection of personnel and the environment from hazards and the safe and trouble-free operation of the drum screen machine. ZEMMLER® Siebanlagen recommends the operator to develop a safety concept for the work processes in his company on the basis of the information provided or to adapt an existing concept if necessary. Necessary instructions or instructions for implementing this concept should be defined for the individual work areas in the form of written operating instructions. The drum screen machine is built according to the currently valid rules for technology and is safe to operate. We design and produce our machines in accordance with the Machinery Directive 2006/42/EC. However, the machine may present hazards if it is used by untrained personnel, improperly or for purposes other than those for which it is intended. Therefore, every person who is authorised to operate or maintain the machine must have read and understood the complete operating instructions before carrying out the corresponding work. This also applies if the person concerned has already worked with such a machine or a similar machine or has been trained by ZEMMLER® screening systems. The operator is recommended to have the personnel confirm in writing that they have read and understood the contents of the operating instructions. Knowledge of the contents of the operating instructions is one of the prerequisites for protecting people from danger and avoiding errors. The OI must be accessible to operating and maintenance personnel at all times! Ultimately responsible for accident-free operation is the operator or the personnel authorised by the operator, who must handle the machine in accordance with their duties. The information on occupational safety refers to the currently valid regulations of the European Community. In other countries, the relevant laws and state regulations must be observed and complied with. Both for the European Community and for other countries, the current status of all regulations must be determined by the operator. In addition to the safety instructions in these operating instructions, the generally applicable safety and accident prevention regulations must be observed and complied with. All information in the operating instructions must be followed without restriction! The design and construction of the machine complies with the currently valid rules of technology. To avoid hazards and to ensure optimum performance, no modifications or conversions may be made to the machine that have not been expressly authorised by ZEMMLER® Siebanlagen. This also applies to programme changes to programmable control systems. Unauthorised modifications or changes, especially those that affect the safety of personnel, the environment or the system, are generally not permitted. The base values or value ranges specified in the operating instructions must not be exceeded. Spare and wear parts used must comply with the technical requirements specified by ZEMMLER® screening systems. This is guaranteed with original spare parts. The operator is obliged to operate the machine only when it is in perfect, operationally safe condition. In particular, all safety devices and interlocks must be easily accessible and regularly checked to ensure that they are working properly.

3.2 Occupational safety

Observing the instructions on work safety can prevent hazards to persons, the environment and/or the drum screening machine. Ignoring these instructions may have the following consequences:

- Danger to persons due to mechanical, electrical or chemical effects;
- Danger to the environment;
- Failure of the drum screening machine and/or other machine parts.

Ignoring the safety regulations can lead to the loss of any claims for damages!

3.3 Intended use

The operational safety of the drum screening machine is only guaranteed if it is used as intended in accordance with the information in the operating instructions. The drum screening machine is a system specifically designed for classifying (screening) bulk materials into three fractions. Maximum and minimum grain sizes must be observed, as well as the maximum moisture content of the bulk material. Any other or additional use is considered improper use! The operator alone is liable for any damage resulting from this. This also applies to unauthorised modifications to the machine. Intended use also includes compliance with the commissioning, operating and maintenance conditions prescribed by ZEMMLER® Siebanlagen as well as the use of bulk materials approved by ZEMMLER® Siebanlagen and the operating and auxiliary materials specified. Furthermore, only original spare parts may be used. Incorrect or faulty spare parts can damage the machine. Intended use includes compliance with the operating, maintenance and cleaning instructions specified by the manufacturer. Liability is excluded in the event of unauthorised use or improper use. The screening machine was designed to screen a wide variety of materials, such as building rubble, compost, soil, stones and sand up to a grain size of 2 mm. The maximum grain size that can be processed without an optionally available stone grid is ≤ 250 mm.

NOTE!

Our specialists will be happy to answer any questions you may have about the appropriate bulk material and sieves to ensure you get the most out of your machine.

Not Intended use

Any use of the machine other than the intended use can lead to dangerous situations.

- Only use the machine as intended in accordance with the information in this document, in particular in compliance with the application limits specified in the technical data.
- Do not use the machine in any other way or for any other purpose.
- Reconstruction, conversion or modification of the construction or individual parts of the equipment with the aim of changing the area of application or the usability of the machine.
- Claims of any kind due to damage resulting from improper use are excluded.
- Intended use of the machine also includes compliance with the operating, maintenance and servicing instructions prescribed by the manufacturer.
- The operator alone is liable for any damage caused by improper use.

3.4 Foreseeable misuse

Misuse of the machine can lead to dangerous situations for persons and cause serious damage to property. Refrain from any misuse of the machine.
In particular, do not use the machine to sieve the following materials:

- explosive and flammable materials
- Food/feed
- pressurised containers
- without the optionally available stone grid, no grain larger than 250 mm may be processed.

Never use the machine as described below:

- climb onto it during operation
- use for towing
- use for travelling with or transporting people
- operate without protective panelling or protective device
- be operated by untrained or unauthorised personnel
- work on pressurised components even though they have not been depressurised
- fill with undefined material
- disregard the technical specifications of the individual components
- change without authorisation
- operate within an explosive atmosphere
- operate within closed rooms that cannot be adequately ventilated

3.5 Responsibilities

3.5.1 Responsibility of the operator

The operator is any natural or legal person who uses the machine or
Authorises third parties. The operator is responsible for the safety of the user, personnel or third parties during use. If the machine is used in the commercial sector, the operator of the machine is subject to the legal obligations for occupational safety. In addition to the warnings and safety instructions in these operating instructions, the safety and accident prevention regulations applicable to the area of use of the machine must be observed.

The operator must observe the following instructions in particular:

- inform about the applicable health and safety regulations.
- Carry out a risk assessment to determine possible additional hazards arising from the specific application conditions at the machine's place of use.
- During the entire period of use of the machine, regularly check whether the operating instructions he has drawn up correspond to the current status of the regulations.
- If necessary, adapt new regulations, standards and operating conditions in the operating instructions.
- Implement the necessary behavioural requirements for operating the machine at the place of use in operating instructions. The operator must supplement the operating instructions on the basis of existing national regulations on accident prevention and environmental protection, including information on supervisory and reporting obligations to take account of special operational features, e.g. with regard to work organisation, work processes and personnel deployed. In addition to the binding regulations on accident prevention and occupational safety applicable in the country of use and at the place of use, the recognised technical rules for safe and professional work must also be observed.

- If necessary, adapt new regulations, standards and operating conditions in the operating instructions.
- Only trained or instructed personnel may be used.
  A machine operator must be selected who is to be given responsibility for the machine and the personnel. Personnel to be trained, instructed or undergoing general training may only work on the system under the constant supervision of an experienced specialist.
  When selecting personnel, the youth labour protection regulations of the respective country and, if applicable, any job-specific regulations based on these must be observed with regard to the minimum age.
  If staff do not have the necessary knowledge, they must be trained accordingly. This can be carried out by ZEMMLER® Siebanlagen on behalf of the operator.
- Clearly and unambiguously regulate the responsibilities for installing, operating, maintaining and cleaning the machine.
- Ensure that all employees working on the machine have read and understood these operating instructions.
- Design technological and organisational work preparation in such a way that stressful situations during work are avoided.
- In addition, he must train the personnel in the use of the machine at regular intervals and inform them of the potential hazards.
- Provide personnel working on the machine with the prescribed and recommended protective equipment and ensure that it is worn at all times.
- Ensure the necessary clearances and sufficient lighting for safe working as well as constant order and cleanliness at the machine installation site and its surroundings.
- Ensure sufficient and safe exhaust gas extraction from the working area when installing the machine in a hall.
- Ensure sufficient fresh air supply and exhaust air discharge when installing in a hall due to dust exposure and to cool the machine.
- Secure the danger zone with barrier tape and clearly display prohibition signs.
- Unauthorised persons are prohibited from entering the working area of the machine.
- First aid equipment (first aid kit etc.) must be kept within easy reach! The location and operation of fire extinguishing equipment must be publicised. Fire detection and fire-fighting facilities must be provided.

Furthermore, the operator is responsible for the following:

- The machine must always be in perfect technical condition.
- The machine must be maintained in accordance with the specified maintenance intervals.
- The operator must select suitable lifting gear, tools, work equipment, aids and climbing aids for all work on and with the machine and make them available for use so that safe working conditions are guaranteed.
- Check all safety devices on the machine regularly to ensure that they are complete and functional.
- Clean and wash the machine after road transport in the winter on salted roads or after maritime transport.

3.5.2 Responsibilities of the staff

Due to the commercial use of the machine, the personnel are subject to the statutory occupational safety obligations. In addition to the warnings and safety instructions in these operating instructions, the safety, accident prevention and environmental protection regulations applicable to the area of use must be observed. The machine may only be operated and maintained by authorised, trained and instructed personnel. These personnel must have received special instruction on any hazards that may arise. The machine may only be operated and maintained by persons who can be expected to carry out their work reliably. In doing so, any method of working that impairs the safety of persons, the environment or the system must be avoided. Persons who are under the influence of drugs, alcohol or medication that affect their ability to react must not carry out any work on the machine the operator must ensure that no unauthorised persons work on the machine. Unauthorised persons, such as visitors etc., must not come into contact with the machine. Personnel must maintain an appropriate safety distance. To prevent personal injury, the work clothing of operating and maintenance personnel must comply with the accident prevention regulations and recommendations of the employers' liability insurance associations (no wide sleeves, low tear resistance, etc.).
Personal protective equipment (eye protection, hearing protection, protective clothing, etc.) must be worn in accordance with the work to be carried out.

In particular, personnel must observe the following instructions:

- inform about the applicable health and safety regulations.
- Comply with the behavioural requirements specified in the operating instructions for operating the machine at the place of use.
- Carry out the assigned responsibilities for operating, maintaining and cleaning the machine.
- Before starting work, read the operating instructions in full and ensure that all instructions have been understood.
- Use the prescribed and recommended protective equipment

Furthermore, every person working on the machine is responsible for the following within the scope of their responsibility:

- The machine must always be in perfect technical condition.
- The machine must be maintained in accordance with the specified maintenance intervals.
- Check all safety devices on the machine regularly to ensure that they are complete and functional.

3.6 Personnel and qualification requirements

3.6.1 Personnel

Any work on the machine may only be carried out by persons who can perform their work properly and reliably and who fulfil the requirements specified for their work.
Persons whose ability to react is impaired, e.g. by drugs, alcohol or medication, must not carry out any work.
When deploying personnel, always observe the age and occupation-specific regulations applicable at the place of deployment.
High visibility waistcoats and protective clothing in highly visible colours should be worn to increase the visibility of personnel.

3.6.2 Qualification

Improper work on and with the machine can lead to considerable personal injury and damage to property. Only persons who have the necessary training, knowledge and experience may carry out any activities.

Every person who carries out work on the machine must fulfil the following qualification requirements, depending on their activity:

• Transport	Transport personnel
• Installation and commissioning	Operating personnel
• Operation	Operating personnel
• Cleaning	Operating personnel
• Maintenance	Operating personnel
(depending on the type of activity)	Specialised personnel
• Preventive maintenance	Specialised personnel
• Troubleshooting	Specialist personnel commissioned by the operator
depending on the type of activity	
• Decommissioning	Operating personnel
• Dismantling the operator	Instructed specialist personnel authorised by Supervisor
• Disposal	Instructed and authorised by the operator
	Specialised personnel
	Supervisor

Transport personnel
Transport personnel are persons who have acquired and demonstrated special skills and knowledge for driving motor vehicles on public roads. The driver of the towing vehicle must be in possession of a valid driving licence to transport the machine on public roads.

Operating personnel
Operating personnel are persons who have been informed by a specialist about the tasks assigned to them and the possible dangers of improper behaviour and, if necessary, have been trained and instructed about the necessary protective equipment and protective measures. The initial instruction takes place in a training course organised by the manufacturer or dealer of the machine.

Specialised personnel
Specialist personnel are persons who are able to assess the work assigned to them and recognise potential hazards based on their specialist training, knowledge and experience as well as knowledge of the relevant standards.

Instructed specialised personnel
Trained specialist personnel are persons who have been instructed by a specialist about the tasks assigned to them and the possible dangers of improper behaviour, as well as about the necessary protective equipment and protective measures and who are able to assess the work assigned to them and recognise potential hazards based on their specialist training, knowledge and experience as well as knowledge of the relevant standards.

Qualified specialists
Qualified specialist personnel are persons who have acquired and demonstrated special experience, knowledge and skills for the safe performance of activities in specialised fields. Based on their professional training, knowledge and experience as well as knowledge of the relevant regulations, they are able to assess the operational safety of work equipment. They must be named in writing by the contractor, stating their area of responsibility.

Qualified electricians
Qualified electricians are persons who, due to their professional training, knowledge and experience as well as knowledge of the relevant regulations, are able to carry out work on electrical systems properly, recognise possible dangers independently and avoid personal injury and damage to property caused by electrical current. All work on the electrical equipment may only be carried out by qualified electricians.

Hydraulics specialists
Hydraulics specialists are persons who, due to their specialist training, knowledge and experience as well as knowledge of the relevant regulations, are able to carry out work on hydraulic systems properly, recognise possible dangers independently and avoid personal injury and damage to property caused by hydraulics. All work on hydraulic equipment may only be carried out by specialised hydraulic personnel.

Supervisor
The supervisor is a person who is reliable, familiar with the work and authorised to give instructions. This person supervises and monitors the safe execution of the work. This person must have sufficient technical knowledge to do so.

3.6.3 Instruction

Before starting work, every person assigned to work must be instructed by the operator about the tasks assigned to them and the potential hazards involved in the work.

- Repeat instructions at regular intervals (at least once a year).
- Keep a record of every staff training session.

Date	Name	Topic	Instructed by	Signature of the instructed person

Table 1: Sample instruction protocol

3.6.4 Unauthorised persons

Any person who meets one or more of the following criteria is deemed to be unauthorised:

- A person who has not read these operating instructions or has not read them in full or has not clearly understood them.
- Person who does not fulfil the qualification requirements for working on the machine.
- Person who has not been instructed and/or authorised by the operator or his authorised representative to work on the machine.
- A person who is exposed to a greater risk of injury from the machine due to their age, literacy, physical and mental constitution or other limitations.

3.7 Personal protective equipment

The following protective equipment must be worn when working on and with the drum screening machine:

Protective work clothing
Tight-fitting workwear with low tear resistance, tight sleeves and no protruding parts, primarily to protect against being caught by moving machine parts.

- Do not wear rings, chains or other jewellery.

Safety shoes
Non-slip safety shoes to protect feet from injuries caused by falling parts and to prevent slipping and falling on slippery surfaces.

Safety waistcoat
To improve visibility, wear a high-visibility waistcoat or high-visibility clothing.

- Wear a high-visibility waistcoat or high-visibility clothing to be clearly visible to others.
- Keep high-visibility clothing clean to maintain recognisability.

The following protective equipment must be worn when operating the machine:

Hearing protection
Hearing protection to protect against hearing damage.

The following protective equipment must also be worn for special work:

Protective gloves
Sturdy protective gloves to protect hands from abrasion, scrapes, scratches, punctures or similar skin injuries and from minor burns on contact with hot surfaces.

Industrial safety helmet
Industrial safety helmet to protect against head injuries caused by falling or flying parts or materials.

NOTE!

To avoid illness caused by climatic influences, always wear appropriate work clothing for the weather conditions at work.

3.8 Residual risks

The machine was subjected to a risk assessment. The hazards identified in the process were eliminated as far as possible and recognised risks were reduced. Nevertheless, there are residual risks associated with the machine, which are described in the following section.

- The warnings and safety instructions listed here and in the operating chapters of these instructions must be observed in order to avoid possible damage to health and dangerous situations.
- The specified hazards may vary depending on the machine type and equipment.

3.8.1 Residual risks feed hopper with belt feeder

DANGER!

Hazards due to moving and rotating components of the belt feeder

Catching, winding and crushing in the event of intervention or contact with moving parts of the belt feeder

- Interference or contact with moving parts of the belt feeder is prevented by motor compartment doors with door safety sensors and grilles.
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to moving components of the stone grid

Detection and crushing in the event of intervention or contact with moving parts when swivelling or raising and lowering the stone grid

- Interference or contact with moving parts when swivelling or raising and lowering the stone grille is prevented by the arrangement of the stone grille.

DANGER!

Hazards due to falling screenings

Crushed by screenings falling or falling beside it during loading of the feed hopper (with the wheel loader).
Crushed by sliding coarse material when tilting the stone grid

- Watch out for falling material
- No persons may be present in the danger zone while the screen is in operation. Cordon off the danger zone to prevent unauthorised access.
- Do not overfill the feed hopper
- Close feed hopper door before sieving operation
- Use a helmet

WARNING!

Hazards due to difficult accessibility of components (access)

Uncomfortable, unnatural or unhealthy postures and particular effort when adjusting the belt, cleaning and opening and closing the hopper flap.

- Use funnel hooks and ladder

3.8.2 Residual risks of the screening drum with drum take-off belt

DANGER!

Hazards due to rotating screen drum in screening operation

Pulling in, catching, winding up and crushing fingers or
Hands when reaching into rotating components of the screening drum

- Tampering with the screening drum during screening operation is prevented by drum doors with door safety sensors.
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to rotating screen drum during screen change

Pulling in, catching, winding up and crushing fingers or
Hands when reaching into rotating components of the screening drum when opening side doors

- Screen change by one person
- Never leave the key inserted

DANGER!

Hazards due to moving and rotating components of the drum haul-off conveyor

Catching, winding and crushing in the event of intervention or contact with moving parts of the drum haul-off belt

- Tampering with the TAB in sieving mode is prevented by drum doors with door safety sensors.
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to rotating cleaning brush

Catching, winding and crushing in the event of intervention or contact with moving parts of the cleaning brush

- Interference or contact with moving parts during operation of the cleaning brush is prevented by the positioning.
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

WARNING!

Hazards due to sharp ripper knives

Cut injuries due to product- and technologically-dependent sharp edges of the ripper blades during maintenance work.

- Keep away from the sharp edges of the ripper blades.
- Use protective clothing and hand protection

WARNING!

Hazards due to difficult accessibility of components (access)

Uncomfortable, unnatural or unhealthy postures and special effort when lubricating, adjusting the belt, Cleaning and changing the sieves.

- Avoid uncomfortable, unnatural or unhealthy postures
- Without a tensioning station, secure the screens sufficiently and have one person change the screens
- Wear eye protection and protective gloves

Conveyor belts for fine, medium and coarse fractions

DANGER!

Hazards due to moving and rotating conveyor belt components

Pulling in, catching, capturing, winding and crushing during intervention or contact with moving and rotating components of the conveyor belts

- Be aware that contact or interference with the moving parts of the machine can cause catching, winding and crushing
- No persons may be present in the danger zone while the screen is in operation. Operator must cordon off the danger zone to prevent unauthorised access.
- Start-up warning until all assemblies are in operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to swivelling of the conveyor belts

Catching, striking or being struck when lifting and lowering the hydraulically driven conveyor belts and when intervening in the Folding mechanism when folding the conveyor belts in and out during the installation

- Be aware that contact or interference with the folding mechanism when folding/unfolding the conveyor belts can cause catching, winding and crushing.
- No persons may remain in the danger zone during set-up operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to unexpected lowering of the conveyor belts

Slain by sudden and unexpected lowering of the Conveyor belts from the transport position

- Secure conveyor belts mechanically in the transport position
- Visual inspection of the transport locks

DANGER!

Hazards due to falling screenings

Head injuries due to falling or propelled screenings

- Warning sign "Falling material", "Stay in danger zone prohibited"

DANGER!

Hazards due to staff misconduct
(Entering the belt, interfering with the material flow)

Catching, pulling in, winding up or throwing away when entering the Belt or when intervening in the material flow, e.g. to remove Impurities during the screening process

- Never step on conveyor belts
- Never interfere with the material flow during screening operation

DANGER!

Hazards due to bursting belt

Belts can be damaged by overload or bulky, sharp-edged objects in the screenings. Belts can tear, parts of them can be propelled away and cause injuries

- Check the condition of the belt regularly. Correctly adjust belt tension and belt tracking according to OI

DANGER!

Hazards due to strong magnetism

Strong magnets can be dangerous for people with pacemakers or with metal implants.
Ferrous metal objects can be affected by the magnetic field and are attracted or fly around in the process.
This could injure bystanders.
Electrical and electronic devices in the magnetic field can injure people.

- Ensure that ferrous metal objects are attracted in the vicinity of the magnets.
- People with pacemakers must not be in the vicinity of the magnets

WARNING!

Hazards due to difficult accessibility of components (access)
Uncomfortable, unnatural or unhealthy postures and particular effort when adjusting the belt, cleaning and Removing the transport locks

- Use ladder

DANGER!

Danger due to collisions of the conveyor belts
Collisions when folding and unfolding the conveyor belts with other conveyors Objects in the vicinity.
Risk of fatal electric shock on contact with power lines.

- Pay attention to objects in the vicinity when folding and unfolding the conveyor belts.
- Ensure that the machine and surrounding objects have sufficient room to move
- Check location. Avoid power lines.

3.8.3 Residual risks of the hydraulic system

DANGER!

Hazards due to rotating and moving components
Catching, winding and crushing in the event of intervention or contact with moving components of assemblies of the hydraulic system

- Be aware that contact or interference with the moving parts of the machine can cause catching, winding and crushing
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

DANGER!

Hazards due to pressurised hydraulic fluid
Injuries caused by hydraulic fluid escaping under pressure from System components and connections that have to be replaced during Operation

- Ensure that the hydraulic fluid is pressurised during operation
- Work on the hydraulic system only by specialised personnel
- Before starting work on the hydraulic system, switch it off, secure it against being switched on again and depressurise it. Check that there is no pressure.
- Do not use hydraulic hoses that were originally installed or subsequently replaced beyond the specified period of use
- Observe safety-relevant inspection and maintenance intervals
- Never change pressure settings beyond the maximum permissible values
- Wear eye protection

WARNING!

Hazards due to hot surfaces and operating materials
1st or 2nd degree burns on the hands through touching hot components and operating materials during maintenance, repair or Dismantling

- Take care not to touch hot components and operating materials during maintenance, repair or dismantling.
- Before starting work on the hydraulic system, allow components and operating materials to cool down to a temperature ≤ 50° C
- Wear hand protection

DANGER!

Hazards due to excessive heat generation
Risk of fire due to heat build-up caused by dirt, inadequate
Cooling or overload.

- Keep the hydraulic oil cooler clean and regularly remove all dirt deposits
- Clean ventilation openings and spaces between cooling fins regularly
- Do not store any flammable materials in, on or near the machine

DANGER!

Hazards due to hydraulic fluid
Discomfort, vomiting, poisoning, sensitisation after contact with
Hydraulic fluid during maintenance work (e.g. oil and filter change)
or in the event of leakage

- Avoid contact with hydraulic fluid
- Check screw fittings and connections regularly
- Observe safety data sheets
- Dispose of flammable liquid in an environmentally friendly manner
- Wear chemical-resistant hand protection, eye protection with side shields and protective clothing.

3.8.4 Residual risks of the electrical system

DANGER!

Hazards due to rotating and moving components
Catching, winding and crushing in the event of intervention or contact with
moving components of assemblies of the electrical system

- Be aware that contact or interference with the moving parts of the machine can cause catching, winding and crushing
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

CAUTION!
Hazards due to electrical supply line
Falling, dropping or tripping over improperly laid power cable
due to the spatial separation from the on-site power connection
and machine for the variant with electric motor

- Lay power cables properly and without tripping hazards (use cable bridges etc.)

DANGER!

Hazards due to electric current
Danger to life due to electric shock when touching live
Components of the electrical system

- Do not touch any live components
- Work on the electrical system only by qualified electricians
- Before starting work on the electrical system, first switch off the power supply and secure it against being switched on again. Lock the main switch with a padlock and fix a clearly visible "Do not switch" prohibition sign to the main switch

DANGER!

Hazard due to overload and short circuit

Overheating of electrical cables and components, cable fire, heat radiation, Ejection of molten particles, oxidation, etc.

- Never bypass fuses. When replacing, ensure the same rated current and tripping characteristics
- Work on the electrical system only by qualified electricians
- Before starting work on the electrical system, first switch off the power supply and secure it against being switched on again
- Use the same cable type when replacing cables

DANGER!

Danger from accumulators

Sparking, risk of fire and explosion in the event of a short circuit or bridging of the connection poles, e.g. by deposited metallic Tools.

- Never bridge connection poles
- Never place tools on the batteries

WARNING!

Hazards due to moisture and moisture penetration

Malfunctions, leakage currents or similar due to rain or rainwater ingress Washing water when operating the machine outdoors

- Do not clean the housing with high-pressure cleaners or blow it out with compressed air

3.8.5 Residual risks diesel engine

DANGER!

Hazards due to rotating components

Catching, winding and crushing in the event of intervention or contact with moving parts of the diesel engine

- Be aware that contact or interference with the moving parts of the machine can cause catching, winding and crushing
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

WARNING!

Hazards due to hot surfaces and operating materials

1st or 2nd degree burns on the hands through touching hot components and operating materials during maintenance, repair or Dismantling

- Take care not to touch hot components and operating materials during maintenance, repair or dismantling.
- Before starting work on the diesel engine and cooling water system, allow components and operating fluids to cool down to a temperature ≤ 50° C
- Wear hand and eye protection

WARNING!

Hazards due to excessive heat generation

Risk of fire due to heat build-up caused by dirt, escaping or spilled oil and fuel, inadequate cooling or due to overload.

Fire hazard and risk of burns due to excessive heating of the Exhaust system during regeneration of the diesel particulate filter.

- Keep the engine compartment, exhaust system and water cooler clean and remove all dirt deposits and leaked fluids daily. Locate and eliminate leaks.
- Check diesel engine regularly to ensure it is running properly
- Provide fire extinguisher (optional)
- inform about dangers and insert safety instructions
- Clean ventilation openings and spaces between cooling fins regularly
- Do not store any flammable materials in, on or near the machine

DANGER!

Hazards due to noise

Hearing damage due to high noise levels of at least 85 dB(A)

- A noise level above 85 dB(A) can cause hearing damage
- stay in the danger zone as short as possible
- Specify noise level
- Wear hearing protection

WARNING!

Hazards due to contact with operating materials

Discomfort, vomiting, poisoning, sensitisation after contact with Operating fluids when refuelling and filling operating fluids

- Avoid contact with the operating materials
- Naming operating materials
- Observe safety data sheets
- Wear chemical-resistant hand protection, eye protection with side shields and protective clothing.
- Environmentally friendly disposal

DANGER!

Hazards due to contact with exhaust gases

Poisoning due to inhalation of exhaust fumes

- Inhalation of exhaust fumes can cause poisoning.
- Operation of the machine in closed rooms only with exhaust gas extraction

3.8.6 Residual risks due to chassis with supports

WARNING!

Hazards due to machine movements

Impact, shearing, crushing and running over when moving and Using the machine on crawler tracks

- Moving and travelling the machine using the crawler track can cause impact, shearing, crushing and overrunning
- No persons may remain in the danger zone during the procedure. The operator must always have a view of the danger zone.
- Travelling distance must not exceed a gradient or slope of 15° (observe the access ramp on the low-loader)
- Acoustic signal during the procedure

DANGER!

Hazards due to coupling/uncoupling the Towing eye

Crushing and jamming when coupling/uncoupling the towing eye to/from the Towing vehicle

- Be aware of a possible crushing hazard when coupling and uncoupling the towing vehicle
- Maintain a safe distance from the towing eye

DANGER!

Hazards due to the machine rolling away unexpectedly

Impact, shearing, crushing and running over due to unexpected rolling away on inclines and declines

- When coupling and uncoupling the towing vehicle on uphill and downhill gradients, watch out for unexpected rolling of the parked machine.
- Use parking brake, supports and stop blocks
- Only park the machine on level and stable surfaces

DANGER!

Hazards due to inadequate stability

Crushing or crushing as a result of the machine tipping over

- Only set up, operate and move the machine on a level and firm surface with sufficient load-bearing capacity. Avoid break-off edges
- Before using the machine, check the planned route and installation site
- Use supports
- Observe safety-relevant maintenance intervals
- Do not exceed the maximum permissible load weight

DANGER!

Hazards due to moving components of the supports

Crushing of the feet when lowering the floor panels.
Injuries to fingers and hands due to crank kickback.

- Inform about dangers and insert safety instructions
- Maintain a safe distance from the floor panels
- Slowly release the crank at the end of the turning movement
- Wear foot protection and hand protection

DANGER!

Hazards due to the nature of the soil

Tipping over, slipping or falling of the machine when used in the impassable or sloping terrain and on edges

- When parking the machine on rough or sloping terrain and on edges, ensure that the machine cannot tip over, slip or fall.
- Only set up, operate and move the machine on a level and firm surface with sufficient load-bearing capacity. Avoid edges
- Before using the machine, check the planned route and installation site

DANGER!

Hazards due to participation in public road traffic

Collisions, equipment coming loose, accidents during the transport of the Machine with 80 km/h wheel axis on public roads

- The driver of the towing vehicle must be qualified and authorised for the transport
- Observe floor load capacity, floor surface, passage width, passage height, bends, inclines/declines and local driving restrictions of the transport route
- Do not use the gusset shoe on public roads

Ensure before transport:

- Move conveyor belts into transport position
- Attach conveyor belt transport locks
- Retract supports
- Switch off the machine and secure against restarting
- Remove remaining screenings and residual material from the machine
- Close side doors and flaps and secure against opening
- Fasten and secure equipment (stop blocks, ladder, etc.) adequately
- Fitting the light strip
- fitting the side guard
- Coupling the chassis to the towing vehicle
- Connecting the compressed air and power lines
- Visual inspection of the machine for proper condition and road safety

3.8.7 Residual risks due to compressor

DANGER!

Hazards due to rotating and moving components

Catching, winding and crushing in the event of intervention or contact with moving components of compressor assemblies

- Be aware that contact or interference with the moving parts of the compressor can cause catching, winding and crushing
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

WARNING!

Hazards due to pressurised air

Injuries caused by compressed air escaping from system components and Connections that are pressurised during operation

- Ensure that system components and connections of the compressor can be pressurised.
- Work on the compressor only by qualified personnel
- Before starting work, switch off the compressor, secure it against being switched on again and depressurise it. Check for depressurisation (observe pressure display)
- Wear eye protection
- Never change pressure settings beyond the maximum permissible values

WARNING!

Hazards due to hot surfaces and operating materials

1st or 2nd degree burns on the hands through touching hot components and operating materials during maintenance, repair or Dismantling

- Take care not to touch hot components and operating materials during maintenance, repair or dismantling.
- Allow components and operating materials to cool down to a temperature ≤ 50° C before starting work
- Wear hand protection

DANGER!

Hazards due to noise

Hearing damage due to high noise levels of at least 85 dB(A)

- A noise level above 85 dB(A) can cause hearing damage
- Wear hearing protection

DANGER!

Hazards due to compressor oil

Discomfort, vomiting, poisoning, sensitisation after contact with Compressor oil for maintenance work (e.g. oil change)

- Avoid contact with the operating materials
- Observe safety data sheets
- Dispose of compressor oil in an environmentally friendly manner
- Wear chemical-resistant hand protection, eye protection with side shields and protective clothing.

3.8.8 Residual risks due to the lubrication system

DANGER!

Hazards due to contact with lubricants

Discomfort, vomiting, poisoning, sensitisation after contact with Lubricants

- Avoid contact with lubricants
- Observe safety data sheets
- Dispose of compressor oil in an environmentally friendly manner
- Wear chemical-resistant hand protection, eye protection with side shields and protective clothing.

3.8.9 Residual risks due to the control system

CAUTION!

Hazards due to connecting cables

Falling, dropping or tripping over connecting cables when changing screens or movement of the machine

- When laying the connection cable, make sure that no one can fall or trip over the connection cable.

WARNING!

Hazards due to the design, arrangement or detection of control devices and actuators

Risk of incorrect operation due to missing or incorrectly labelled Controls and operating elements

- Ensure that all labelling on the machine is present and clearly legible.

WARNING!

Hazards due to inadequate design or arrangement of displays and optical displays

Risk of operating errors due to poorly visible visual displays and hazards due to overlooking signals

- Display must not be dazzled

WARNING!

Hazards due to moisture and moisture penetration

Malfunctions, leakage currents, short circuits due to penetrating Rain or washing water when operating the machine outdoors

- Do not clean the housing with high-pressure cleaners or blow it out with compressed air

DANGER!

Hazards due to failure of the normal switch-off procedure or failure of a protective measure (switch-off in an emergency)

Hazards due to failure of the normal switch-off procedure in a Emergency situation

- Check the function of the emergency stop switch regularly
- Describe the position and function of the emergency stop switches

DANGER!

Hazards due to failure of safety functions or safety components

Hazards due to failure or malfunction of safety functions, such as emergency stop and door safety switches

- Check the function of safety functions regularly

WARNING!

Hazards due to operating errors

Hazardous events as a result of operating errors due to inadequate adaptation of the control system to human Characteristics and skills

- Qualified and authorised operating personnel

DANGER!

Hazards due to unintentional operation of the radio remote control

Accidental triggering of a machine function in the event of unintentional Operation of the radio remote control, especially if the operator has no visual contact with the machine

- The operator must ensure a safe storage location for the transmitter (e.g. holder in the front loader)
- Do not place any objects on the transmitter
- Trigger machine function only with visual contact to the machine

3.8.10 Residual risks through the entire machine

DANGER!

Hazards due to insufficient mechanical strength

Hazards as a result of decreasing stiffness, fatigue or Ageing, disintegration of the overall structure or loosening machine parts

- Only use the machine as intended
- Comply with safety-related maintenance intervals

CAUTION!

Hazards due to the relative arrangement of components to each other due to lack of space

Edges and corners of closely arranged components can cause bruises, abrasions, scrapes and cuts

Interactions or energy exchange between closely spaced components.

- Wear hand protection and protective clothing

DANGER!

Hazards due to falling from the machine

Falling or dropping from the machine during maintenance and repair work

- Operator obligation: Enable safe ascent and descent to the machine (e.g. working platform
- Exercise extreme caution when working at great heights. Take safety measures.
- Wear non-slip safety shoes

WARNING!

Hazards due to doors, flaps, covers

Crushing and pinching when opening and closing the side doors

unexpectedly closing or locking side doors, and other protective covers.

Hazards due to inadequate protective functions of protective covers, which were not closed correctly after work was completed.

- Never operate the machine without protective covers

DANGER!

Hazards due to strong magnetism

Strong magnets can be dangerous for people with pacemakers or with metal implants.

Ferrous metal objects can be affected by the magnetic field and are attracted or fly around in the process.

This could injure bystanders.

Electrical and electronic devices in the magnetic field can injure people.

- Ensure that ferrous metal objects are attracted in the vicinity of the magnets.
- People with pacemakers must not be in the vicinity of the magnets

WARNING!

Hazards due to dust from the screenings

Inhalation of dust during cleaning work, e.g. when blowing out of cooling fins or sweeping the conveyor belts.

The processing of dry screenings in particular can result in increased dust exposure in the work area

- Take care not to inhale dust during cleaning work or increased dust exposure when processing dry screening material.
- Feed the screened material using a feeder with a closed cabin (e.g. wheel loader)
- Moisten dry or very dusty screenings
- Do not feed screenings that are harmful to health and the environment
- Wear eye protection and a mask

WARNING!

Hazards due to difficult handling of components
Uncomfortable, unnatural or unhealthy posture and
particular effort when opening and closing the side doors,
Removing and fitting the protective covers
The machine must be set up in such a way that

- Movement of operating and maintenance personnel in the work area is not restricted or obstructed
- Side doors and flaps can be fully opened
- Assemblies can be reached easily and safely

WARNING!

Hazards due to inappropriate local lighting
Lack of light in the working area when operating the machine
in poor lighting conditions. Glare and reflections from sunlight.

- Operator obligation: ensure adequate lighting at the place of use in poor visibility conditions

WARNING!

Hazards due to lack of recognisability of personnel
Hazards for personnel when operating the machine in public areas
Areas due to lack of recognisability or restricted visibility
due to dust, fog or special weather conditions

- Wear a high-visibility waistcoat

DANGER!

Hazards due to illegibility of machine signage
Lack of information for staff due to poor legibility of the
Machine signage as a result of damage, weathering or
Pollution

- Check machine signage regularly. Replace missing or damaged signs.

CAUTION!

Hazards due to adverse weather conditions (storms, thunderstorms, etc.)
Danger of crushing and impact due to strong winds when opening and closing
Slamming of the side doors, strong vibrations of the entire
Machine, dust turbulence from the screenings, etc.
Lightning strikes the machine during a thunderstorm when using the
Machine outdoors in an elevated, exposed position.

- Secure side doors against slamming when open and against unintentional opening when closed
- Stop sieve operation during thunderstorms and strong winds

WARNING!

Hazards due to human error
Misuse of housing parts or the base frame as a
Mounting aid/stand or by climbing around.
Covering housing parts, adjusting or concealing displays,
hanging items of clothing over shelves and components, putting them down
of objects in or on the machine, etc.
Operator obligation:

- Create operating instructions and provide occupational safety training
- Instruct and train personnel
- Regularly check compliance with the regulations
- Regular visual inspections of the machine

DANGER!

Hazards due to incorrect disassembly

Hazards due to dismantling and subsequent disposal

- Ensure that the machine is dismantled and disposed of correctly
- Disassembly and disposal only by qualified personnel or authorised representatives of the manufacturer

WARNING!

WARNING!

Hazards due to negligent use of personal protective equipment (PPE)

Increased risk of injury due to negligent or incorrect use of the PPE, forgetfulness or ignorance about wearing the PPE and worn or not intact PPE

Operator responsibility:

- Issue operating instructions
- Regularly check that PPE is put on and worn during work
- Regularly and demonstrably instruct personnel on compliance with the operating instructions
- Check PPE for proper condition.
- Only use intact PPE.

DANGER!

Hazards due to bypassing safety devices (tampering)

Increased risk of injury due to bridging or overriding of safety equipment (e.g. with the aim of optimising process sequences or to accelerate or simplify)

- Never bypass or disable safety equipment and carry out regular functional checks
- Only operate the machine with properly installed and functioning protective devices
- Never leave the key inserted

DANGER!

Hazards due to inadequate personnel qualifications or unsuitable personnel

Increased risk of injury due to ignorance, inexperience and lack of qualification of the user when handling the machine in all phases of life

- Work on and with the machine only by specialist personnel authorised by the operator and/or instructed personnel
- Define personnel qualification of all users
- Operator responsibility: do not allow any persons whose ability to react is impaired, e.g. by drugs, alcohol, medication or similar. Observe region-specific age regulations

DANGER!

Hazards due to incorrect spare parts

Increased risk of injury due to the use of incorrect or faulty spare parts

- The use of incorrect or faulty spare parts increases the risk of injury.
- Only use original spare parts from the manufacturer or spare parts authorised by the manufacturer

3.9 Safety instructions for maintenance work

Only carry out maintenance work when the machine is at a standstill and the drive is secured against being switched on again. Observe the switch-off procedures and any necessary safety measures described in the operating instructions for all maintenance work. Ensure that all necessary protective devices are functioning during all interruptions of operation. The maintenance cycle and recurring inspections of the motor, the hydraulic system and the technical machine equipment must be planned and carried out or commissioned by the user. If the system is damaged, stop operation immediately, empty the system, switch it off and repair or replace the affected parts. After all installation or maintenance work, check that all safety devices are in place and functioning properly. Safety devices must not be bypassed or disabled. Only specialised personnel may carry out certain maintenance work. This applies in particular to work on hydraulic and electrical equipment.

3.10 Spare parts, purchase and use

Original spare parts can be obtained from the authorised dealer or directly from the manufacturer.
Faulty spare parts can severely impair safety and cause damage, malfunctions and even total failure.
Always use only approved original spare parts from ZEMMLER® Siebanlagen GmbH.

NOTE!

Before installing spare parts, always read the enclosed operating or assembly instructions and observe the information and instructions for correct use contained therein.

3.11 Fire protection

The following measures reduce the risk of fire. All persons working in the danger zone must therefore ensure compliance:

- Always switch off the battery isolator switch after working with the machine.
- Always keep the machine clean. Remove processing residues, waste, dirt, empty containers, oily and other flammable cloths etc. after finishing work.
- Do not store empty or filled packaging or loose materials in gaps or on parts and components.
- Leaks in closed housings, devices, ducts,
- Always remove pipes and filters immediately.
- Keep dust and dirt deposits away from motors, hot-running parts and components.
- Lubricate all bearings in accordance with the maintenance instructions at short intervals appropriate to the loads in order to avoid overheating.
- Check electrical installations regularly to ensure they are in perfect condition. Have faulty installations and appliances repaired or replaced immediately by qualified electricians.

NOTE!

When fighting a fire, always switch off the machine, as otherwise electrical fires cannot be adequately fought.
Welding is a technical modification of the machine. If welding work is carried out, the manufacturer accepts no liability for the safety of personnel and the modified machine parts.

3.12 Safety equipment

Only operate the machine with properly installed and functioning safety devices. Safety devices must never be bypassed or rendered unusable. Carry out regular functional checks. Check the function of safety devices such as emergency stop switches regularly.

3.12.1 Functional safety devices

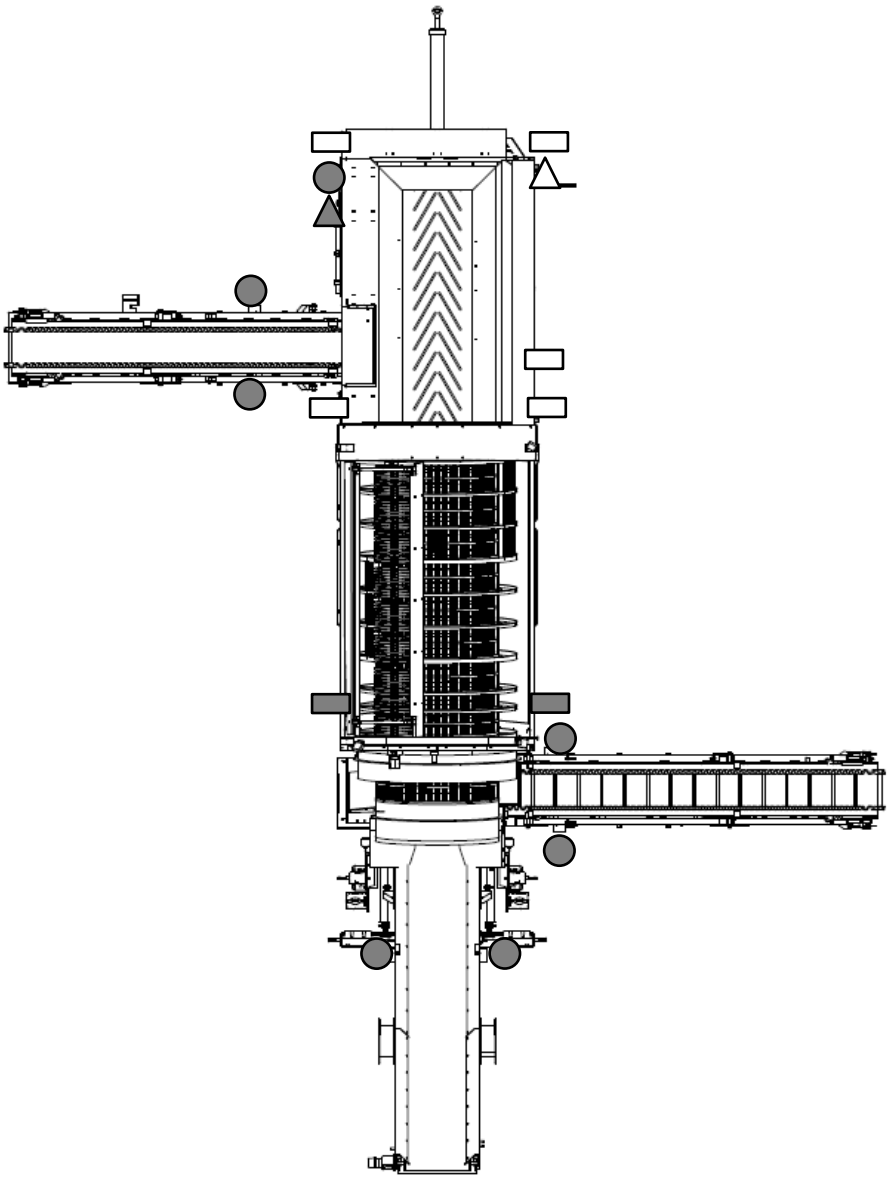


Figure 3: overview and position of the MS 4200 / MS 5200 / MS 6700 safety devices

- Emergency stop switch
- Main switch
- Door security sensors
- Door safety sensors (MS 6700 only)
- Battery disconnector

Emergency stop switch

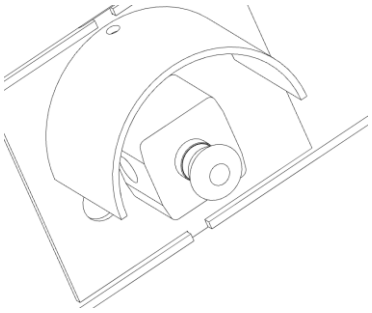


Figure 4: Emergency stop switch"

The ZEMMLER® MULTI SCREEN® MS 4200 / MS 5200 / MS 6700 each have seven emergency stop switches.
Pressing the emergency stop switch triggers an emergency stop and the switch engages in the locking mechanism. Before switching on again after an emergency stop, the actuated emergency stop switch must first be unlocked by turning it and the fault acknowledged on the display.

NOTE!

The transmitters of the remote controls (variants/options: Cable remote control tracked trolley, radio remote control standard, radio remote control maxi) each have an additional emergency stop switch.

Positions of the emergency stop switches: see Fig. 3

Main switch

Figure 5: Main switch in the "OFF" position

When the main switch is turned to the "OFF" position, the power supply to the control unit is disconnected.
The main switch can be secured in the "OFF" position with a personal padlock to prevent unauthorised switching on.

Battery disconnector

Turning the battery isolator switch to the "OFF" position disconnects the power supply to the control unit. The battery isolator switch can be secured in the "OFF" position with a personal padlock to prevent unauthorised activation.

Door safety sensor
Hazardous areas inside the machine are protected against access by safety doors. The safety doors may only be opened when the machine is at a complete standstill, switched off and secured against being switched on again. After working inside the machine with the safety doors open, the safety doors must first be properly closed before switching on again. The safety doors are fitted with safety sensors. The door safety sensors monitor the closed doors while the machine is in operation. If a door is opened, the machine stops and the motors switch off. Open safety doors prevent the machine from being started. Only in screen change mode can the drum door be opened at the rear right in the direction of travel; all other doors must remain closed. The front doors are not equipped with door safety sensors.

NOTE!

The door safety sensors, like the emergency stop switch, cause the system to stop immediately when the doors are opened, regardless of the current position of the machine parts.

Acoustic warning signals
The drum screener is equipped with an acoustic warning device (horn) to generate an acoustic warning signal. Before switching on the machine, the operator must ensure that there are no persons in the danger zone of the machine. As the danger zones are not directly visible from the operator's platform, an acoustic warning signal is generated before the machine is started. This acoustic warning signal warns people that the machine is about to start. This allows people to leave the danger zones or, if this is not possible, the persons at risk can prevent the machine from starting, for example by activating an emergency stop switch. The machine is started after this acoustic warning signal has elapsed:
Switch on automatic mode until ready for operation for 10s.
Switch on transport mode for 10 s
Switching on the belts in service mode for 10 s
When the crawler track is moving in drive mode.

Programme code
There is no automatic restart after voltage recovery.
The software is checked by the manufacturer for programming errors and tested and validated for function. Safety-relevant software parameterisation can only be carried out by specially authorised specialist personnel with the aid of special software tools. Unauthorised modifications are prevented by access protection. Operation was realised in compliance with current safety standards. To improve human-machine interaction, an easy-to-understand and quick-to-use user interface was implemented in the software.

3.12.2 Mechanical safety devices

Safety doors with triangular lock
The safety doors on the machine under the hopper are secured against unintentional or uncontrolled opening and can only be unlocked using the triangular spanner supplied. To open the safety gate, the safety catch must first be unlocked using the triangular key. The handle can then be folded down and the door lock can be opened by turning the handle.
To close the lock, turn the handle back and then press it into the recessed grip until the handle clicks into place. Check that the door is properly locked. Never leave the key in the ignition!

Drum doors
The drum doors are fitted with a safety lock. This safety lock can be locked with a padlock. To open, remove the padlock, pull the locking pin downwards and at the same time pull the door lever forwards. This allows the door to be opened a crack. Then unlock the catch hook through the door gap and the door can be fully opened.

Safety gate door retainer
The door safety devices are used to lock the safety doors. If these doors are exposed to a wind load or opened on a slope, unintentional closing and the resulting risk of crushing can be prevented. To engage the door retainer, open the safety doors by approx. 90° so that the bolt of the door retainer engages. To close the door, the bolt of the door holder is lifted out of the locking bar and the door can be closed.

Door lock drum door
The open drum doors must be locked against slamming with the safety chain. If these doors are exposed to a wind load or opened on a slope, unintentional closing and the resulting risk of crushing can be prevented. To do this, hook the snap hook from the safety chain into the safety ring of the drum door. To close the door, unhook the snap hook and stow the chain properly.

Protective panelling on the centre section
A protective cover is located in front of the drive drum of the centre fraction on the left-hand side of the machine to protect against unintentional interference with the running conveyor belt during operation.

Transport locks
All fractional belts are equipped with a transport lock. Depending on the equipment variant of the machine, they are operated either manually or by moving the hydraulic cylinders.

Manual transport locks
The manual transport locks are removed when the fraction belt is not under tension. To do this, pull out the spring fuse plug and remove the fuse component (fuse rail or top link). The fuse component and the spring fuse plug must be fitted before transport.

Transport locks with hydraulic cylinder
Transport locks with hydraulic cylinders are removed by hydraulically lifting the fractions. Before transport, check that the transport locks are properly seated.

Lowering protection of the fractions
Chains and ropes prevent the conveyor belts from lowering unexpectedly into the working position. Pipe rupture safety devices in the hydraulic system also ensure that the hydraulic cylinders remain in position or are lowered very slowly if the hydraulics fail or the oil pressure drops due to a defect.

Side protection
The side protection on the long sides of the machine serves to protect pedestrians and other road users against unintentional entry into the danger zone under the trailer during transport. The side guard must be protected against damage during operation of the drum screener; it can be removed for this purpose. It must be properly reinstalled before transport.

Underride guard
The underride guard is mounted at the rear of the machine and covers the entire width of the vehicle. In the event of a rear-end collision, this protection prevents vehicles from driving under the machine's superstructure. The underride guard must be protected from damage while the drum screen is in operation; it can be removed for this purpose. It must be properly reinstalled before transport.

Wheel chocks
The wheel chocks serve as additional roll-off protection when the machine is parked and prevent the machine from moving automatically on uneven floors or inclined surfaces. They are clearly visible at the rear of the machine. When setting up the machine, the wheel chocks are pushed under the side of the wheels facing the sloping side of the terrain before uncoupling the trailer from the towing vehicle.

Parking brake
The parking brake is used to immobilise the screening unit at the place of use and prevents it from rolling away automatically. The crank handle for actuating the parking brake is located on the left front side of the machine next to the supply lines.
Before uncoupling the trailer from the towing vehicle, turn the crank clockwise to lock the parking brake in the braking position. For road transport and for moving the machine on site, turn the crank anti-clockwise after coupling the trailer to the braked towing vehicle to release the parking brake.

Constructive safety devices
The FOPH, the drum and the TAB cannot be reached while the system is in operation. The system can only be operated if all doors and flaps of the screening system are closed. This measure ensures that there is no danger from these elements. The position of the cleaning brush has also been chosen so that it is impossible to intervene under normal conditions.

Remote control
The transmitters and receivers of the remote controls are synchronised and cannot influence each other.

Fire extinguisher (optional)
The fire extinguisher is a fire extinguishing device for fighting emerging fires. In an emergency, it helps the operator to prevent the spread of an open fire.

NOTE!
When fighting a fire, always switch off the machine, as otherwise electrical fires cannot be adequately fought.

3.12.3 Securing against restarting

Secure the machine against being switched on again:
When working on components, assemblies or individual parts, people at the danger points can be injured if the power supply is switched on without authorisation.

- Always observe the instructions on securing against restarting in the instructions in this operating instructions.
- Before carrying out any work on components, assemblies or individual parts, follow the procedure described below to ensure that they cannot be switched on again.

1. Shut down the machine.
2. Switch off the main switch.
3. Switch the battery isolator switch to the "OFF" position and lock it with a personal padlock.
   Store the key securely to prevent unauthorised access.
4. Engage the emergency stop switch within sight of the work area.
5. Attach a warning sign against restarting to the main switch and enter the name of the person authorised to restart the machine on the warning sign.

Switch off the machine to prevent it from being switched on again:
Do not switch on the machine if the safety equipment is faulty.
Report any defects immediately to the person responsible and have them repaired by specialised personnel.

1. Check that all safety equipment on the machine is properly installed and in a technically perfect, functional condition.
2. Ensure that no persons are present at danger points or in the danger zone of the machine.
3. Remove the warning sign against switching on again.
4. Unlock the emergency stop switch.
5. Release the battery disconnect switch.

3.13 Work and danger zones

Only authorised operators may enter the workstations to set up and start the machine. The machine then operates autonomously. Only items that are required for the respective operating phase may be at the workstations. The machine operator must always be in the immediate vicinity of the machine and monitor its operation. The machine must not run without supervision. Always empty the machine and switch it off after completing the work. The machine must then be secured against unintentional restarting. The following illustration shows the arrangement of the work, operating and loading stations occupied by the operating personnel, drawing of the system from above with labelling of the operating station.

Workplace
The workplaces occupied by the operating personnel or specialised personnel for transport, installation, commissioning, conversion, maintenance, cleaning, repair or troubleshooting may only be entered if the machine is switched off and secured against being switched on again.

Restricted area
The shut-off area is the effective range of the machine. Operating the machine creates hazards and there is a risk of injury. The danger zone 5 m around the machine must not be entered while the machine is in operation and must be cordoned off.

The operator in the cab of the loading vehicle must observe the following instructions:

- Have a complete view of the danger zone at all times.
- Cordon off the danger zone to prevent access.
- Always keep people away from the danger zone.
- If people are in the danger zone, stop work immediately.

Set up a cordoned-off area
Any work on or with the machine is only permitted if the working area of the machine is properly cordoned off. The barrier must consist of at least a circumferential red/white hatched barrier tape, a barrier chain or a barrier fence along the barrier area and clearly visible and legible warning signs.
If the danger zone cannot be cordoned off for operational reasons, the danger zone must be organisationally separated in conjunction with monitoring (e.g. warning posts).

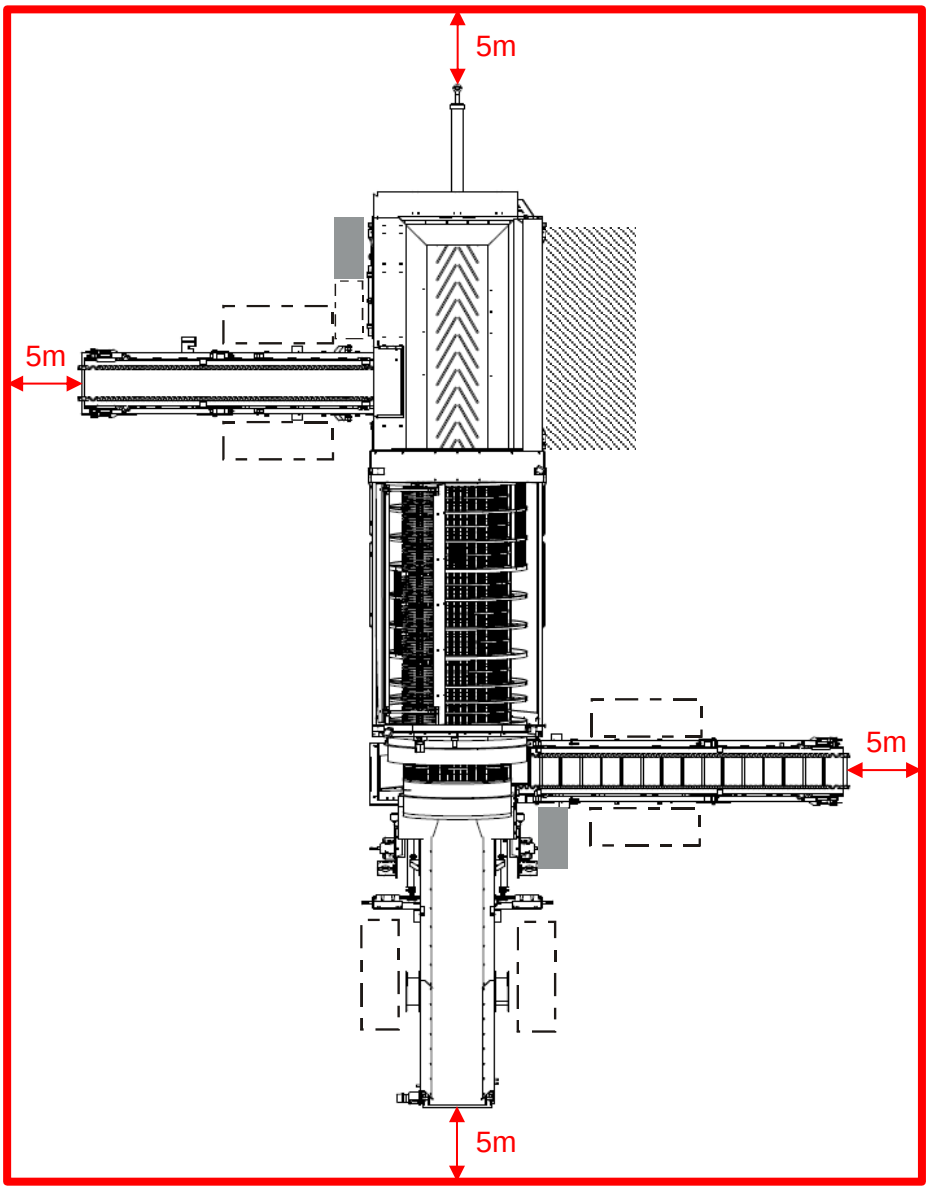


Figure 6: Restricted area

- Workstation for operating the machine
- Workstation for setting up, carrying out visual inspections and monitoring the control instruments during operation, for cleaning, maintenance and servicing work and for troubleshooting
- Loading area of the machine
- Restricted area

3.14 Safety instructions on emissions

3.14.1 General

DANGER!

The operation of the system may cause emissions. Under certain operating conditions, these emissions can jeopardise the health of personnel. The operator must ensure that the permissible emission values are not exceeded. This applies to both exhaust gas and noise emissions

3.14.2 Noise emission

The noise level measurement values were recorded under full load of the machine, without loading, at a distance of 2 metres. When operating the machine with screenings, the values are slightly higher and vary depending on the screen material. The measurement was taken at a distance of 2 metres around the machine. In addition to the sound power level, the sound pressure level must also be specified.
The noise emission specifications comply with the Machinery Directive 2006/42/EC and Directive 2000/14/EC:

Operating condition:	Idle mode
Measured sound power level $_{LWA}$:	94 dB
Uncertainty $_{KWA=1}$.65x3 dB:	5 dB

This results in a guaranteed sound power level $_{LWA}$ (including the measurement uncertainty) of 99 dB.

Figure 7: Sound power level Lwa

Noise emissions are associated with the operation of the machine. These emissions are above the prescribed limit values. Under certain operating conditions (e.g. screening of building rubble, ...) the above values may be exceeded. The operator of the system must determine the exposure of the noise emmission. According to the noise protection ordinance, the noise protection limit of 85 dB(A) is exceeded by 9 dB(A) in the daytime noise exposure of 94 dB(A). Consequently, hearing protection must be worn when working on the machine.

3.14.3 Exhaust gas emission

Operating the machine with the diesel engine produces exhaust fumes that are hazardous to health and can lead to asphyxiation and even death.

See: 5.1 Motor data

3.15 Signs

Notices and symbols attached to the machine should quickly communicate possible hazards and important information. These warning signs, direction of rotation arrows, operating signs etc. must be observed at all times. They must not be removed. Illegible stickers and signs no longer make danger spots sufficiently recognisable and cannot point out possible risks of injury.

- Always keep pictograms, warning and safety instructions and operating instructions in a legible condition.
- Check regularly and replace damaged or unrecognisable pictograms, lettering, signs or stickers immediately.

Safety and health protection marking is a marking that - in relation to a specific object, a specific activity or a specific situation - enables a safety and health protection statement (safety statement) to be made by means of a safety sign, a colour, a light or sound signal, verbal communication or a hand signal. The safety signs used are a sign that enables a specific health and safety statement to be made through a combination of geometric shape and colour as well as a graphic symbol.
A distinction must be made between:

- Prohibition sign is a safety sign that prohibits behaviour that may cause a hazard.
- A warning sign is a safety sign that warns of a risk or danger.
- Mandatory sign is a safety sign that prescribes certain behaviour.
- A combination sign is a sign where the safety sign and additional sign are attached to a carrier.

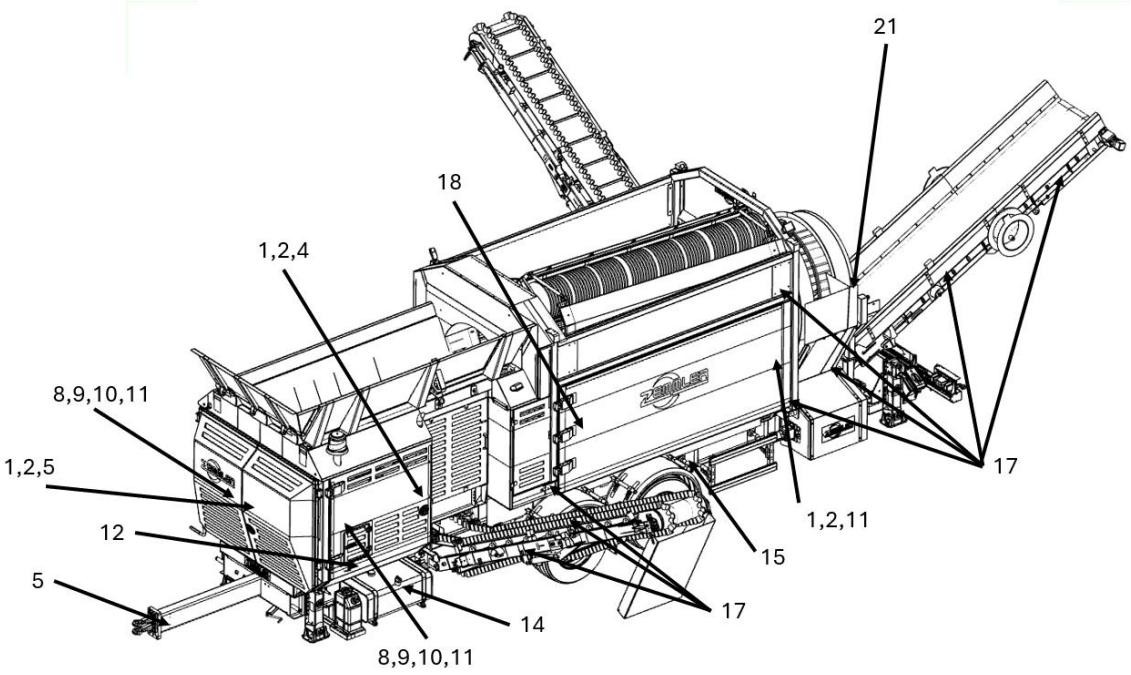


Figure 8: Position of the labelling; left side of the machine and front

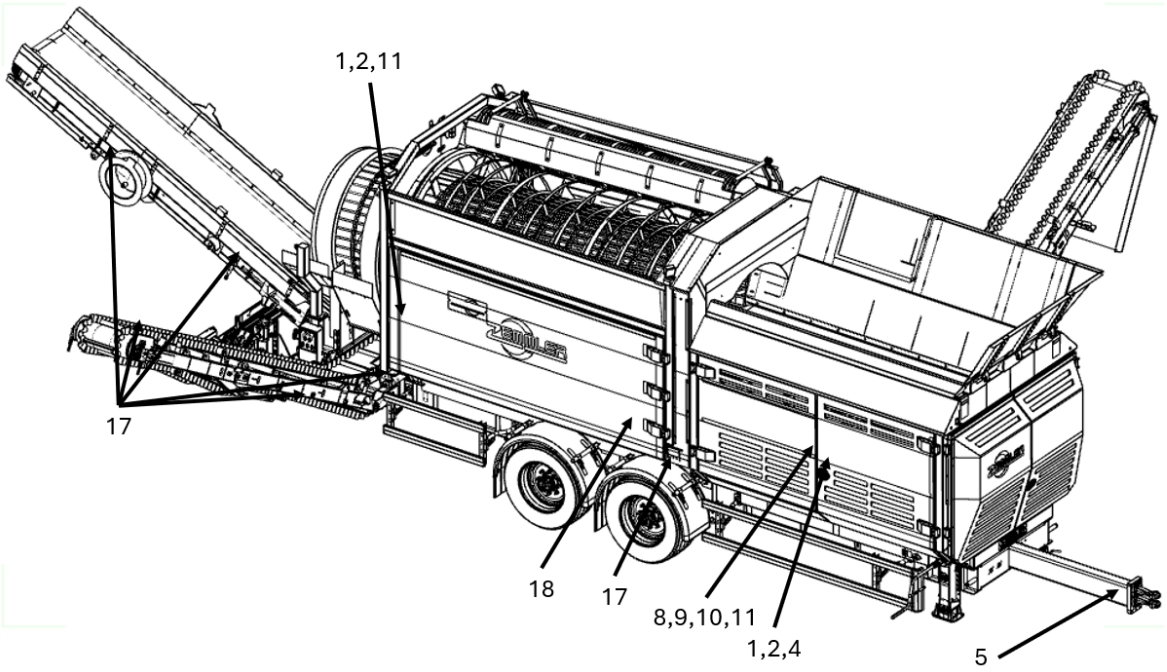


Figure 9: Position of the labelling; right side of the machine and front

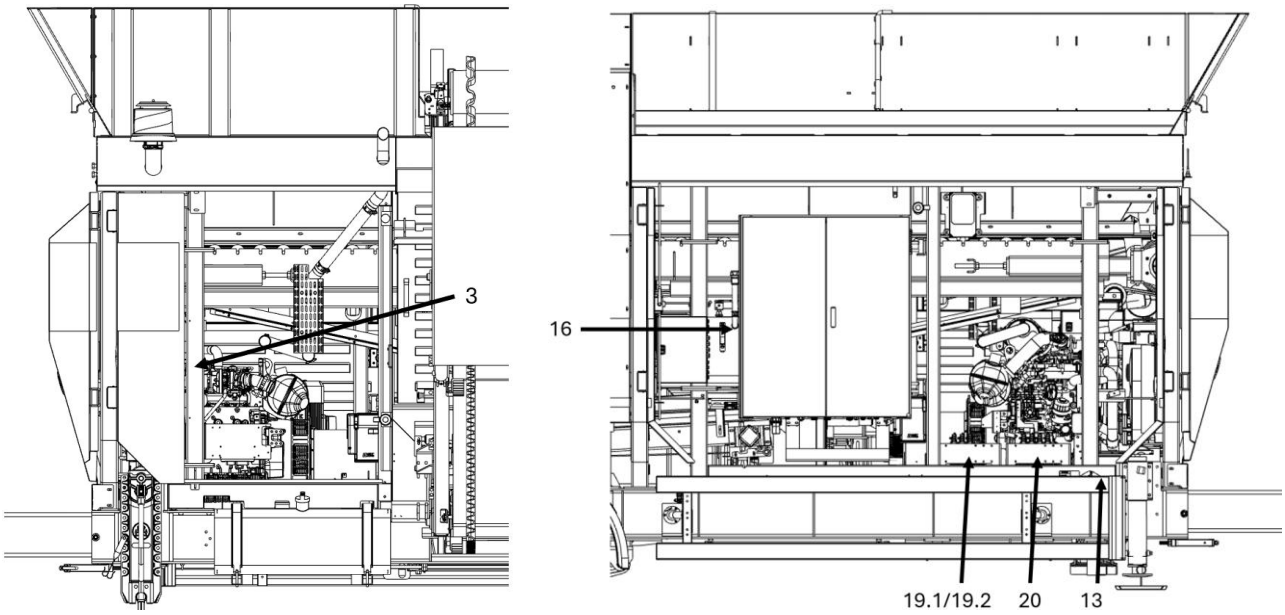
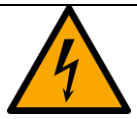


Figure 10: Position of the signage; left/right machine side

Pos.	Shield	Pcs.	Meaning
1		5	**Warning of counter-rotating rollers** DIN EN ISO 7010-W025
2		5	**Warning of hand injuries** DIN EN ISO 7010-W024
3		1	**Warning of hot surface** DIN EN ISO 7010-W017
4		2	**Magnetic field warning** DIN EN ISO 7010-W006
5		3	**Warning of crushing hazard** DIN EN ISO 7010-W019
7		1	**Warning of electrical voltage** DIN EN ISO 7010-W012
8		3	**Mandatory sign Use hearing protection** DIN EN ISO 7010-M003
9		3	**Mandatory use of head protection** DIN EN ISO 7010-M003
10		3	**Mandatory use of hand protection** DIN EN ISO 7010-M009
11		5	**Keep the mandatory sign closed** DIN EN ISO 7010-M028
12		1	**Observe the instruction manual** DIN EN ISO 7010-M002
13		1	**Battery disconnector** Battery discharges Switch off the battery 2 minutes after the engine stops Observe SCR follow-up time
14		1	**Diesel** Risk of engine damage due to high sulphur content in the fuel.
15		1	**Brake pressure test connection** Located next to the rear left wheel.
16		1	**Hydraulics**
17		18	**Lubrication point** 5 strokes per week

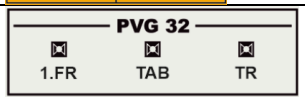
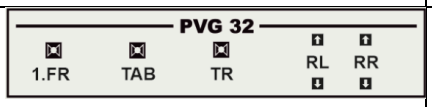
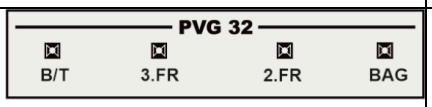
18		2	**Staying in the danger zone of the screening system is prohibited**
19.1		1	**Description of the hydraulic valves (DH)** *1. FR:* first fraction / *TR:* Sieve drum *TAB:* Drum haul-off belt
19.2		1	**Description of the hydraulic valves (DH)** *1. FR:* first fraction / *TR:* Sieve drum *TAB:* Drum haul-off belt *RL: Caterpillar left / RR: Caterpillar right*
20		1	**Description of the hydraulic valves (DH)** *B/T:* Brush/transport / *3. FR:* third fraction *2. FR:* second group / *BAG:* Belt feeder
21		1	**maximum permissible speed**

Table 2: existing signage

3.16 Behaviour in the event of danger and accidents

Preventive measures:

- Always be prepared for accidents and fire.
- Keep first aid equipment (first aid kit, blankets, etc.) and fire extinguishers to hand.
- Familiarise staff with the accident reporting, first aid and rescue equipment.
- Keep access routes clear for emergency vehicles.

NOTE!

The emergency stop function causes the system to stop immediately, regardless of the current position of the machine parts.

Only operate safety devices with emergency stop function in corresponding emergency or dangerous situations. They must not be used for normal stopping of the system.

Act correctly if the worst comes to the worst:

1. Trigger the emergency stop immediately.
2. Initiate first aid measures.
3. Rescue affected persons from the danger zone.
4. Inform those responsible at the place of use.
5. In the event of serious injuries, call a doctor and/or the fire brigade.
6. Keep access routes open for emergency vehicles.

3.17 Environmental protection

NOTE!

Environmental damage due to incorrect handling of hazardous substances!

Incorrect or careless use of hazardous substances can lead to serious environmental pollution.

- Carefully remove any leaking, used or excess grease.
- Collect the replaced oil in suitable containers.
- Treat paint residues, solvents and cleaning agents in accordance with the manufacturer's safety data sheet.
- Always dispose of all hazardous substances in accordance with local regulations; if necessary, commission a specialised company.
- Dispose of batteries in an environmentally friendly manner and separately from other waste.

4 Structure and function

4.1 Assembly overview

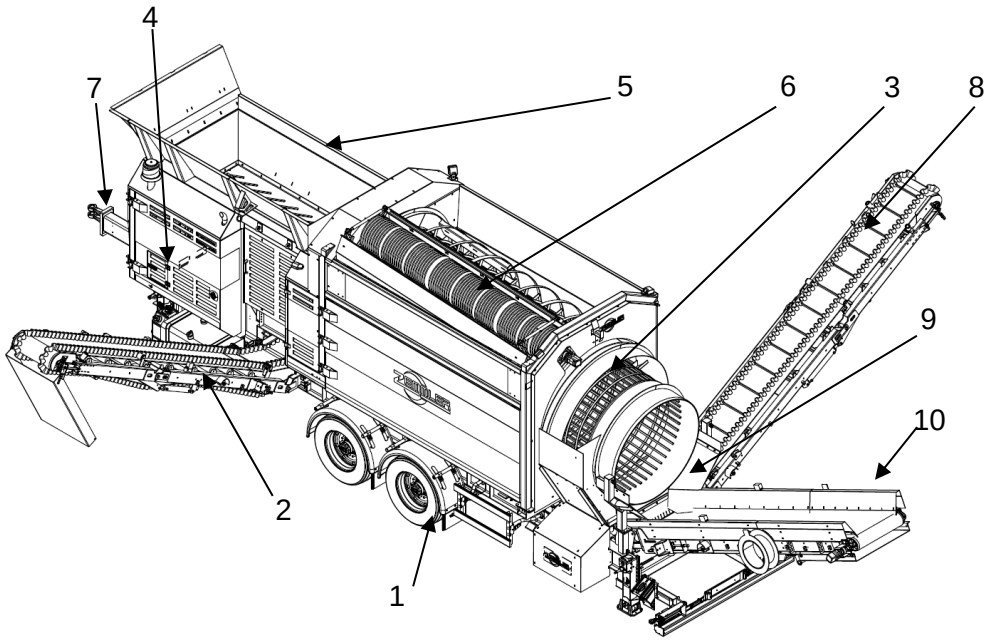


Figure 11: Assembly overview

1	Base frame with trolley	6	Cleaning brush
2	Fine fraction (1st fraction)	7	Drawbar with towing eye
3	Double drum with TAB underneath	8	Medium fraction (2nd fraction)
4	Drive motor and main operating unit	9	Rear operating unit
5	Feed hopper with BAG underneath	10	Coarse fraction (3rd fraction)

4.2 Designation of the covers

1 Engine compartment door
2 Drum door
3 Drive door

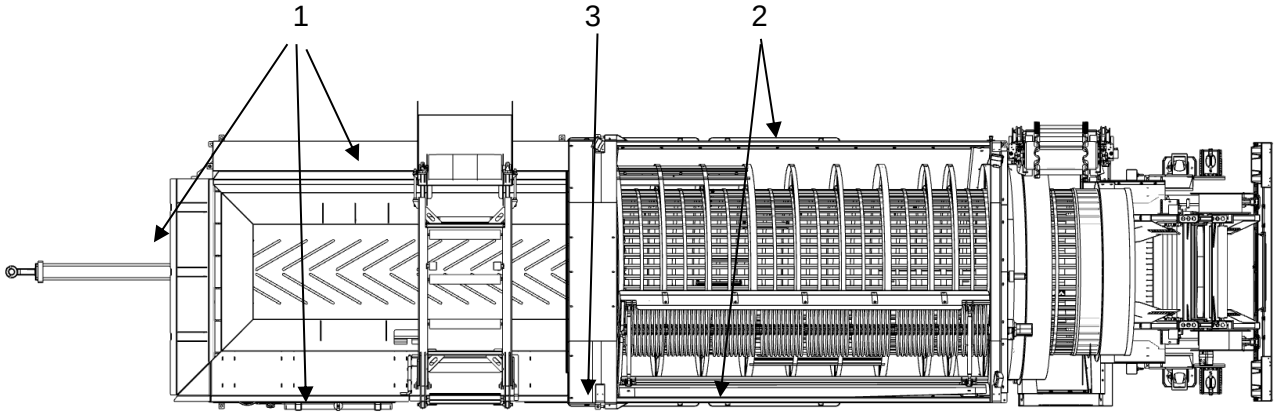


Figure 12: Description of the covers

The designations used here for the doors and covers are used throughout the Document. .

4.3 Functional description

General mode of operation

The ZEMMLER® MULTI SCREEN® MS 4200 / MS 5200 double drum screening machine is a mobile screening machine for one-man operation. This machine classifies piece goods into three fractions (standard) in a single operation with a high volume throughput. The screening machine was designed to screen a wide variety of materials, such as building rubble, compost, recycling material, soil, stones and sand up to a grain size of 2 mm.

Brief process description

The bulk material is fed to the feed hopper using a loading vehicle (e.g. wheel loader). The screened material is transported into the double drum by means of a belt conveyor (BF). While the material stream flows continuously to the outlet, classification takes place through different mesh sizes of the rotating drum.
As a result, a longer retention time of the screened material in the machine can be achieved and larger volume flows can be classified with a more compact design. The three fractions produced in one operation are piled up on three different sides of the machine by belt conveyors to form a cone. Optionally, coarse piece goods can be pre-classified using a stone grid.

Assembly overview

The screening machine essentially consists of:

- Base frame with chassis
- Feed hopper with belt feeder below (BAG)
- Double drum with cleaning brush and drum take-off belt (TAB)
- Faction band of the fine fraction (1st fraction)
- Group band of the centre fraction (2nd fraction)
- Fraction band of the coarse fraction (3rd fraction)
- Drive motor/unit
- Main control panel with touch display
- Rear operating unit Membrane switch

Base frame with chassis

The base frame, also known as the chassis, carries all the components that make up the double drum screening machine.

The chassis of the machine is available in different variations:

- Centre-axis trailer chassis according to StVZO
- Centre-axis trailer chassis 25 km/h (internal transport only)
- Tracked undercarriage
- Skid

Feed hopper with belt feeder below (BAG)

The feed hopper has a conveyor at the bottom which moves the screened material into the screening drum. The so-called belt feeder (BAG).

Double drum with cleaning brush and drum extractor belt (TAB)

The sieve drum consists of two firmly connected drums, whereby the fixed sieve size can be changed using a wide variety of wire sieves. MS 4200 and MS 5200 differ mainly in the drum length and the associated screen surface.

The cleaning brush consists of closely spaced brush discs and is used to clean the outer sieve. The cleaning brush ensures an open outer sieve even with cohesive material.

The drum take-off belt (TAB) is located under the double drum. The fine grain falls from the double drum onto the TAB and is transported to the fraction belt for the fine fraction.

Fraction band for the fine fraction
The fraction belt for the smallest classification throws the screened material to the left in the direction of travel onto a pouring cone or into a collecting container. It can be folded in and out hydraulically and can optionally be fitted with a magnetic roller and discharge guide plate.

Fraction band for the centre fraction
The fraction belt for the centre classification throws the screened material in the direction of travel to the right onto a dumping cone or into a collecting container. It can be folded in and out hydraulically and can optionally be fitted with a magnetic roller and discharge guide plate.

Fraction band for the coarse fraction
The fraction belt for coarse classification is located at the end of the screening drum and throws the screenings backwards onto the stockpile. The coarse grain falls out of the screening drum onto the belt, which transports it to a discharge cone or into a collecting container. It can be folded in and out hydraulically and can optionally be fitted with a magnetic roller and discharge guide plate.

Drive variants
There are different drive variants for the machine.

Diesel-hydraulic (DH)
Water-cooled diesel engine with hydraulic pump.

Diesel-electric (DE)
Diesel engine with generator and electric motor with hydraulic pump.
This version can also be operated with a power connection only (63A).

Electro-hydraulic (EH)
Electric motor with hydraulic pump.
This variant must be connected to an external power connection on site (128A).

Electric (E)
This variant must be connected to an external power connection on site (63A).

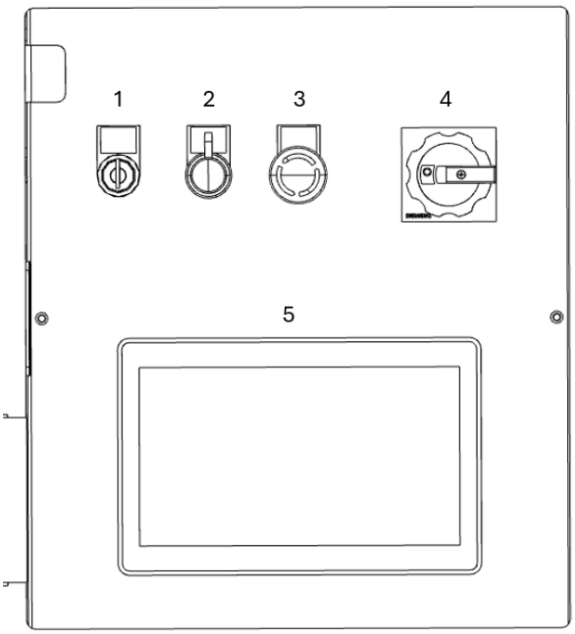
Stone grid (optional)
The stone grid is used for pre-sorting coarse rocks and large pieces of material as well as for loosening cohesive materials.
The drive for tilting the grille is hydraulic.

Work lighting (optional)
The optionally available work lighting can also be switched on for daily inspection work and better visibility while working on the machine.

Radio remote control (optional)
The radio remote control is required to operate the machine from a remote control station. For example, to control the machine from the loading vehicle while material is being fed in. The radio remote control is optional and available in two different versions. The radio remote control consists of the mobile (portable) transmitter and the receiver permanently installed in the machine

4.4 Main control unit

The main control unit with display is located on the left-hand side of the machine in the direction of travel and can be closed with a flap.
The touch display has a glare-free display surface and can be read even in poor lighting conditions.



1 Screen change
2 USB socket
3 Emergency stop switch
4 Main switch
5 Display

Figure 13: Main control unit

Screen change
Serves as a key switch for activating the sieve change function.
Only insert the sieve key into the lock to change the sieve.

USB socket
The USB socket is used exclusively for data transfer.
To maintain the function of the USB socket, it must always be sealed tightly with the cap to protect it from moisture and dirt.

Emergency stop
Dangerous machine processes are brought to a standstill as quickly as possible by means of emergency stop switches

4.5 Rear control unit

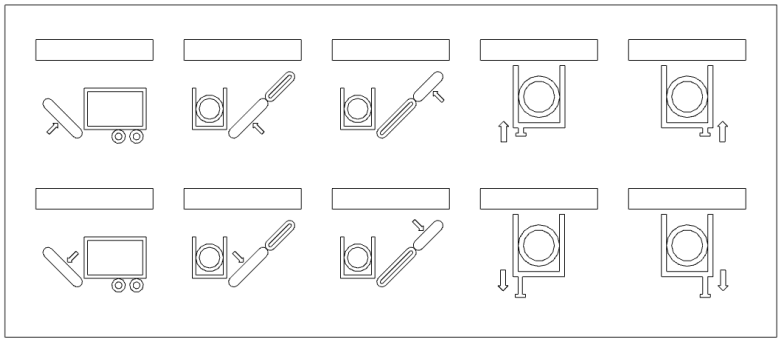


Figure 14: Membrane switch

The membrane switch shown is located on the rear operating unit of the machine on the right. It is used to fold in/out the medium and coarse fractions. The optional hydraulic supports at the rear can also be operated with this.

4.6 Battery disconnector

The battery disconnect switch is located on the front right-hand side of the machine. It is possible to secure the switch in the OFF position with a padlock.

NOTE!

To prevent uncontrolled switching on, always disconnect the power supply via the battery isolating switch.

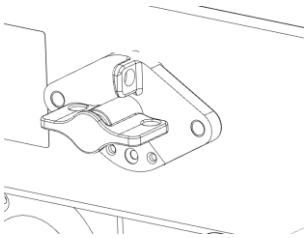


Figure 15: Battery disconnect switch position "OFF"

4.7 Display

The touch display, with the following functions, is located on the front left of the machine's main control unit.

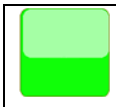
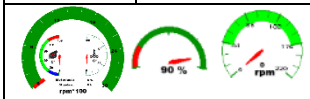
- Unfolding and folding in the fine fraction belt
- Starting and stopping the screening machine
- Adjustment of the belt speeds
- Display of remaining operating hours until the next service
- monitoring the fluid and operating conditions
- Reporting malfunctions
- Engine service
- Extension and retraction of the optional hydraulic supports at the front
- Switching the optional work lights or the compressor on and off
- Display of the operating instructions
- The units are specified in the SI system of units

4.7.1 General handling of the control unit

Figure 16: General representation of the control system

An action is performed by touching a button on the touchscreen. The buttons are realised either as push-buttons or switches. A switch retains its position after being actuated. A button jumps back to its initial position. All illustrations represent static images from the programming environment and do not always correspond to the states shown on the machine.
These differences result from the wide range of options and equipment variants that can be selected for the screening machine. For example, some displays can be customised by selecting the diesel-hydraulic (DH), diesel-electric (DE) or electric (E) drive.

4.7.2 Description of the buttons and icons

	Green button Described via text Function is ready for operation. • switched off (ready), can be switched on		**Button red** Function described via text is in operation • switched on (in operation), can be switched off
	**Button grey** Function described via text is not available • switching not possible • options not installed		**Restricted access button** The function described in the text can only be accessed by entering a password.
	**Button Arrow up** Move the function or component described via text upwards		**Button Arrow down** Move the function or component described via text downwards
	**Pointer diagrams** Various pointer diagrams are used in this application. A pictogram is usually shown in the centre to help with allocation. Units and scale values are adapted to the range to be displayed and vary.		

	**Bar chart** This bar chart occurs both vertically and horizontally. For example, the current level of the belt feeder (BAG) is indicated via this display.		
	**Cooling water temperature** The cooling water temperature is specified in C°. Depending on the menu, it is displayed as a numerical value or in a pointer diagram.		**Fuel** The fuel level is displayed in a pointer diagram as a percentage and consumption is shown in litres per hour.
	**Battery** Display of the battery voltage in volts.		**Service** Display of remaining operating hours until the next service.
	**Service due** End of maintenance interval, maintenance is due		**Engine intake manifold temperature** Indication of the motor intake air temperature in C°.
	**Motor regeneration display** Motor prepares for regeneration. This significantly increases the speed. If the lamps for SCR error and particulate filter also light up, the engine is in regeneration mode.		**Preheating system** The engine is equipped with a preheating system. This symbol appears when the engine is started and symbolises the preheating process of the diesel engine.
	**Motor symbol** This symbol represents the motor load in per cent.		**Motor symbol Fault** Motor error display In this case, the motor remains on. • Analyse and rectify the fault as quickly as possible.
	**Serious motor fault** There is a serious motor fault. In this case, the motor is switched off.		**AdBlue** The tank level is displayed in per cent using a pointer diagram.
	**Display SCR-Error** Error in the exhaust gas treatment. The abbreviation SCR stands for selective catalytic reduction and is responsible for the reduction of nitrogen oxides.		**Soot particle filter** This device reduces the particulates present in the exhaust gas of diesel engines.
	**Hydraulic oil cooler temperature** The oil temperature is specified in C°.		**Hydraulic oil tank temperature** The oil temperature is specified in C°.

Table 3: Buttons in the display

4.8 Menu navigation Display

4.8.1 Screen Home

Figure 17: Home menu screen display

The first screen displayed after switching on the machine is the Home screen. The machine view can be seen in the centre of the screen and the operational drives are indicated by green buttons. Touching the green buttons switches on the actions described below and red. Functions shown in grey are not active. Touching the red buttons switches the actions off and back to green. Next to the machine view there is a bar graph display of the belt feeder (BAG), on which the current BAG level can be read. BAG+ and BAG- increase or decrease each touch by one speed level. Further details on the direction of rotation and the BAG are explained in the chapter Screen-BAG-STOP. The pointer diagrams are omitted if the machine is driven electrically at. To the right and left of the pointers, the icons described in the previous chapter indicate events if required. Furthermore, in the event of a machine fault, a fault message appears on the display , which is shown in detail in plain text on the message screen. The message icon continues to flash red.

4.8.2 Screen motor stop

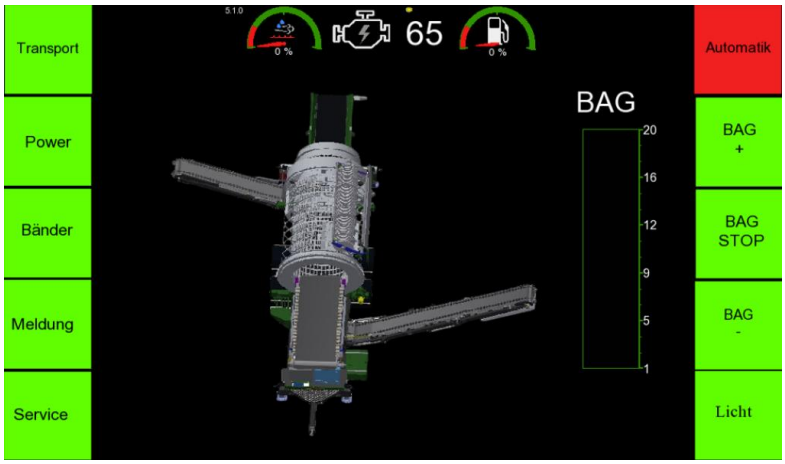


Figure 18: Screen display-motor stop

When leaving the automatic, transport and service mode operating states
The engine stop screen is displayed and the engine is switched off after 90 seconds. The elapsed time until the motor stops is displayed on the screen as a timer. If another function is selected during these 90 seconds, the motor remains in operation. The only variation to the home screen is the timer shown at the top centre.

4.8.3 Screen BAG-STOP

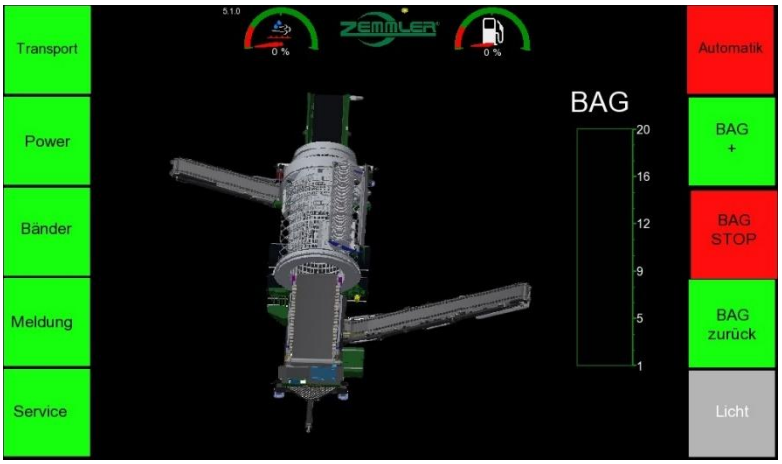


Figure 19: Screen display BAG-STOP

To remove an overflow, it may be necessary to run the BAG backwards. The BAG stop button can be used to switch off the belt dispenser. When the BAG- (minus) button is then touched, the tape dispenser runs backwards by holding it down. Press BAG-Stop again to turn this icon green. Forward operation can then be started with BAG+ in the preselected level.

4.8.4 Automatic screen

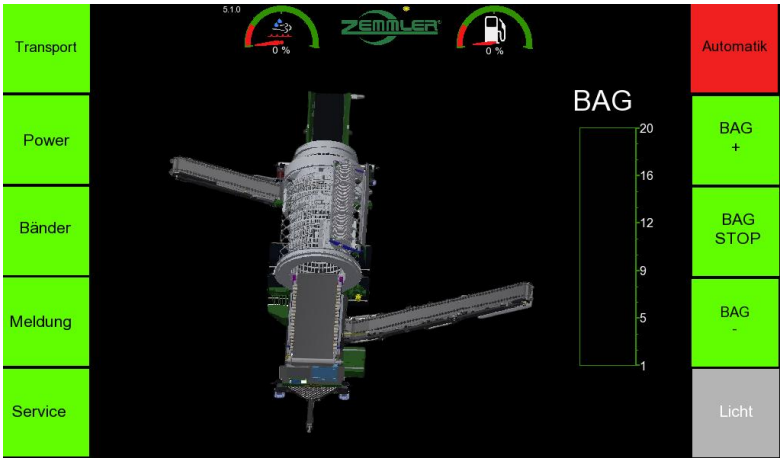


Figure 20: Automatic mode screen display

Automatic mode is started with the Automatic button. The start-up warning sounds first, then all drives are started up one after the other. The last stop is the BAG at. Transport is inactive and shown in grey on the display. When the automatic mode is pressed again, the drives are stopped in reverse order. The BAG+, BAG- and BAG STOP functions behave in the same way as on the Home screen.

4.8.5 Screen transport

Figure 21: Screen display Transport mode

On this screen, the tapes or fractions can be folded in and out. If the optional hydraulic supports are fitted, they can be controlled using the buttons on the left at . Transport mode can be exited via the transport button .

4.8.6 Screen service

Figure 22: Screen display Service mode

After pressing the service button, the service screen appears. This screen can be used to display the contact details of the responsible service partner, change the language, display the operating hours and the operating instructions .

NOTE!

If no option is selected within the time shown above, service mode starts with other options and a different screen display.

Service operation

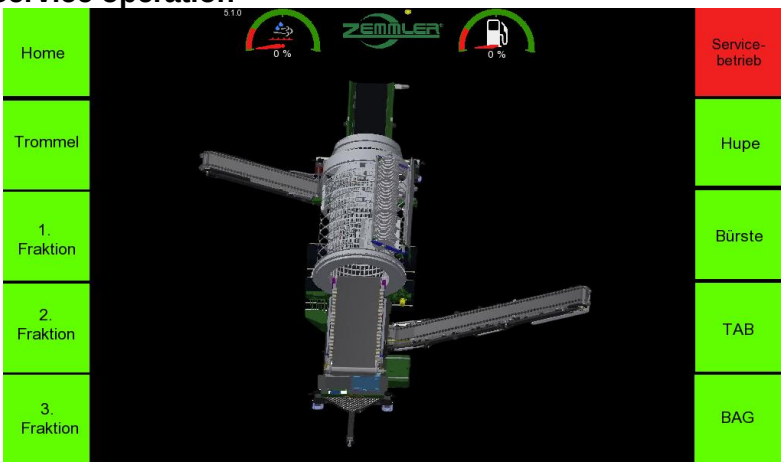


Figure 23: Service mode screen display

The service mode is only intended for adjustment and maintenance work or for individually emptying the belts and drum after an overfeed. The elements that are activated and in motion are highlighted in yellow. Before a belt or the drum starts, a warning sounds briefly.

Maintenance

Figure 24: Screen display Operating hours

After maintenance is switched on, a separate field appears showing the total operating hours and the remaining operating hours until the next maintenance. To reset the maintenance interval using RESET, enter the machine number (digits only) as the password. With the optional remote maintenance, customer service can read out the machine data and thus monitor the machine function.

Operating instructions

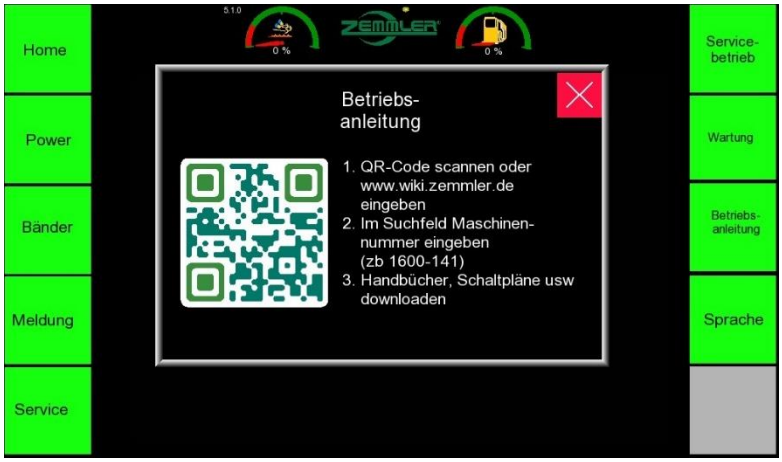


Figure 25: Screen display Operating instructions

Language

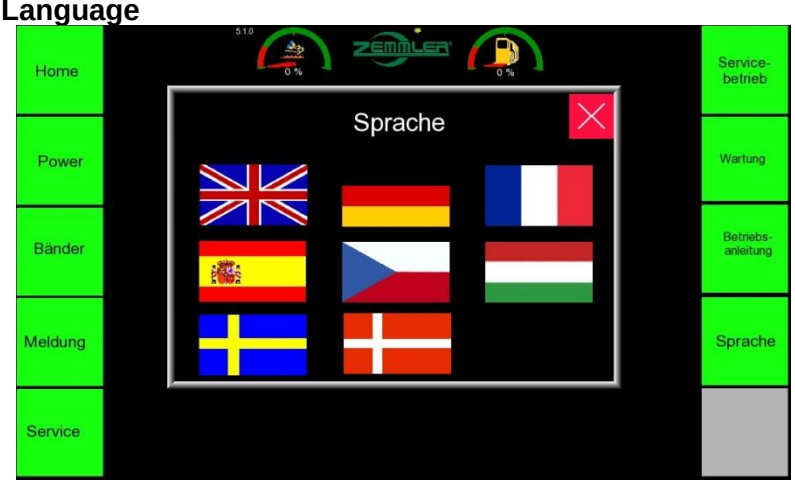


Figure 26: Screen display Languages

a separate field appears via the Language button, in which the language can be set by selecting the respective flag.

4.8.7 Display power (DH)

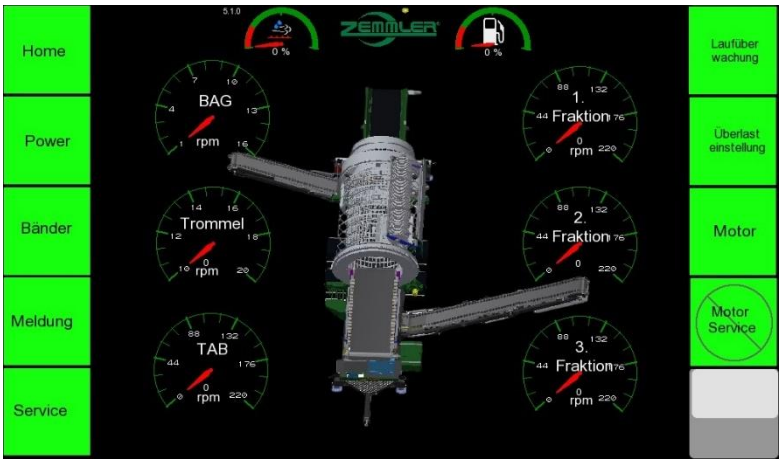


Figure 27: Power menu screen display

After pressing the power button on the home screen, the power menu appears. The speeds of the individual belts and the drum can be read off in this menu.

NOTE!

The speeds of the drives are displayed in this menu.
The bargraph displays used in the other screens, on the other hand, show the speeds in steps.

The overload parameter, motor and motor service functions are only available with a diesel-hydraulic drive.

Overload setting/parameter screen (DH only)

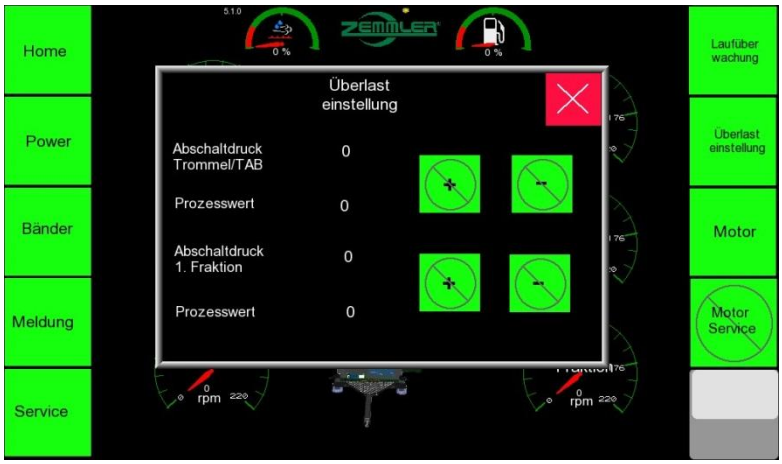


Figure 28: Screen display overload menu

overload parameter: After activating the overload setting, a separate field appears. The switch-off and momentary pressures are displayed. these values can be manipulated using the plus and minus buttons.

NOTE!

These settings require special knowledge and may only be made by specialised personnel. The grey representation on the buttons indicates that this function is password-protected.

Run monitoring

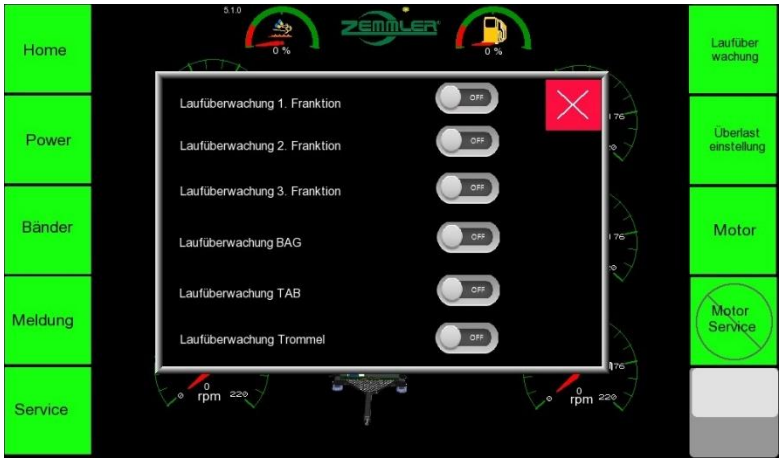


Figure 29: On-screen display of run monitoring

NOTE!

The run monitoring function may only be switched off for maintenance purposes. These settings may only be manipulated by authorised specialist personnel. For this reason, this function is password-protected.

Motor screen (DH only)

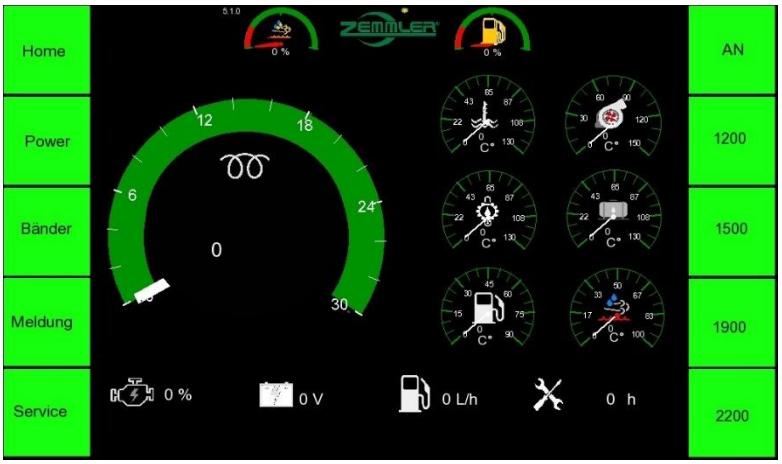


Figure 30: Power menu screen display

After pressing the motor button on the power screen, a separate field appears with the motor characteristics. The desired speed can be preselected at and the motor can be started and stopped.
The numbers 1200, 1500, 1900 and 2200 represent the engine speeds in revolutions per minute. The speed set here has no influence on the engine speed in automatic mode. The icons and function buttons on the left-hand side are described at the beginning of this chapter.

Screen motor service (DH only)

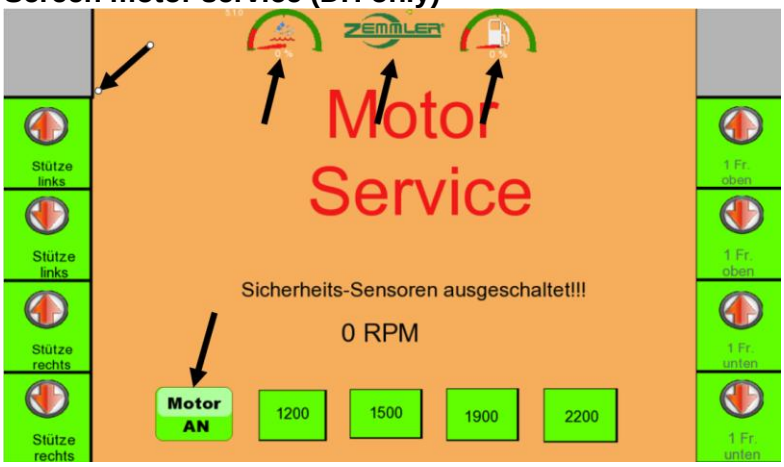


Figure 31: Engine service screen display

The engine service is an engine operating function for authorised specialist personnel only and can therefore only be accessed by entering a password. All options mentioned here must be operated with the utmost care, as the safety sensors are deactivated. Furthermore, the hydraulic supports can be raised and lowered.

4.8.8 Screen tapes

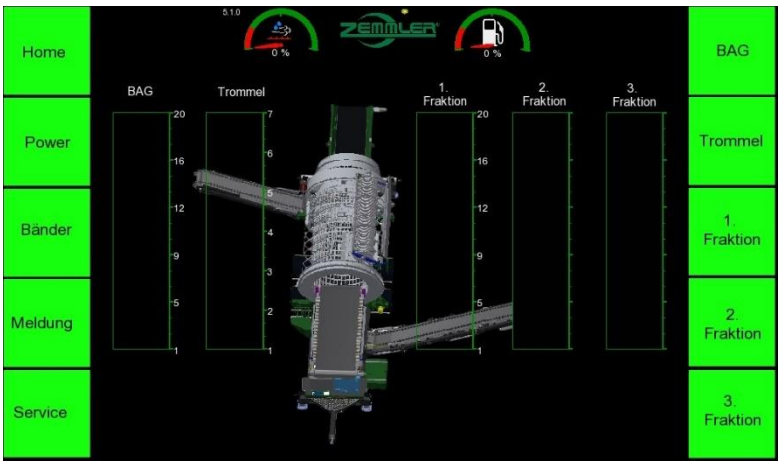


Figure 32: Ribbon screen

This screen appears after you click on the ribbon button.
On this screen, the individual stages of the BAG, the drum and the fractions one to three are displayed and can be adjusted using the buttons on the right .

Submenu BAG

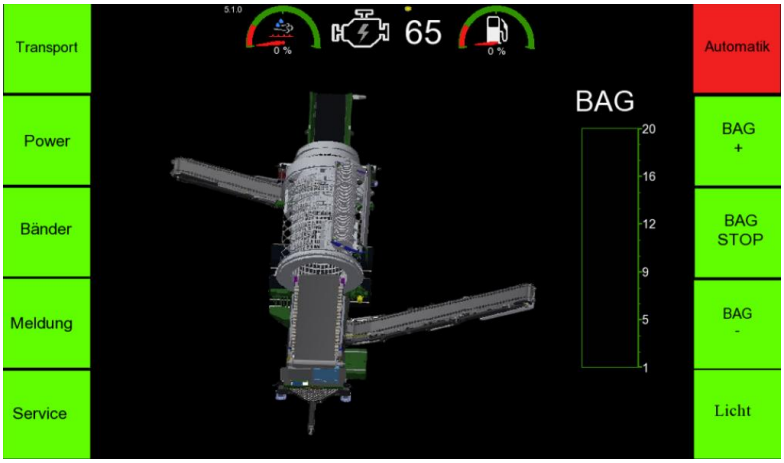


Figure 33: Ribbon BAG screen

As already described in the Home screen chapter, the belt speed and direction of rotation can be adjusted in the BAG submenu. The speed level of the BAG can be changed using the plus and minus signs. To remove an overfill, it may be necessary to run the belt feeder backwards. The direction of rotation can only be changed after the belt has come to a standstill.
When the BAG- (minus) button is then touched, the tape dispenser runs backwards by holding it down.

NOTE!

Reducing the steps using the minus button does not cause the belt to stop.

Submenu fraction and drum

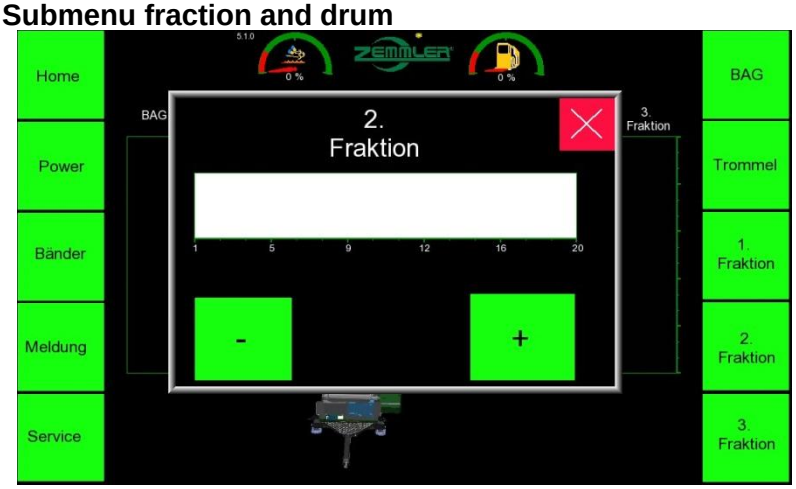


Figure 34: Ribbon fraction, drum screen

As shown in the structure tapes, the operation of the drum and the individual fractions is identical. The level can be changed with plus and minus and the submenu can be exited with the cross.

4.8.9 On-screen message

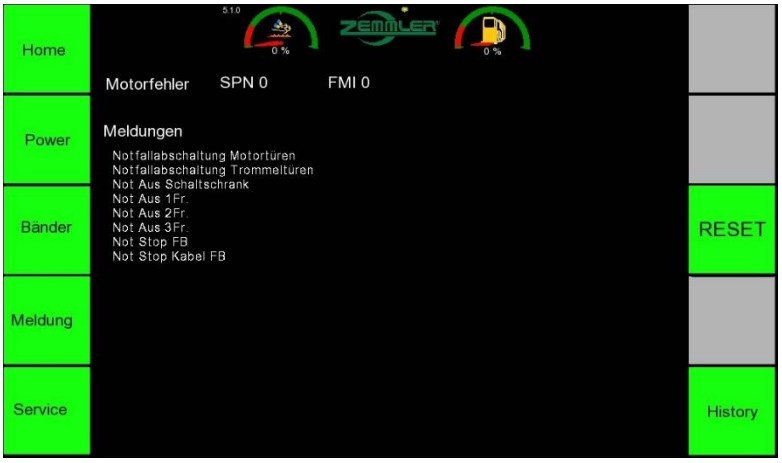


Figure 35: Message screen

You can access the message screen by tapping the Message button.
Alternatively, when the fault screen is displayed, it is possible to access the messages screen by pressing anywhere on the touchscreen.
The active motor faults (DH only) are displayed here as a number combination.

The messages are displayed as follows:

- Messages are listed in plain text
- Active in blue font (in progress)
- Messages in black font are inactive (processed)

NOTE!

Fault messages must be acknowledged with RESET after the cause of the fault has been eliminated.

4.8.10 Messages and error codes

Error code	Description of the
Overload 1. Faction Overload drum/TAB	On the 1. Fraction, drum/TAB contains too much or too heavy material.
Emergency stop/drum doors	EMERGENCY STOP switch engaged or drum door open.
EMERGENCY STOP FB (option)	EMERGENCY STOP switch of the optionally available remote control.
EMERGENCY STOP motor door	Motor door under hopper opened.
Drum run monitoring	Drum speed not correct.
Run monitoring 1.Faction 2.Faction 3.Faction TAB BAG	Speed of the corresponding band is not correct
oil temperature max	Hydraulic oil of the machine too hot
oil level Min	Hydraulic oil in machine tank below minimum
Air filter dirty	Machine air filter dirty
Motor Stop	Diesel engine fault
3Q4 Motor protection TAB fallen	Motor protection switch in the switch cabinet tripped. (electrical machine)
3Q5 Motor protection brush fallen	Motor protection switch in the switch cabinet tripped. (electrical machine)
3Q6 Motor protection hydraulic pump fallen	Motor protection switch in the switch cabinet tripped. (electrical machine)
3Q7 Motor protection BAG fan fallen	Motor protection switch in the switch cabinet tripped. (electrical machine)
11K1 Drum fault	Error in the frequency inverter. Please note error code (electrical machine)
11K2 FU BAG malfunction	Error in the frequency inverter. Please note error code (electrical machine)
12K3 FU 1. Faction Fault	Error in the frequency inverter. Please note error code (electrical machine)
12K4 FU 2. Faction Fault	Error in the frequency inverter. Please note error code (electrical machine)
13K5 FU 3. Faction Fault	Error in the frequency inverter. Please note error code (electrical machine)
2F4-2F8 Circuit breaker dropped	Fuse in switch cabinet tripped (electrical machine)
Phase monitoring	Rotating field in supply cable incorrect (electrical machine)

Table 4: Error codes Fault messages

4.8.11 Screen display Special cases

Password entry
If a button is shown with a grey circle, a password must be entered. Press the button to display a numeric keypad. Enter the password in the field and confirm with Enter. Once the correct password has been entered, the selected option becomes available.

NOTE!

As the machine may be damaged or a hazardous situation may arise if the settings are not made correctly, the password-protected options are only intended for use by authorised specialist personnel.

Caterpillar mode
This screen appears when the remote control for the track drive is plugged in or the mode is selected via the Maxi remote control.

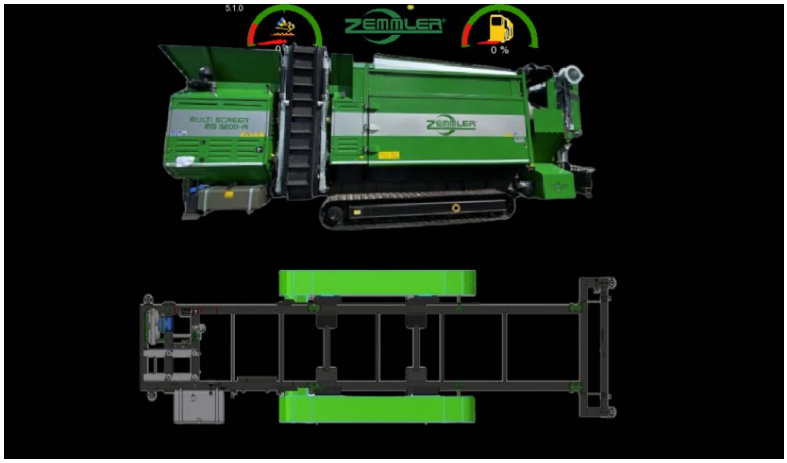


Figure 36: Ribbon fraction, drum screen

Fault screen
A fault is displayed on the screen. This message is active regardless of the position in the menu and alerts the operator to a problem.
Pressing the screen takes you directly to the messages screen. Further details are described in the Messages section.

Screen change screen
The sieve change is activated and deactivated using the key switch and the corresponding key on the main control unit.
The display shows the words "Change sieve".

NOTE!

If the function is active, the separate remote control for the sieve change is activated and other functions cannot be started.

The procedure for replacing the filter is described in the chapter Changing the filter.

4.9 Remote control (option)

The machine can be optionally equipped with a remote control. You can choose between an 8-channel remote control (standard) or a 10-channel (maxi) version. The connection between the two remote controls has been actively designed. This means that the machine switches off if reception is lost. Both modules have a radio emergency stop and a maximum range of 100 metres.
The operator must ensure that the remote control is stored safely (e.g. holder in the front loader).

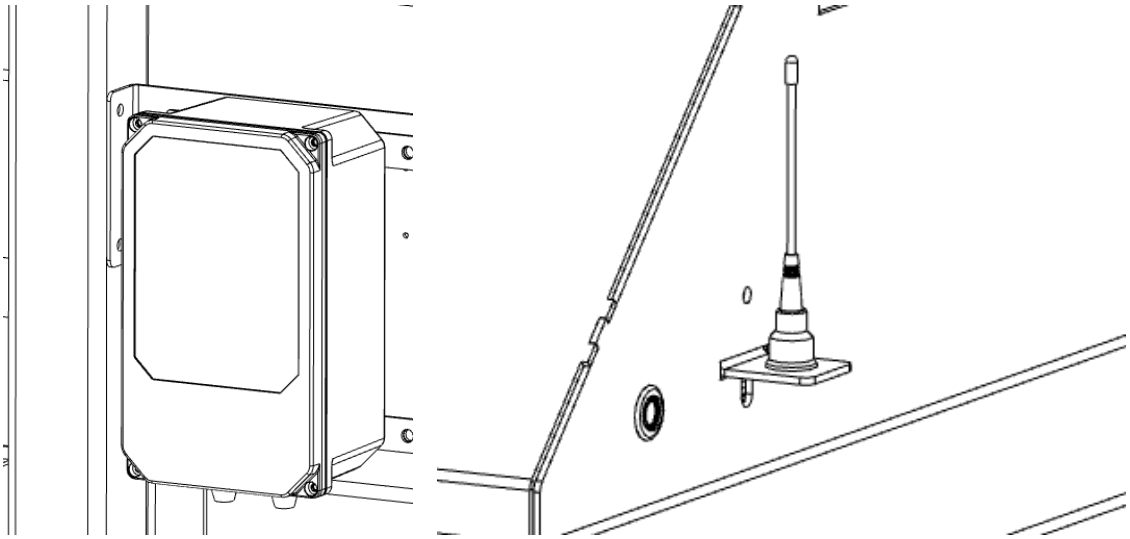


Figure 37: Remote control receiver with aerial

The receiver is located above the machine at the front right, behind the engine compartment door, the aerial on the funnel at the front. If objects are located or move between the transmitter and receiver, the range may be considerably reduced. Faults of this type can also bring the machine to a standstill.
Make sure that there are no objects on the receiver.

4.9.1 Remote control function 8-channel

Figure 38: 8-channel remote control on both sides

Activating the 8-channel remote control
To activate the remote control, press button 4 on the remote control.
The EMERGENCY STOP switch is located at the top right.

Carry out the following steps within 5 seconds:

1. Pull the EMERGENCY STOP switch.
2. Briefly press button 4, the LED flashes red.
3. Press button 4 again until the status LED flashes green. Wait until the LED flashes green slowly.
4. The remote control is connected to the machine.

NOTE!

If the status LED flashes red, an acoustic signal sounds and the transmitter vibrates, you need to replace the battery. Otherwise the transmitter will switch off in a few minutes. This also brings the machine to a standstill. Only recharge the battery using the corresponding charger.

4.9.2 Remote control function 10-channel (maxi)

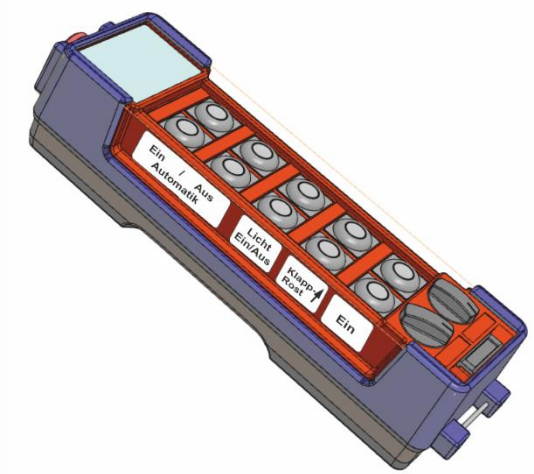


Figure 39: 10-channel three-dimensional remote control

Activating the 10-channel remote control
To activate the remote control, press button S5 on the remote control.
The EMERGENCY STOP switch is located at the top.

Carry out the following steps within 5 seconds:

1. Pull the EMERGENCY STOP switch, the display shows :
   "Enter Start-Sequence" with a locked lock as a symbol.
2. Briefly press the S5 button. An open lock symbol appears on the display.
3. Press and hold the S5 button again until the start screen appears. Wait until the connection to the machine is established.

NOTE!

The transmitter switches off when:

- the start button S5 is pressed for longer than half a second during step 2 of the switch-on sequence.
- the switch-on sequence lasts longer than 5 seconds.
- another button is pressed during the switch-on sequence.

In such cases, press the EMERGENCY STOP button and repeat the entire switch-on sequence.

NOTE!

The battery charge status is shown on the display.
If the status LED flashes red, an acoustic signal sounds and the transmitter vibrates, you need to replace the battery. Otherwise the transmitter will switch off in a few minutes. This also brings the machine to a standstill. Only recharge the battery using the corresponding charger.

4.9.3 Key assignment 10-channel remote control

Work mode:
Set changeover switch 1 to colour, pictograms on the side

Figure 40: 10-channel remote control Pictograms on the side

Work (yellow changeover switch)			
S1	Automatic on	S6	BAG faster / forward
S2	Automatic off	S7	BAG stop
S3	Light	S8	BAG slower / backwards
S4	Lifting the hinged grid (option)	S9	Lower hinged grate (option)
Mode (switch grey)			
S1		S6	
S2		S7	
S3		S8	
S4		S9	
S5	Transport to	S10	

Table 5: overview of 10-channel remote control assignment Work mode

Transport mode:
Set changeover switch 1 to colour
Transport mode must be switched on (grey switch and S5).
The acoustic start-up warning sounds before every movement in transport mode.

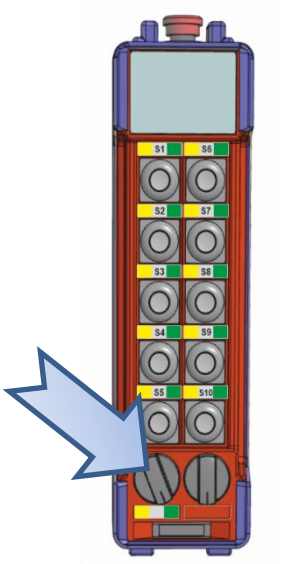


Figure 41: 10-FB Maxi front view (switch 1)

Fractions (yellow toggle switch)			
S1	Funct. 1 up high	S6	Funct. 1 up down
S2	Funct. 1 down high	S7	Funct. 1 down
S3	Funct. 2 up high	S8	Funct. 2 up down
S4	Funct. 2 down high	S9	Funct. 2 down
S5	Funct. 3 high	S10	Funct. 3 down
Supports (grey changeover switch)			
S1	VL high	S6	VR high
S2	VL down	S7	VR down
S3	HL high	S8	HR high
S4	HL down	S9	HR down
S5	Transport from	S10	
Crawler drive (green changeover switch)			
S1	left forwards	S6	right forwards
S2	Left backwards	S7	Right backwards
S3	fast	S8	slowly
S4		S9	
S5		S10	

Table 6: overview of 10-channel remote control assignment Transport mode

NOTE!

To switch off the remote control, press the EMERGENCY STOP button.

4.10 Screen drum options

Ripping knife in the drum (optional)
The ripper knives are used to tear open the bulk material fed in and are located in the front section of the drum. The following illustration shows an example of the positioning of the ripper knives in the sieve drum. The blades are bolted and can be replaced when worn. Always wear suitable protective equipment such as protective gloves and protective clothing when working on the drum.

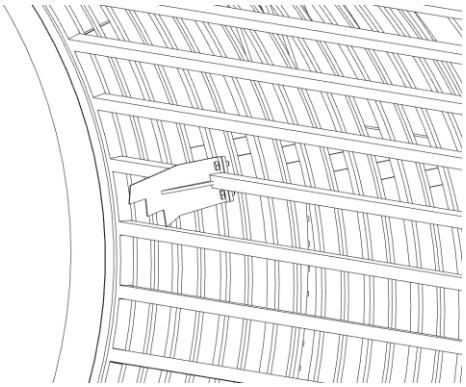


Figure 42: Example of the optional ripper blades

The variants of the screening drum can be planned individually for the customer and customised to the application.

The following variants are available:

- Ripper knife in 1. Drum section
- Inner basket partition screwable
- Welded inner basket partition
- Drum without clamping station
- Removable weather protection cover for drum and brush

4.11 Brake pressure test socket

The test pressure socket is located on the chassis behind the left rear wheel.

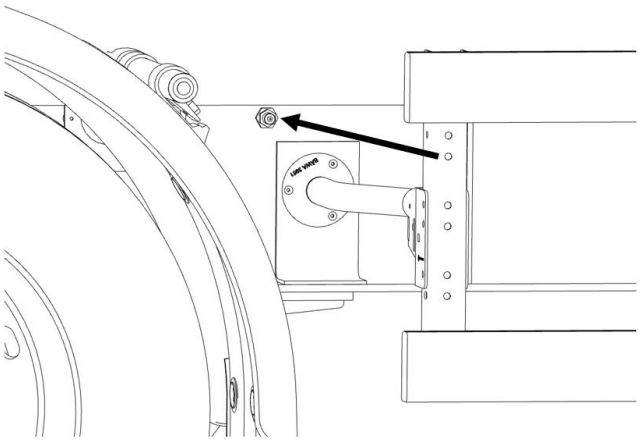


Figure 43: Brake pressure test socket position

4.12 Underride guard

The underride guard at the rear of the machine is fitted with a plug and can be removed to protect the lighting equipment during screening operation.

1. Unplug the electrical connection cable of the underride guard from the connection socket next to the holder for the wheel chock.
2. Remove the split pin from the locking bolts on the right and left of the moulding.
3. Pull out the locking bolt.
4. Lift the underride guard out of the mounts at the rear of the machine.
5. Store the underride guard, cotter pins and locking bolts in a safe place.

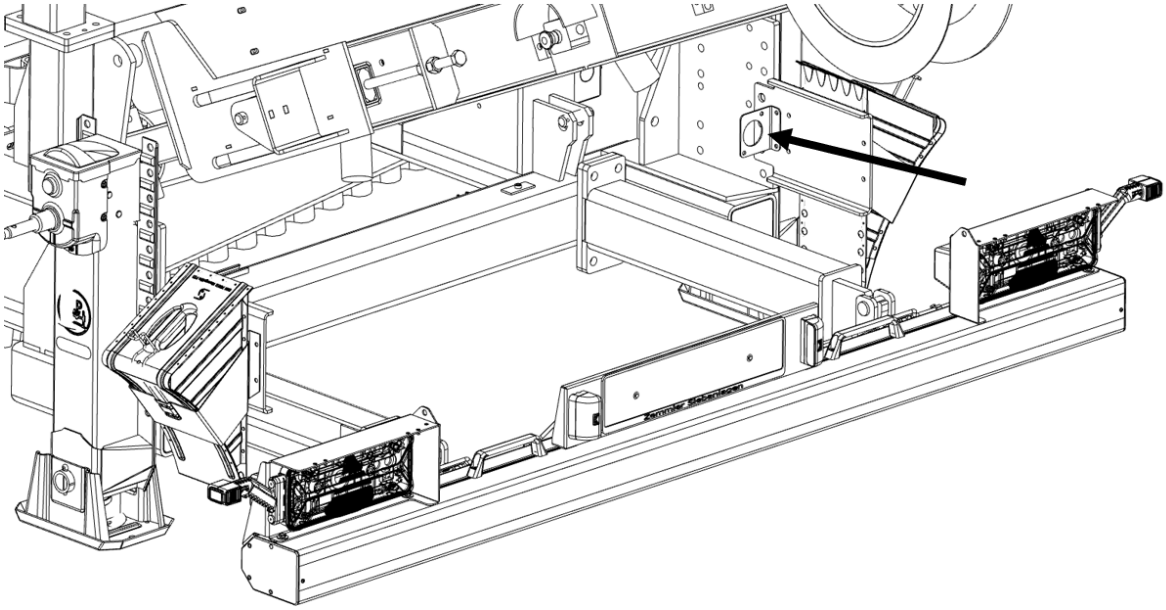


Figure 44: Position of the underride guard plug connection

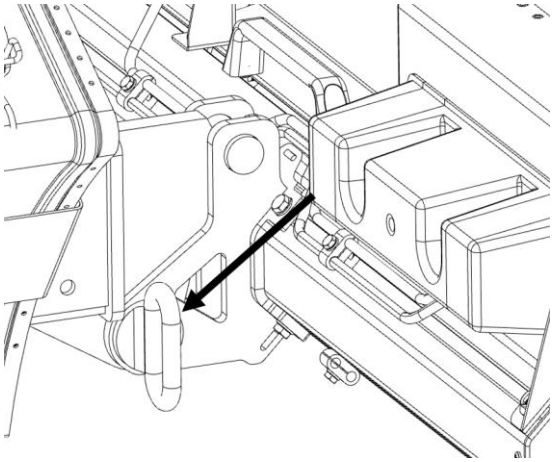


Figure 45: Safety bolt underride guard

4.13 Parking brake

The crank for the parking brake is located at the front of the screening machine.
There is a lubrication point on the crank. If necessary, the crank can be serviced here.

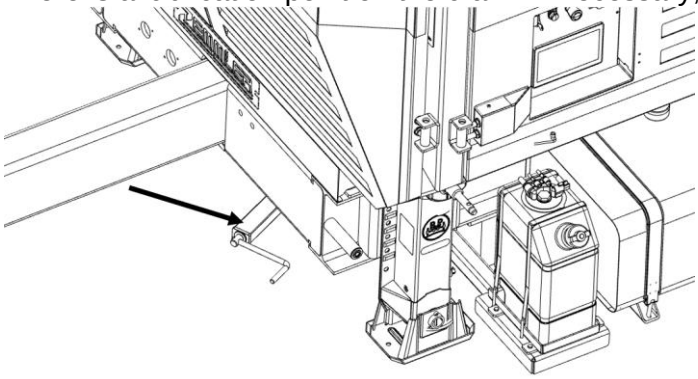


Figure 46: Parking brake position

4.14 Interchangeable sieves

The Zemmler double drum screener is equipped with a replaceable outer screen. Wire screens, which are tensioned around the screening drums, ensure a sharp separation cut and clean screening of the individual fractions.
The grain thickness of the fine fraction can therefore be flexibly adapted to the screening task and individually adjusted from 2 to 80 mm. The chapter on operation goes into more detail about changing the sieve.

4.15 Type plate

The type plate is located on the base frame on the right-hand side in the direction of travel.
To ensure a smooth and fast delivery of spare parts, the data on the rating plate, in particular the serial number, must be stated when ordering spare parts.

4.16 Opening and closing doors

4.16.1 Engine compartment doors

NOTE!

All doors are fitted with safety locks which automatically lock the doors when they are opened. This prevents the door from closing unintentionally. In addition, some doors are secured with electromagnets during operation.

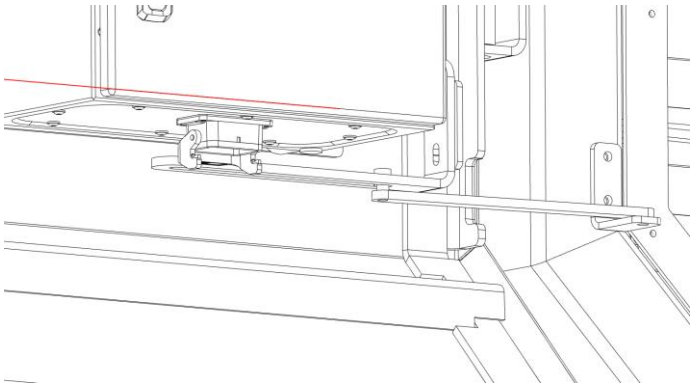


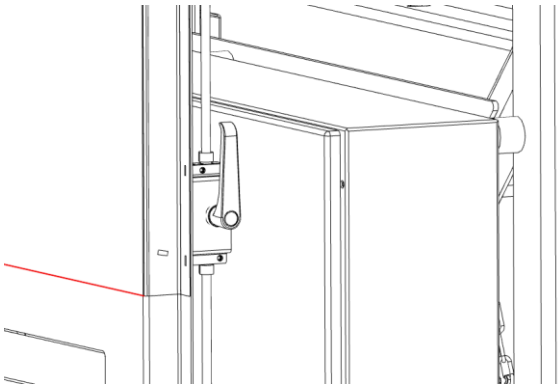
Figure 47: Safety lock Engine compartment doors

Opening the engine compartment doors

1. Unlock engine compartment door
2. Turn the spanner against the spring force and pull the plastic handle at the same time.
3. Turn the handle 90 degrees
4. Pull open the door
5. Move the door until you feel the safety catch engage
6. The second engine compartment door is unlocked as shown in the pictures.

Closing the engine compartment doors

1. To close the door, push the movable rod upwards by hand. If the door is stiff, relieve the pressure on the door with the other hand.
2. Close the first door and lock it as shown in the following pictures.
3. Close the second door.
4. Turn the handle and press until you feel it engage.



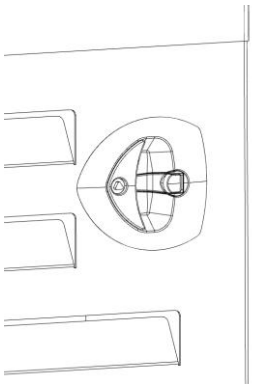


Figure 48: Second engine compartment door lock / Engine compartment door handle

Door lock electromagnets

There are electromagnets on the engine compartment doors of the machine for securing.

The magnet and counterpart are located a little way behind the engine compartment doors. Direct contact with the electromagnets under load is therefore impossible. The magnet only attracts when a closed door has been detected by the inductive sensors and the machine is in operation. If the power supply is disconnected or the machine is switched off, the magnet loses its attraction.

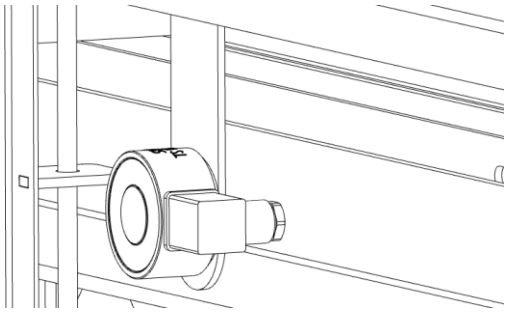


Figure 49: Electromagnet

4.16.2 Switch cabinet

It may be necessary to get behind the switch cabinet for maintenance and installation work. To simplify maintenance on the screening machine, the control cabinet is equipped with a swivelling mechanism. The following illustration shows the spring latch in the right-hand engine compartment. It is located to the left of the switch cabinet.

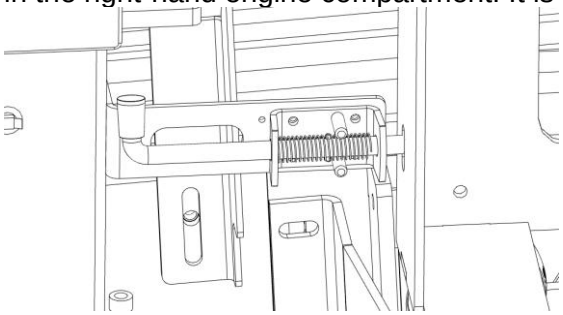


Figure 50: Lock next to the switch cabinet on the left

Swinging the control cabinet

1. Open and lock the engine compartment doors on the right.
2. Pull the spring bolt shown to lift the bolt out of the hole.
3. Swing open the switch cabinet.

Swinging the control cabinet

1. Swing the switch cabinet and pull the spring latch with the other hand just before closing.
2. Insert the latch into the hole on the switch cabinet.
3. Check that the switch cabinet is firmly locked in place!

NOTE!

Operating the machine without a securely locked switch cabinet can damage the electrical system.

4.16.3 Main control unit

Open main operating unit door

1. Unlock the handle using the key
2. Pull the handle and turn it clockwise.
3. open the door.

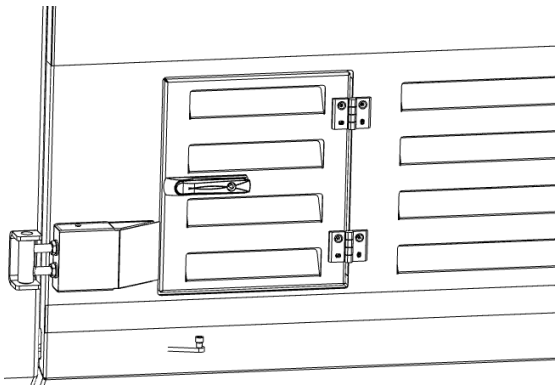


Figure 51: Locking main control unit

4.16.4 Drum doors

NOTE!

When opening and closing, make sure that there are no objects or people in the swing area. The fine fraction must be folded in to open the left drum door.
Always use the existing safety catches for the doors so that wind cannot open and close the doors in an uncontrolled manner.
Due to their size and length, all drum doors are fitted with several safety catches that lock the doors in different positions. It is also possible to secure the drum doors with a padlock. There is a hole on the locking lever next to the latch for this purpose.

Open drum door

1. Pull the lockingtift on the locking lever downwards.
2. Turn the locking lever on the espagnolette lock all the way round.
3. Pull the door slightly open, there is a second safety catch on the inside of the door. Press the safety hook inside upwards with your second hand and open the door fully.
4. Secure the door with the safety chain. This is located at the front of the machine, near the supports. The chain is hooked into the safety eyelet on the inside of the door.

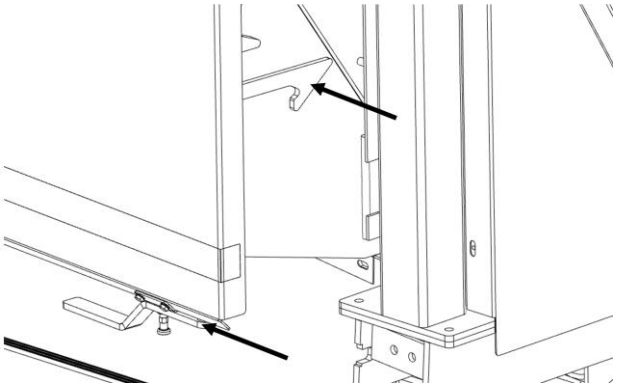


Figure 52: Locking lever with locking pin and safety hook

Close drum door

1. Remove the chain from the drum door and attach it to the machine.
2. Close the door, the door safety hook engages automatically.
3. You can then lock the espagnolette lock until the locking pin engages on the locking lever.
4. The door can now be additionally secured with a padlock against unauthorised access.

4.16.5 Drive door

NOTE!

The drive door is only intended for maintenance work. For this reason, it was not fitted with a handle. Instead, the door is locked with a screw.

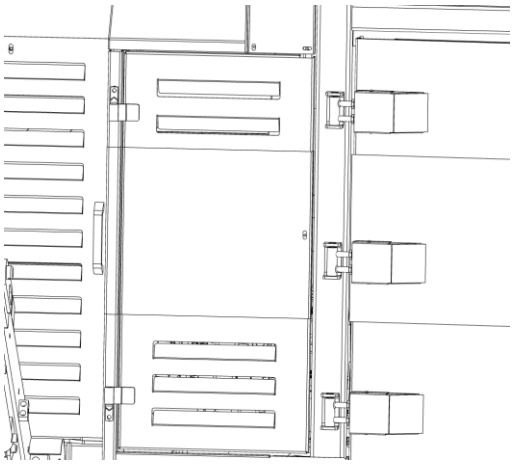


Figure 53: Drive door

4.17 Lateral protective device

The side guard shown serves as protection on public roads and can be removed. To prevent the side guard from being damaged during filling, it must be removed when the machine is in operation.

1. To do this, loosen the 4 clamping screws.
2. The protective device can then be removed from the mounting tubes.

NOTE!

The side guard under the loading door must be removed for operation. To do this, loosen the clamping screws and pull the safety guard off the mounting tubes.

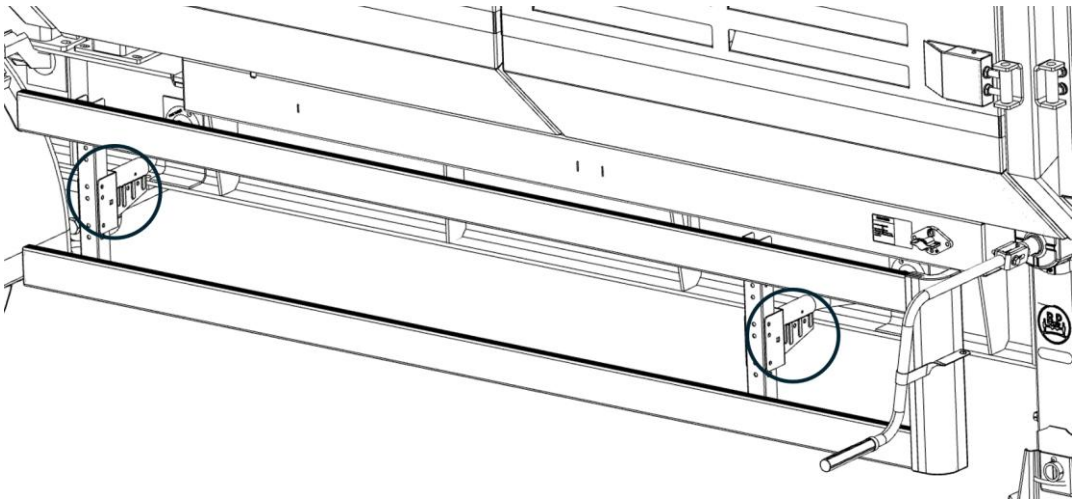


Figure 54: Lateral protective device

4.18 Wheel chock

The wheel chocks serve as additional roll-off protection when parking and prevent the machine from rolling away on uneven or inclined surfaces
Levels. The brackets for the wheel chocks are clearly visible at the rear of the machine.

4.19 Supports

DANGER!

Hazards due to moving components of the supports
Crushing of the feet when lowering the floor panels.
Injuries to fingers and hands due to crank kickback.

- Maintain a safe distance from the floor panels
- Slowly release the crank at the end of the turning movement
- Wear foot protection and hand protection

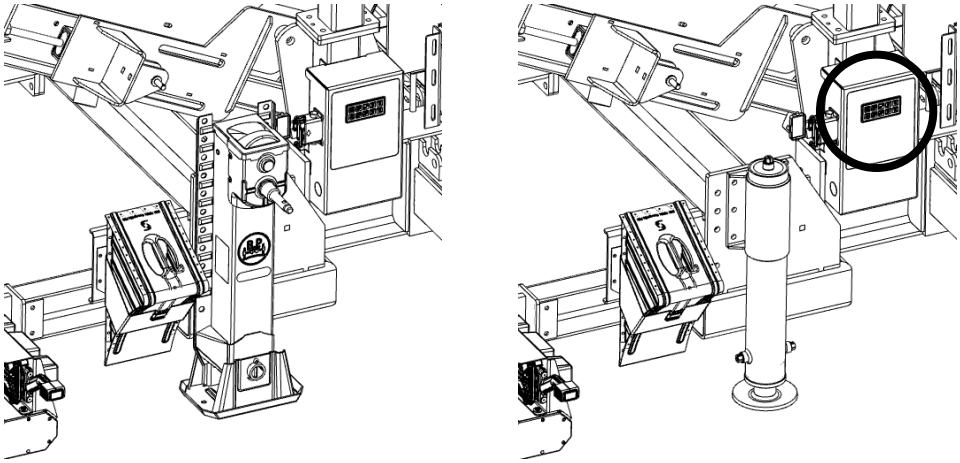


Figure 55: manual supports / optional hydraulic supports with membrane switch

NOTE!

Only align the machine with the lateral support devices and do not lift it out! Support devices provide additional stability and touch the floor with lightly pressure.
Failure to do so may result in lateral twisting and damage to the drum or the discharge belts. Excessive twisting can also lead to faults in the door safety switches (machine does not start).

4.19.1 Manual supports

You can choose between two speeds on the manual supports.
Fast gear: Used to move the supports quickly without a load. The crank is completely pressed in on the shaft.

Load profile: Used to move the supports under load. Compared to high gear, more revolutions must be cranked per extended travel. The crank is fully extended on the shaft. The changeover from high gear to low gear should take place shortly before the foot touches the ground. To avoid crank kickback, slowly relieve the crank towards the end of the turning movement.

4.19.2 Hydraulic supports (option)

The hydraulic stabilisers are operated via the touch display on the main control unit (front stabilisers) and on the rear control unit with membrane switch (rear stabilisers). The hydraulic supports can also be controlled via the Maxi remote control. The supports can only be moved if transport mode has been started. Transport mode can be accessed via the home screen or the remote control.

Operation of the rear hydraulic supports via the membrane switch

Rear left support high

Rear right support high

Rear left support down

Rear right support down

Operation of the front hydraulic supports via the touch display:
The front hydraulic stabilisers are operated via the touch display.
All operating buttons are located on the left-hand side of the transport screen.

Rear left support high

Rear right support high

Rear left support down

Rear right support down

NOTE!

Only when the machine is standing on a level and stable surface, the parking brake is applied and the wheel chocks are placed in front of or behind the wheels, can you start aligning the machine with the supports.

4.20 Feeding hopper door

The feed hopper door is located on the fine fraction on the left-hand side of the machine. To prevent damage to the screening machine, it must always be open when folding in the fine fraction. There is an eyelet on the flap for easy operation. The hook bar shown is located on the left-hand side of the drum door and, in conjunction with the eyelet, ensures perfect operation.

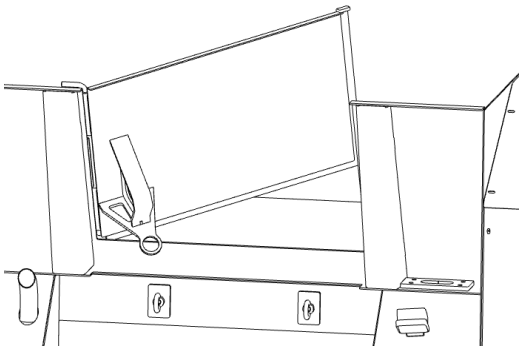


Figure 56: Feeding hopper door / Position of the hook bar and ladder on the left

NOTE!

Folding in the fine fraction when the feed hopper door is closed can damage the belt and the hopper door.

DANGER!

Hazards due to falling screenings

Crushed by screenings falling or falling beside it
during loading of the feed hopper (with the wheel loader).
Crushed by sliding coarse material when tilting the stone grid

- Watch out for falling material
- No persons may be present in the danger zone while the screen is in operation. Cordon off the danger zone to prevent unauthorised access.
- Do not overfill the feed hopper
- Close feed hopper door before sieving operation
- Use a helmet

4.21 Fine fraction

4.21.1 Fine fraction transport protection

There is a transport lock on the belt of the fine fraction that prevents unintentional unfolding during transport. Hydraulics are used to bend the belt and move it behind a locking device. This moves the upper section of the belt into the lock shown in the picture. Make sure you move the fine fraction in the correct order.

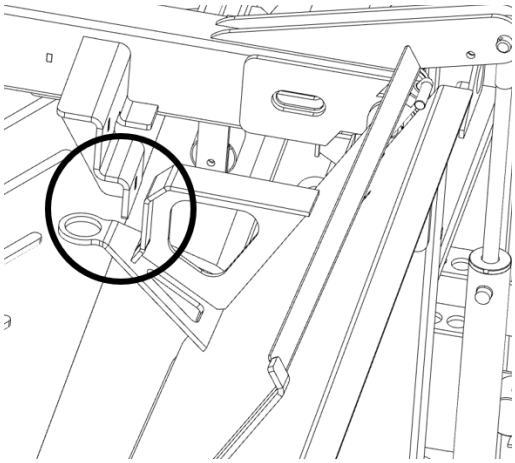


Figure 57: Transport protection fine fraction

NOTE!

Unfolding the fine fraction
The folding and unfolding of the fine fraction takes place in a specific sequence. The double drum screener can be damaged if operated incorrectly.

4.21.2 Fine fraction folding out

NOTE!

Securing the transport of the fine fraction
Belt is moved hydraulically behind a stop.

Unfolding the fine fraction (1. Fraction) via the touch display:

1. Switch the machine to transport mode.
2. Lift the upper part of the fine fraction with the button: "Folding out the fine fraction at the top" 2/3 from the transport lock.
3. Now fold the lower part with the button: "Fold out the fine fraction at the bottom" completely.
4. The upper part is then closed with the button: "Fold out the fine fraction at the top" fully unfolded.

Buttons for moving the fine fraction:

Folding out the fine fraction at the top

Folding out the fine fraction at the bottom

4.21.3 Fine fraction Collapse

NOTE!

Securing the transport of the fine fraction
The belt is moved hydraulically behind a stop and the feed hopper door must be open.

Folding in the fine fraction via the touch display:

1. Switch the machine to transport mode.
2. open the feed hopper door fully using the hook bar.
3. Fold the upper part of the fine fraction with the button: "Folding in the fine fraction at the top" by 1/3.
4. Then fold the lower section with the button: "Fold in the fine fraction at the bottom" completely.
5. Now lower the upper part of the fine fraction using the button: "Folding in the fine fraction at the top" completely (downwards into the transport lock) and check that the lock is properly seated

Buttons for moving the fine fraction:

Folding in the fine fraction at the top

Folding in the fine fraction at the bottom

4.22 Centre fraction

4.22.1 Medium fraction transport protection

There is a transport lock on the belt of the centre fraction, which prevents unintentional unfolding during transport. Depending on the equipment selected, you can choose between a short or long strap. The long belt has a bend and is secured by means of a hydraulic cylinder. The long centre fraction is unfolded and folded in a specific sequence. This moves the upper section of the belt into the lock shown in the picture. Incorrect operation of the screening machine can damage it

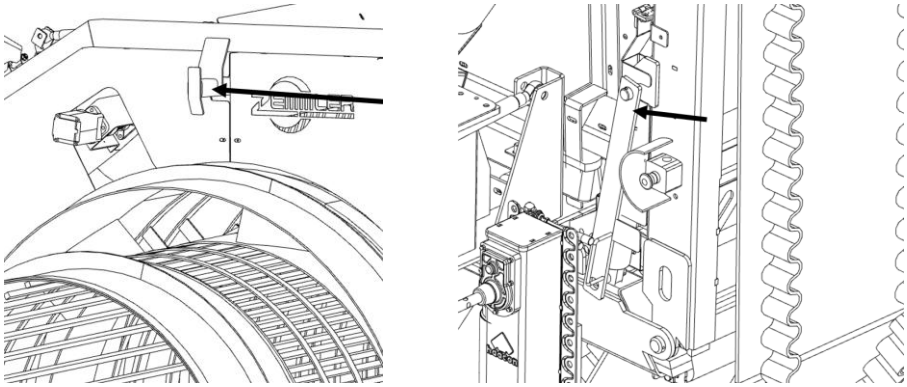


Figure 58: Transport securing long centre fraction (l.) short centre fraction (r.)

NOTE!

Unfold short centre fraction
Before unfolding the short centre fraction, the transport locks must be removed by hand. The sieve shaker may otherwise be damaged.

4.22.2 Centre fraction folding out

NOTE!

Transport securing of the centre fraction short without **bend:**

- manually attached fuse

Transport securing of the centre fraction long **with** bend:

- Belt is moved hydraulically behind a stop.

Fold out the centre fraction briefly using the membrane switch:

1. Remove the transport lock for the centre fraction belt by hand .
2. Switch the machine to transport mode.
3. Now unfold the centre fraction completely using the unfold centre fraction foil button at the bottom.

Fold out the centre fraction long using the membrane switch:

1. Switch the machine to transport mode.
2. Lift the upper part of the centre fraction using the membrane switch: "Folding out the centre fraction at the top" from the transport lock.
3. Now fold the lower part of the centre section with the membrane switch: "Fold out the centre fraction at the bottom" completely.
4. The upper part can then be fitted with the membrane switch: "Fold out the centre fraction at the top" to unfold it completely.

Buttons for moving the centre fraction:


Folding out the centre fraction at the top (only with long belt option)


Folding out the centre fraction at the bottom

4.22.3 Centre fraction Collapse

NOTE!

Transport securing of the centre fraction short without bend:

- manually attached fuse

Transport securing of the centre fraction long with bend:

- Belt is moved hydraulically behind a stop.

Fold in the centre fraction briefly using the membrane switch:

1. Switch the machine to transport mode.
2. Now fold with the membrane switch: "Fold out the centre fraction at the bottom" to completely retract the belt.
3. Attach the transport lock for the centre fraction belt by hand.

Folding in the centre fraction long via the membrane switch:

1. Switch the machine to transport mode.
2. Fold the upper part of the centre section with the membrane switch: "Fold in the centre fraction at the top" up to halfway.
3. Fold the lower part of the centre section with the membrane switch: "Fold in the centre fraction at the bottom" completely.
4. Then the upper part with the membrane switch: "Fold in the centre fraction at the top" completely.
5. Check that the transport lock is properly seated.

Buttons for moving the centre fraction:


Folding in the centre fraction at the top (only with long belt option)


Folding in the centre fraction at the bottom

4.23 Coarse fraction

DANGER!

Hazards due to swinging of the conveyor belts

Catching, striking or being struck when lifting and lowering the hydraulically driven conveyor belts and when intervening in the Folding mechanism when folding the conveyor belts in and out during the installation

- Be aware that contact or interference with the folding mechanism when folding/unfolding the conveyor belts can cause catching, winding and crushing.
- No persons may remain in the danger zone during set-up operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

4.23.1 Coarse fraction transport protection

There are fixed transport locks on the coarse fraction belt to prevent it from folding out during transport.
These are clearly visible from the rear operating unit on the membrane switch on the right-hand side of the fraction.
All fuses must be removed manually before unfolding.
Otherwise the machine may be damaged.

Depending on the equipment selected, you can choose between short and long straps. The following illustration shows an extended coarse fraction with a bend and two fuses. With the short version, there is only one fuse.

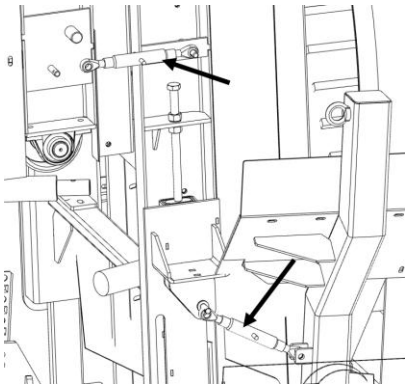


Figure 59: Transport protection long coarse fraction

NOTE!

Unfolding the coarse fraction

Before unfolding the coarse fraction, the transport locks must be removed manually. The sieve shaker may otherwise be damaged.

4.23.2 Coarse fraction folding out

NOTE!

Transport securing of the coarse fraction short without **bend:**

- A manually attached fuse

Transport securing of the coarse fraction long **with** bend:

- Two manually attached fuses

Briefly unfold the coarse fraction using the membrane switch:

1. Manually remove the transport lock for the coarse fraction belt.
2. Switch the machine to transport mode.
3. Now fold the coarse fraction with the membrane switch: "Fold out the coarse fraction" completely.

Unfolding the coarse fraction long via the membrane switch:

1. Manually remove both transport locks for the coarse fraction belt.
2. Switch the machine to transport mode.
3. Now fold the coarse fraction with the membrane switch: "Fold out the coarse fraction" completely.

Buttons for moving the coarse fraction:

 Folding out the coarse fraction  Folding in the coarse fraction

4.23.3 Coarse fraction Collapse

NOTE!

Transport securing of the coarse fraction short without **bend:**

- A manually attached fuse

Transport securing of the coarse fraction long **with** bend:

- Two manually attached fuses

Folding in the coarse fraction using the membrane switch:

1. Switch the machine to transport mode.
2. Now fold with the membrane switch: "Folding in the coarse fraction" completely collapses the belt.
3. Attach the transport lock for the coarse fraction belt by hand.
4. Check that the transport lock is properly seated.

Buttons for moving the coarse fraction:

 Folding out the coarse fraction  Folding in the coarse fraction

4.24 Stone grid (option)

Ideally, a stone grid can be ordered instead of the hopper attachment for pre-screening very coarse material.

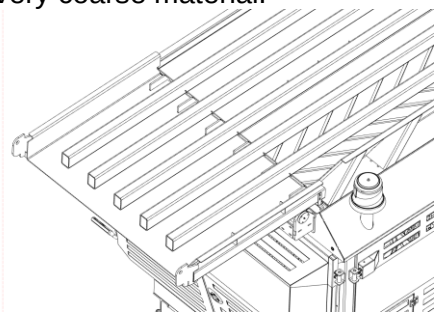


Figure 60: Stone lattice

Folding the stone grid:

1. The machine must be in automatic mode (MAXI remote control S1).
2. Press S4 to raise and lower the stone grids completely
3. With S9, the lifting of the stone grid can be interrupted and the stone grid lowered (optional)
4. Exit automatic mode with S2

4.25 Drum magnet (option)

The drum magnet separates ferromagnetic objects and particles and ejects them via an additional chute. The permanent magnet is located in the upper deflection drum and can be fitted to any fraction as an option. The slides do not need to be dismantled to fold and unfold the fractions.

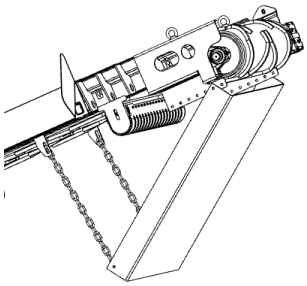


Figure 61: Drum magnet with slide

DANGER!

Hazards due to strong magnetism

Strong magnets can put people with pacemakers or metallic implants in life-threatening situations. Ferrous metal objects can be attracted by the magnetic field with great force, fly around and injure people in the vicinity. Electrical and electronic devices in the magnetic field can get into uncontrollable states and injure people.

- Ensure that ferrous metal objects are attracted in the vicinity of the magnets.
- People with pacemakers must not be in the vicinity of the magnets

4.26 Chassis options

4.26.1 Tracked undercarriage

The machine can be equipped with a chain drive. In this variant, the wheel axis are omitted. The chain drive is operated via a cable remote control or via the optional 10-channel radio remote control. Elements that are necessary for use in accordance with the German Road Traffic Licensing Regulations (StVZO) are omitted with this option. The plug for the cable remote control is located on the membrane switch at the rear right. The drive speed is fixed at one km/h. The selection is made as standard on the screen of the main control unit or using the buttons on the Maxi remote control. The door safety sensors are not active when the machine is being moved by the chain drive. Ensure that all doors of the machine are closed. Only move the machine if you can see the travel path. The possible travelling speed is set very low to ensure safe transport. In addition, a warning tone sounds to draw attention to the machine's movement. Before moving, check that the selected parking location and travel path are sufficiently stable and level. Also make sure that the machine does not slip.

4.26.2 Chassis 25 km/h

The centre-axis trailer chassis can be replaced by a 25 km/h chassis.
This chassis is only used for internal transport and manoeuvring.
It is not approved for use in accordance with the StVZO.

4.26.3 Skid

All transport facilities can be omitted with this option. Instead, the screening machine is placed on a skid. The machine can be pulled on the skids by a towing vehicle on landfill sites, for example. Transport on public roads is carried out on a low-loader.

4.27 Compressor (option)

The screening machine can be optionally equipped with an air compressor.
For example, it is possible to use the compressed air generated in this way to clean the machine or to adjust the tyre pressure.

4.28 Spiral fan (option)

The double drum screening machine is equipped with a spiral fan. This permanently prevents the engine cooler or hydraulic oil cooler from clogging.

4.29 Remote data transmission (option)

Remote data transmission enables the position of the machine to be determined, operating data to be recorded and can serve as active theft protection.

4.30 Gusset shoe (option)

An optional gusset shoe is available exclusively for internal transport.

4.31 TopSpin Pre-Cleaner (option)

It is possible to fit an optional TopSpin Precleaner in front of the air filter. This pre-cleans the intake air. The PreCleaner thus extends the cycle for cleaning the downstream air filter. The PreCleaner is maintenance-free thanks to its self-cleaning function.

4.32 Additional hydraulic connection (option)

The additional hydraulic connection can drive another hydraulic device.

4.33 SKF centralised lubrication system (option)

Selected lubrication points are lubricated via several central lubrication blocks, which are supplied by an electric metering pump. The lubrication intervals and lubrication quantities are fixed.

4.34 Modified towing eye (option)

It is possible to fit a towing eye with a different country version.

4.35 Fire extinguisher (option)

It is optionally possible to equip the screening machine with fire extinguishing equipment.

4.36 Special paint finish (option)

It is possible to design the Zemmler double drum screening machine in individual special colours.

5 Technical data

5.1 Engine specifications diesel engine

Task	Value	Unit
Manufacturer	Caterpillar	
Type	C3.6 EU St. V	
Emission	EU Stage V / US Tier 4f	
Cylinder	4	Pcs.
Operating range	2000 - 2400	Rpm
Rated power	74,5	kW
Displacement	3,621	L
Torque	430	Nm
Fuel tank capacity	200	L
Electrical system	24	V

Table 7: Engine data Dieselmotor

5.2 Motor specifications E-motor

Task	Value	Unit
Manufacturer	WEG	
Type	W22 IE 55kW 4P 250-B35T	
Frequency	50	Hz
Nominal voltage	400/690	V
Rated current	97,9/56,7	A
Rated power	55	kW
Rated speed	2968	Rpm
Electrical system	24	V

Table 8: Engine data diesel engine

5.3 Technical data MS 4200

5.3.1 Dimensions MS 4200 Transport position

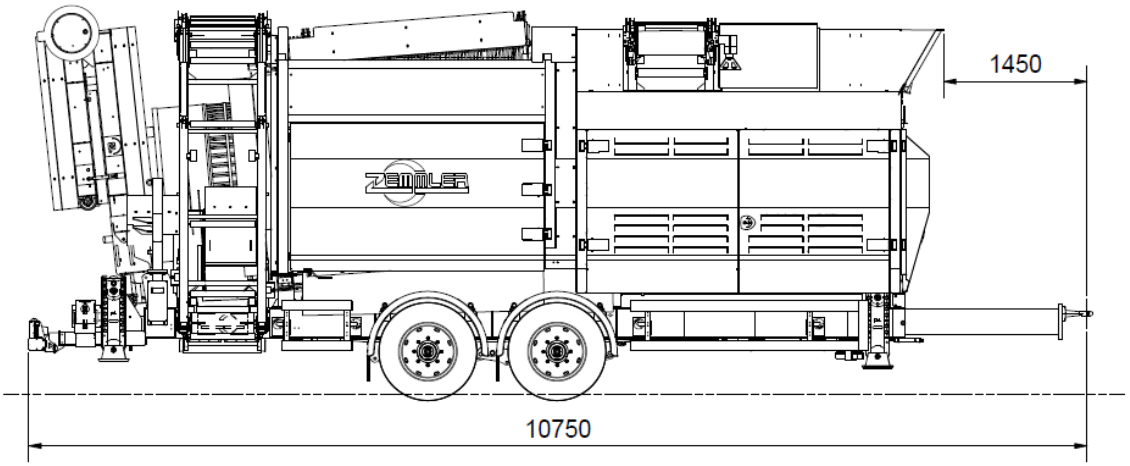


Figure 62: MS 4200 transport position side view

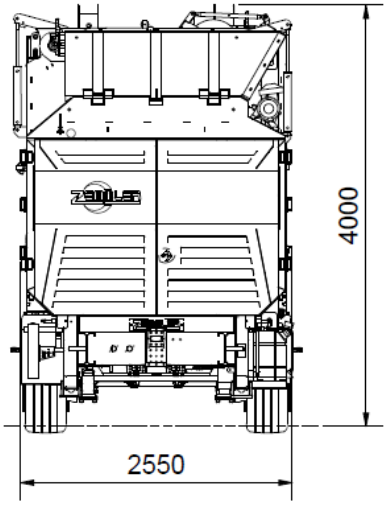


Figure 63: MS 4200 transport position front view

5.3.2 Dimensions MS4200 Working position

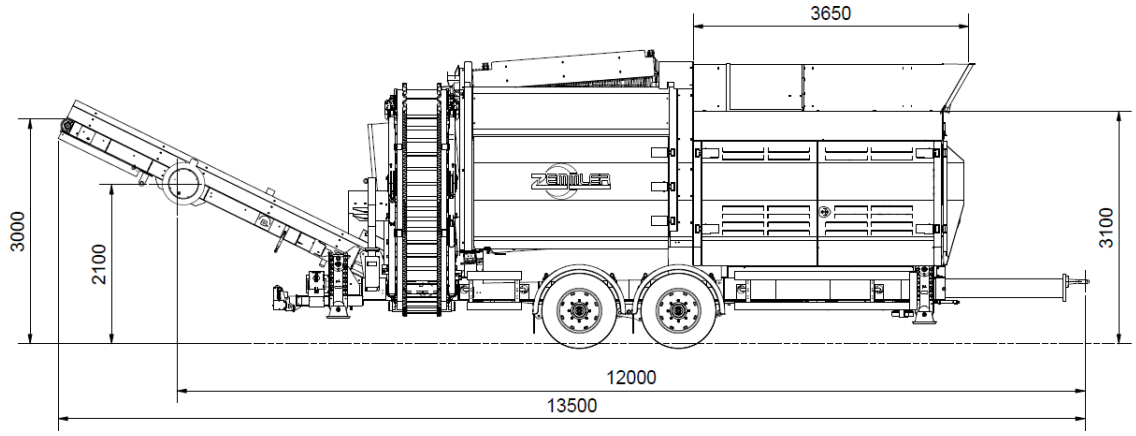


Figure 64: MS 4200 working position side view

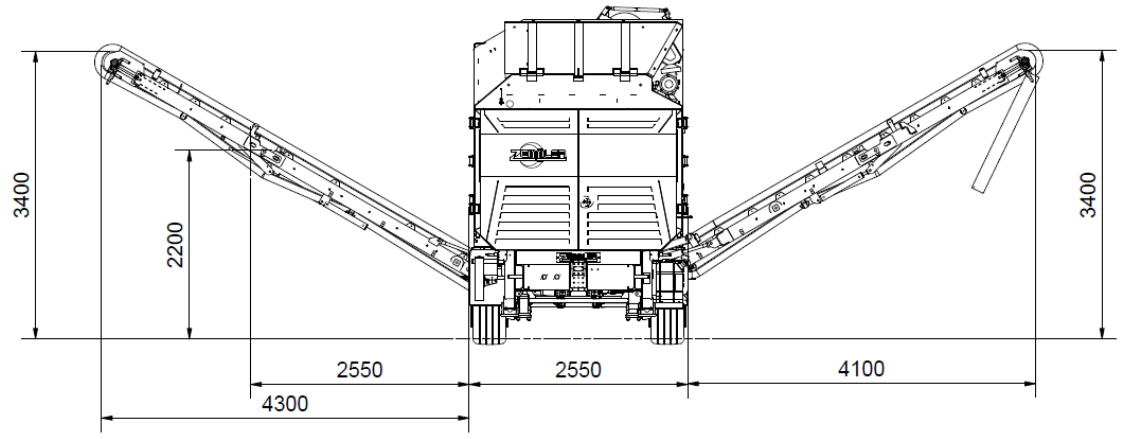


Figure 65: MS 4200 working position front view

5.3.3 MS 4200 performance data

Screen materials: Compost, wood chips, soil, sand, slag, gravel, crushed stone, excavated material, stones and recycling material up to max. 250 mm

Service: 1 person

Throughput of the double drum screening machine: approx. 120 m^3 per hour (depending on material, feeding, selected fractions and mesh size)

Dimensions	Transport position	Working position	with extended length MF/GF
Length:	10,750 mm	12,000mm	13,000mm
Width:	2,550 mm	9,200mm	10,950mm
Height:	4,000 mm	4000mm	4,000mm
Weight:	approx. 15,000 kg (depending on option)		

Ambient temperature: 0 °C - 40 °C

Chassis

Tyre pressure:	8.5 bar
Tyre dimension:	385/55 R 22.5
Wheel nut tightening torque:	475Nm

5.4 Technical data MS 5200

5.4.1 Dimensions MS 5200 Transport position

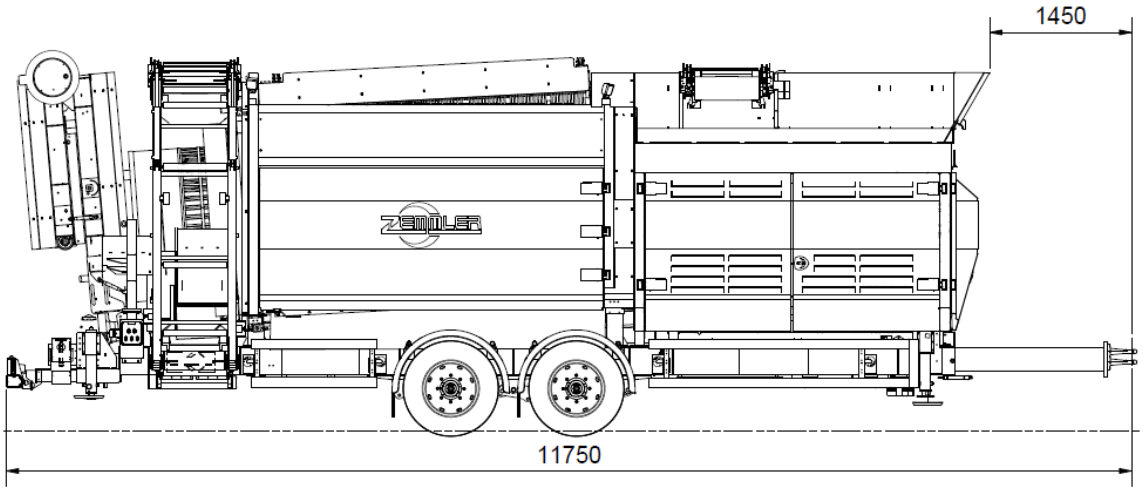


Figure 66: MS 5200 transport position side view

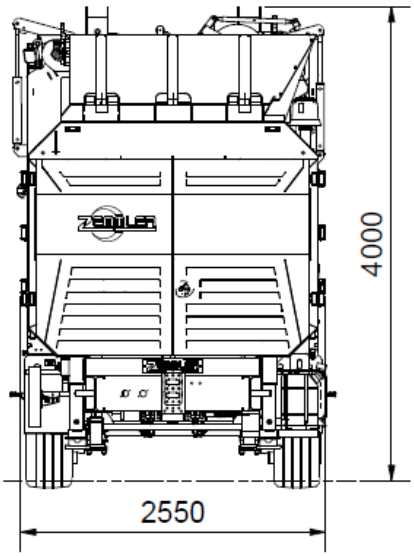


Figure 67: MS 5200 transport position front view

5.4.2 Dimensions MS 5200 Working position

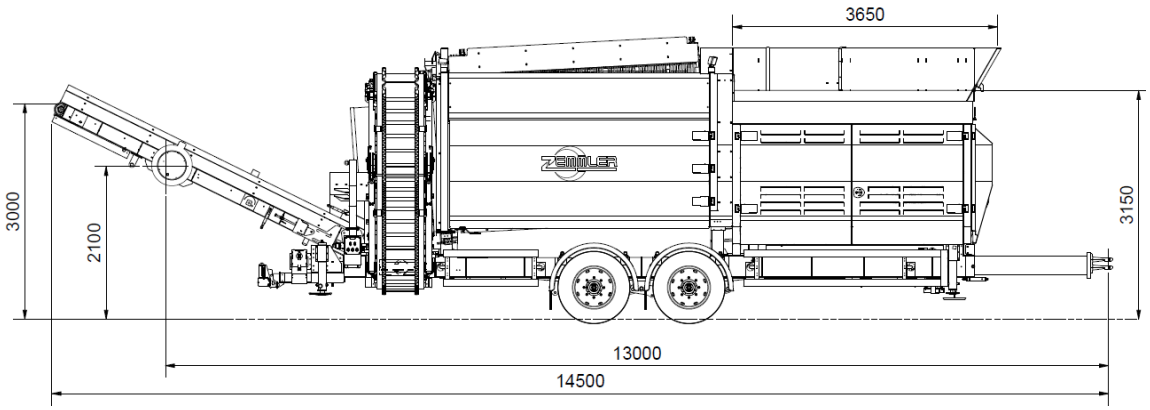


Figure 68: MS 5200 working position side view

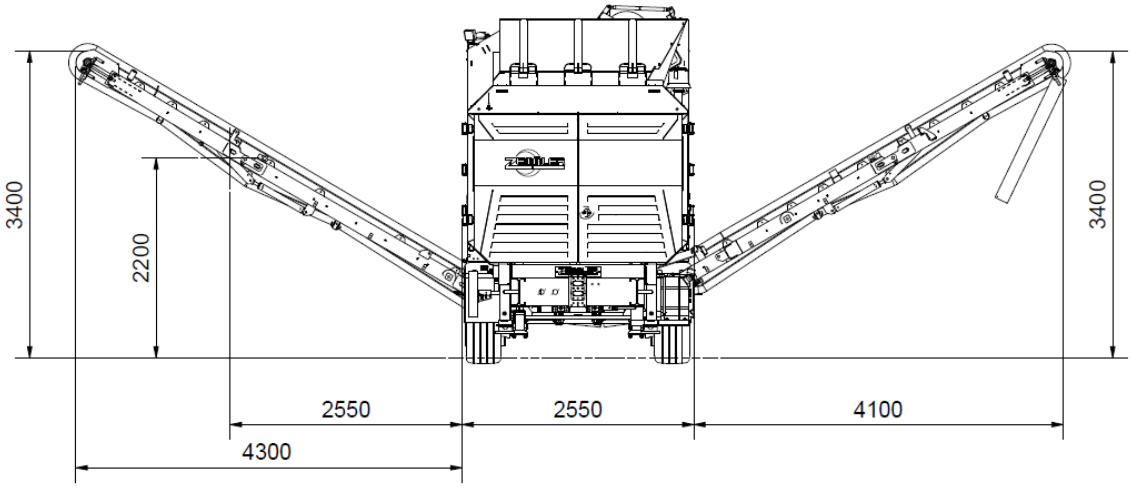


Figure 69: MS 5200 working position front view

5.4.3 MS 5200 performance data

Screen materials: Compost, wood chips, soil, sand, slag, gravel, crushed stone, excavated material, stones and recycling material up to max. 250 mm

Service: 1 person

Throughput of the double drum screening machine: approx. 150 m^3 per hour (depending on material, feeding, selected fractions and mesh size)

Dimensions	**Transport position**	**Working position**	**with extended length MF/GF**
Length:	11,750 mm	13,000mm	14,500mm
Width:	2,550 mm	9,200mm	10,950mm
Height:	4,000 mm	4000mm	4,000mm
Weight:	approx. 16,000 kg (depending on option)		

Ambient temperature: 0 °C - 40 °C

Chassis

Tyre pressure:	8.5 bar
Tyre dimension:	385/55 R 22.5
Wheel nut tightening torque:	475Nm

5.4.4 Dimensions MS 5200 with crawler chassis Transport position

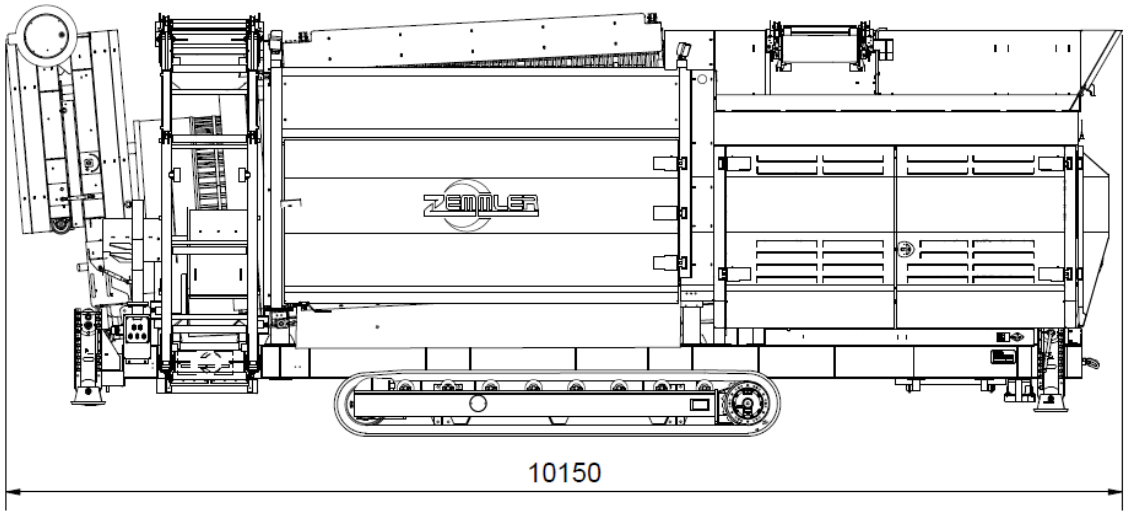


Figure 70: MS 5200 with crawler chassis Transport position Side view

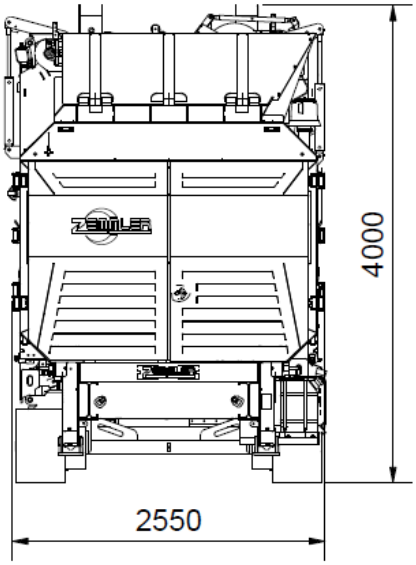


Figure 71: MS 5200 with crawler chassis Transport position Front view

5.4.5 Dimensions MS 5200 with crawler chassis Working position

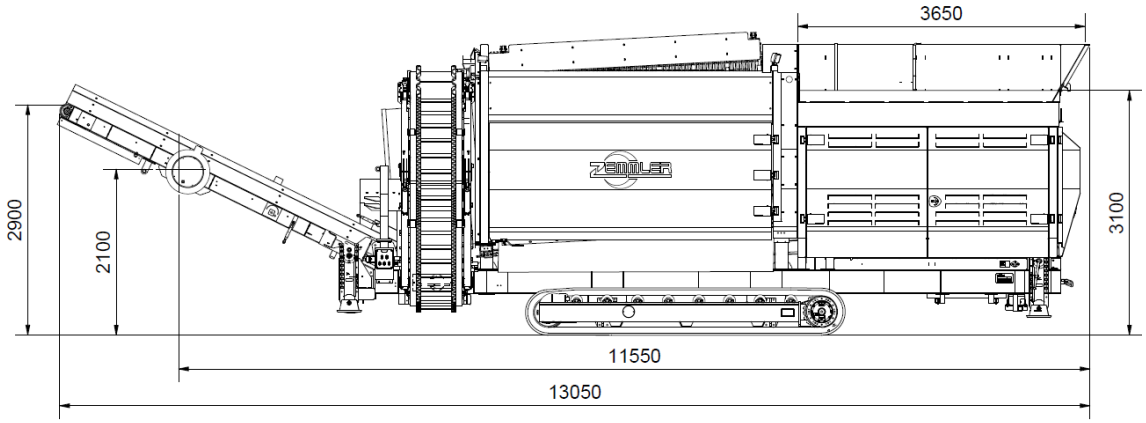


Figure 72: MS 5200 with crawler chassis working position side view

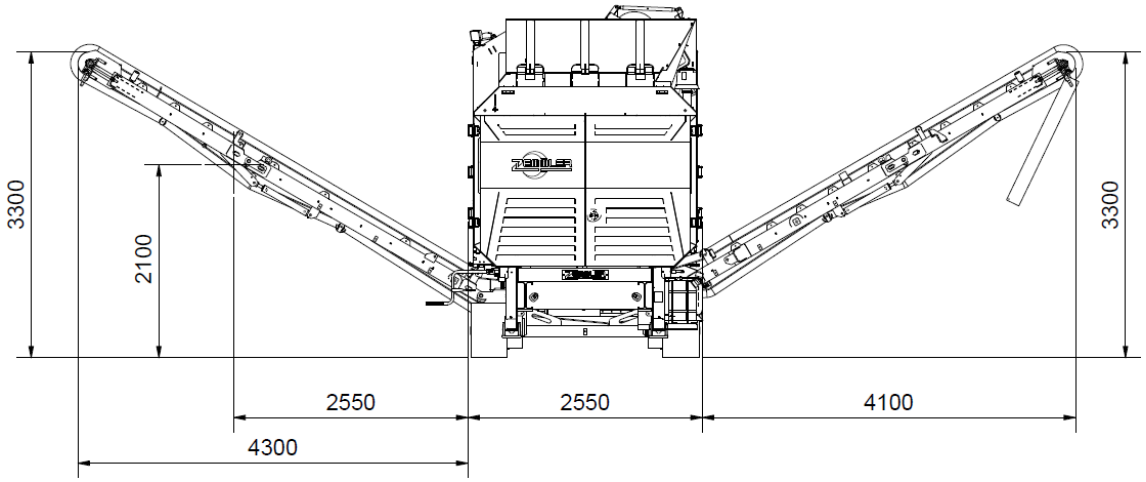


Figure 73: MS 5200 with crawler chassis Working position front view

5.4.6 Performance data MS 5200 with crawler chassis

Screen materials: Compost, wood chips, soil, sand, slag, gravel, crushed stone, excavated material, stones and recycling material up to max. 250 mm

Service: 1 person

Throughput of the double drum screening machine: approx. 150 m^3 per hour (depending on material, feeding, selected fractions and mesh size)

Dimensions	**Transport position**	**Working position**	**with extended length MF/GF**
Length:	11,150 mm	11,150mm	13,050mm
Width:	2,550 mm	9,200mm	10,950mm
Height:	3,900 mm	3,900 mm	3,900 mm
Weight:	approx. 17,000 kg (depending on option)		

Ambient temperature: 0 °C - 40 °C

Chassis

Tyre pressure:	8.5 bar
Tyre dimension:	385/55 R 22.5
Wheel nut tightening torque:	475Nm

5.5 Technical data MS 6700

5.5.1 Dimensions MS 6700 Transport position

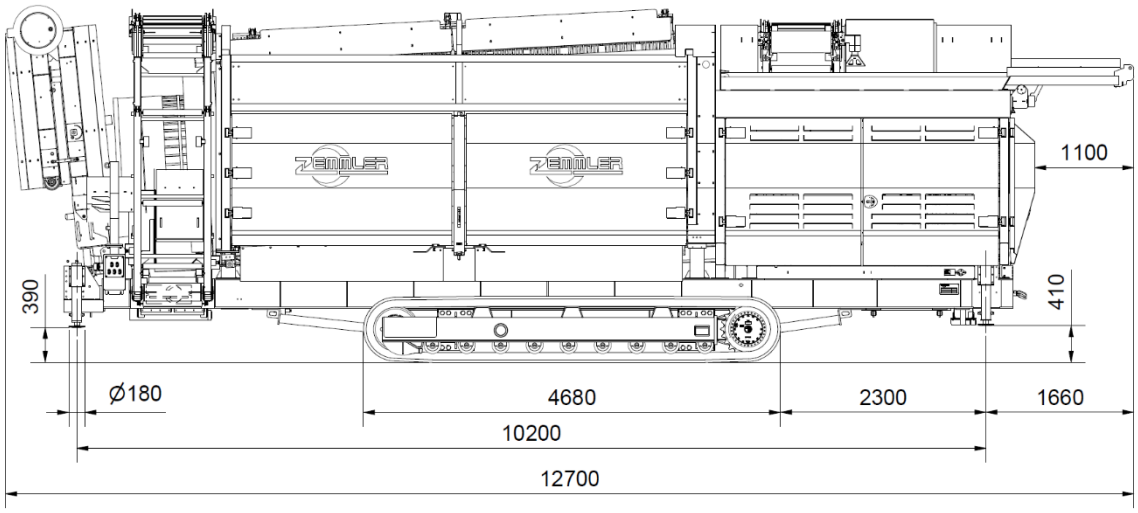


Figure 74: MS 5200 Crawler transport position side view

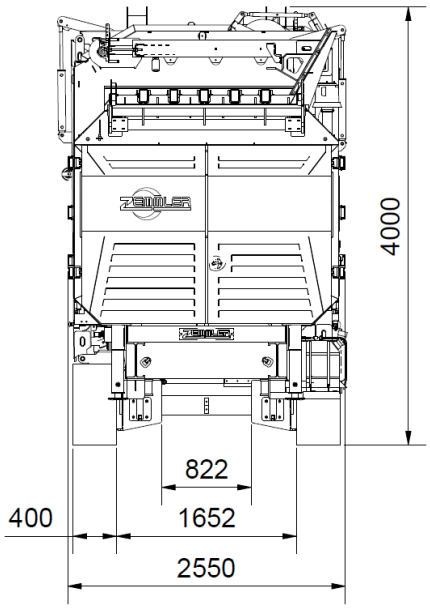


Figure 75: MS 5200 crawler transport position front view

5.5.2 Dimensions MS 6700 Working position

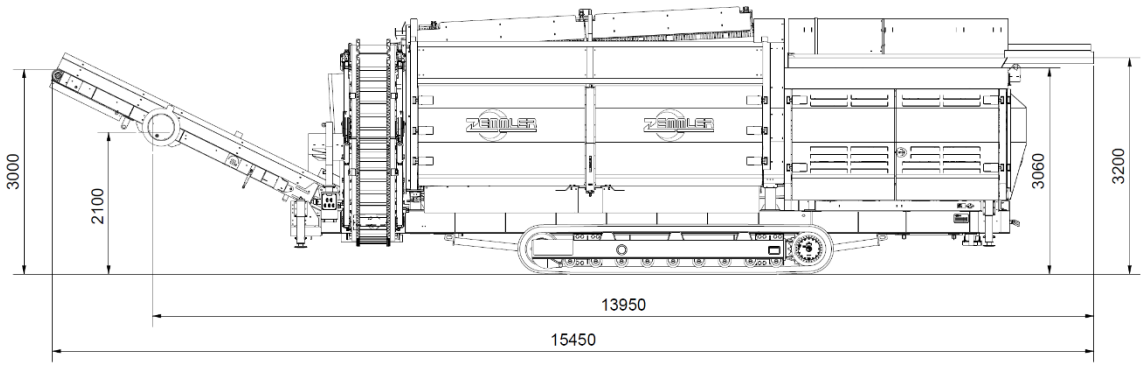


Figure 76: MS 5200 Crawler working position side view

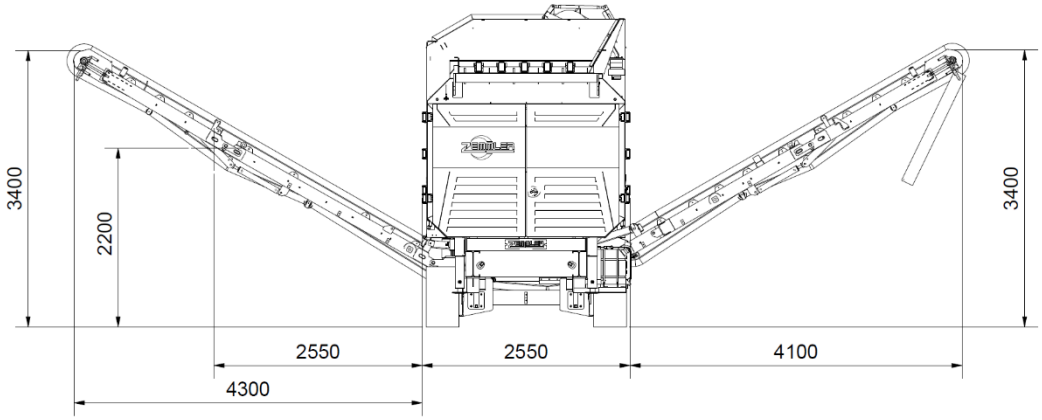


Figure 77: MS 5200 Crawler working position side view

5.5.3 MS 6700 performance data

Screen materials: Compost, wood chips, soil, sand, slag, gravel, crushed stone, excavated material, stones and recycling material up to max. 250 mm

Service: 1 person

Throughput of the double drum screening machine: approx. 180 m^3 per hour (depending on material, feeding, selected fractions and mesh size)

Dimensions	**Transport position**	**Working position**	**with extended length MF/GF**
Length:	12,700 mm	13,950mm	15,450mm
Width:	2,550 mm	9,200mm	10,950mm
Height:	4,000 mm	4,000 mm	4,000 mm
Weight:	approx. 17,000 kg (depending on option)		

Ambient temperature: 0 °C - 40 °C

Chassis

Tyre pressure:	8.5 bar
Tyre dimension:	385/55 R 22.5
Wheel nut tightening torque:	475Nm

6 Preparing the machine for work

6.1 Preparations

NOTE!

The double drum screening machine condition must be checked for operational safety before use.

Select the installation site according to the following criteria.

- Ensure that the ground fulfils the requirements for strength, horizontal alignment, evenness and load-bearing capacity.
- Observe regional regulations at the place of use with regard to the movement areas and escape routes to be kept clear.
- Do not install under power lines
- To avoid collisions between the conveyor belts, keep a sufficient distance from walls when setting up the machine.
- Side doors and flaps must be able to be opened fully
- Carefully plan the loading and removal of screenings in advance so that the movement of operating and maintenance personnel in the work area is not restricted or obstructed
- Ensure sufficient lighting conditions at the installation site for safe working during installation, operation, maintenance and repair. Observe local regulations on workplace lighting.
- Observe the wind direction when setting up the machine. Ensure sufficient fresh air supply and exhaust gas discharge due to dust pollution and to cool the machine. It is advisable to have a fire extinguisher available in the event of particular loads.

6.2 Set up the machine

After the machine has been properly uncoupled and safely parked, the following work must be carried out:

1. Removing the underride guard at the rear
2. Dismantle the side guard
3. Unlocking and removing the locks
4. Switch on the battery isolator switch
5. Switch on the main switch
6. Extend supports
7. Unfold the hinges
8. Closing the feed hopper door

NOTE!

These steps are described in detail and step by step below.

6.3 Dismantling the underride guard

See: **4.11 Underride guard**

6.4 Dismantle the side guard

See: **4.18 Lateral protective device**

6.5 Unlocking and removing the locks

The sieve shaker is supplied with two keys for changing the sieve and two for the tank as standard. The screening machine can also be secured with padlocks on the doors.

6.6 Switch on the battery isolator switch

See: **4.6 Battery disconnect switch**
Once the padlock has been removed, the battery isolator switch can be set to the ON position.

6.7 Switch on the main switch

See: **3.12.1 Functional safety devices**
In the "OFF" position, the power supply is disconnected.
To start the machine, this switch must be set to the "ON" position.

6.8 Extend supports

See: **4.19 Supports**

6.8.1 Manual supports

See: **4.19.1 Manual supports**

6.8.2 Hydraulic supports (option)

See: **4.19.2 Hydraulic supports (option)**

6.9 Unfold the hinges and remove the transport locks

DANGER!

Hazards due to swinging of the conveyor belts
Catching, striking or being struck when lifting and lowering the hydraulically driven conveyor belts and when intervening in the Folding mechanism when folding the conveyor belts in and out during the installation

- Be aware that contact or interference with the folding mechanism when folding/unfolding the conveyor belts can cause catching, winding and crushing.
- No persons may remain in the danger zone during set-up operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

6.9.1 Fine fraction transport protection

See: **4.21.1 Fine fraction transport protection**

6.9.2 Fine fraction folding out

See: **4.21.2 Fine fraction folding out**

6.9.3 Medium fraction transport protection

See: **4.22.1 Centre fraction transport protection**

6.9.4 Centre fraction folding out

See: **4.22.2 Centre fraction folding out**

6.9.5 Coarse fraction transport protection

See: **4.23.1 Coarse fraction transport protection**

6.9.6 Coarse fraction folding out

See: **4.23.2 Coarse fraction folding out**

6.10 Closing the feed hopper door

See: **4.20 Feed hopper door**

6.11 Commissioning the machine

6.11.1 Initial commissioning

Before delivery, the screening machine is subjected to an extensive test run and prepared for use.
The double drum screening machine is only handed over to the operator by the ZEMMLER® screening plant customer service after it has passed the tests.
On request, detailed instruction can be provided by the ZEMMLER® screening plants GmbH.
The machine can then be operated in compliance with the information in the operating instructions and the applicable health and safety and accident prevention regulations.

NOTE!

Before each commissioning, the operator must carry out at least one visual inspection of the entire machine.

- Carry out all work only when the machine is at a standstill
- Switch off the power supply before starting any work
  and secure the machine against being switched on again.
- Ensure that no persons are in the danger zone beforehand.
- Wear personal protective equipment and check that it is in proper condition.

6.11.2 Recommissioning after maintenance or malfunction

Once all maintenance and servicing measures have been properly completed and checked, the machine can be put back into operation.

NOTE!

Before each commissioning, the operator must carry out at least one visual inspection of the entire machine.

- Carry out all work only when the machine is at a standstill
- Switch off the power supply before starting any work
  and secure the machine against being switched on again.
- Ensure that no persons are in the danger zone beforehand.
- Wear personal protective equipment and check that it is in proper condition.

7 Operation

7.1 Daily work before commissioning

NOTE!

The double drum screening machine condition must be checked for operational safety before use.
Please refer to the Maintenance chapter for daily maintenance work.

Before each commissioning, the operator must carry out at least one visual inspection of the entire machine.

- Carry out all work only when the machine is at a standstill
- Switch off the power supply before starting any work
  and secure the machine against being switched on again.
- Ensure that no persons are in the danger zone beforehand.
- Wear personal protective equipment and check that it is in proper condition.

Before commissioning, check that the operating position of the Machine is in accordance with the operating instructions.

- Wheel chocks are attached to the wheels
- Parking brake is applied
- Hydraulic supports are extended
- The underride guard on the side and rear have been removed
- Feeding hopper door open
- Coarse fraction, medium fraction and fine fraction are in working position

7.2 Prepare machine (DH)

1. Check that all security doors are closed. Then open the door of the main control unit.
2. Switch the battery isolating switch to ON.
3. Switch the main switch on the main control unit from 0 to 1.
4. After a short wait, the home screen appears on the display.
   See: **4.8.1 Home Screen**

7.3 Switch off the machine (DH)

NOTE!

The manufacturer does not recommend switching off the machine every day using the emergency stop switch without a hazardous situation. Stopping the drives immediately results in high wear on the screening machine.

Switching off in normal operation is done via the display on the control panel or the optional remote control. In this way, the drives are stopped slowly, gently and one after the other. It can be switched off at any time using the emergency stop switch. After switching off the main switch, switch off the battery isolating switch 2 minutes after the engine has stopped. The set mode appears on the display as a red button. The respective mode can be cancelled by pressing this button and the motor switches off with a slight delay. The motor can also be switched off in the motor menu.

1. Press the automatic, transport or service button shown in red.
   A 90-second timer then runs on the display.
2. The timer mentioned above allows the mode to be changed within the specified time without the motor switching off.
   When the timer expires, the BAG, drum, coarse fraction, medium fraction, TAB and fine fraction drives switch off one after the other.
3. After all drives and the motor have stopped, the main switch can be actuated.
4. Switch the battery isolator switch to OFF.
5. Secure the machine against being switched on again.

7.4 Emergency shutdown

There are seven emergency stop switches on the machine for an emergency shutdown. There is an emergency stop switch on each side of the belt to stop the machine.
In addition, the panelling and doors are fitted with extra safety sensors. The door safety sensors monitor the closed doors while the machine is in operation. If a door is opened, the machine stops and the motors switch off.
While the screening machine is in operation, the motor doors on the right and left are additionally secured against opening with electromagnets.

NOTE!

The door safety sensors, like the emergency stop switch, cause the machine to stop immediately when the doors are opened, regardless of the current position of the machine parts.

The manufacturer does not recommend switching off the machine every day using the emergency stop switch without a hazardous situation. Stopping the drives immediately results in high wear on the machine.

7.5 Prepare machine (DE)

The illustration below shows operation with a diesel-electric drive. The lower arrow points to the control unit of the diesel generator and the upper arrow points to the switch.

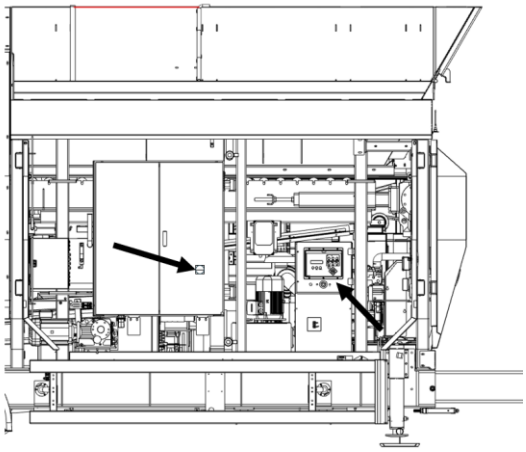


Figure 78: Operation with diesel-electric drive

Prepare machine

1. Insert the ground spike into the ground approx. 60 cm from the vehicle.
2. Turn the marked switch anti-clockwise to the horizontal position.
3. Further steps can be controlled via the touch display, as with the diesel-hydraulic machine. See: **4.8.1 Home Screen**

Switch off the machine

1. Lower the machine via the touch display until all drives have come to a standstill. See: **7.3 Switch off the machine (DH)**
2. Return the marked switch to the vertical position.
3. Remove ground spike from the ground

7.6 Prepare machine (EH,E)

The illustration below shows operation with an electric drive.
The lower arrow points to the plug connection and the upper arrow points to the switch.

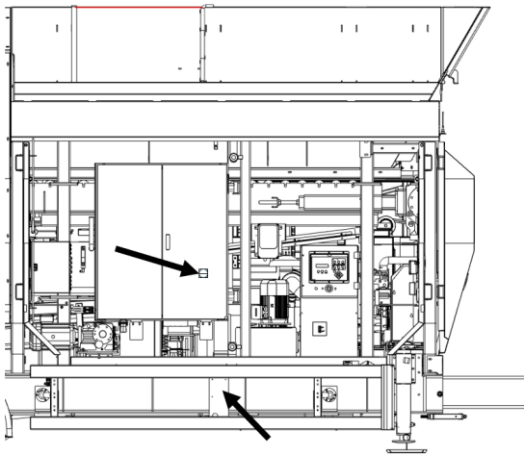


Figure 79: Operation with electric drive

Prepare machine

1. Insert plug
2. Turn the marked switch anti-clockwise to the horizontal position.
3. Further steps can be controlled via the touch display, as with the diesel-hydraulic machine. See: **4.8.1 Home Screen**

Switch off the machine

1. Lower the machine via the touch display until all drives have come to a standstill. See: **7.3 Switch off the machine (DH)**
2. Return the marked switch to the vertical position.
3. The plug can now be removed.

7.7 Emergency shutdown

There are seven emergency stop switches on the machine for an emergency shutdown. There is an emergency stop switch on each side of the belt to stop the machine.
In addition, the panelling and doors are fitted with extra safety sensors. The door safety sensors monitor the closed doors while the machine is in operation. If a door is opened, the machine stops and the motors switch off.
While the screening machine is in operation, the motor doors on the right and left are additionally secured against opening with electromagnets.

NOTE!

The door safety sensors, like the emergency stop switch, cause the machine to stop immediately when the doors are opened, regardless of the current position of the machine parts.
The manufacturer does not recommend switching off the machine every day using the emergency stop switch without a hazardous situation. Stopping the drives immediately results in high wear on the machine.

7.8 Switch on automatic mode

NOTE!

Before starting automatic mode, check that all fraction doors and flaps are in the correct position.

In automatic mode, the bands are operated at the last selected level.
Under the menu item Belts, changes can be made to the speed level of the drum, the BAG and the individual fractions.
Automatic mode can be accessed via the home screen or the remote control.

Switch on automatic mode via display

1. Press the green Automatic button.

   The automatic system starts the drives one after the other at the last selected level.

Switch off automatic mode via display

1. Press the red automatic button
2. Machine switches off in 90 seconds

   If another mode is selected during this time, the switch-off process can be interrupted. (Machine continues in the newly selected mode)

7.9 Switch on service/maintenance mode

NOTE!

This operating mode is only intended for adjustment and maintenance work or for individually emptying the belts and drum after an overfeed.

Service mode can only be accessed via the touch display.
In this mode, it is possible to move all belts, the drum and the brush independently of each other. always monitor the movements of the belts, drum and brush from a safe distance. When starting the service/maintenance mode, the service screen appears with the dealer or manufacturer information. This can also be used to view the operating instructions, change the menu language or view the operating hours. A timer is displayed at the top right, signalling the time until the screen changes and the final start of service mode. The screen then switches to service mode.
After selecting an option, the active modules in the illustration are coloured yellow and the associated buttons red. A warning signal sounds briefly when a module is started up.

7.10 Set transport mode

The transport mode can be accessed via the display or the optional 10-channel remote control. In this operating mode, the fractions can be moved in and out and the optional hydraulic supports can be moved. When starting the transport operating mode, a temporary sequence appears on the display. During this sequence, automated processes take place that prepare the double drum screening machine for transport.

NOTE!

If the crawler track and 10-channel remote control option has been selected, it is possible to control the crawler tracks by remote control.

7.11 Loading and unloading the machine

The machine is loaded via the feed hopper.

Note the following:

- Do not feed screenings that are harmful to health and the environment
- Only authorised operating personnel with a valid authorisation certificate for driving the loading vehicle (e.g. wheel loader or excavator) may be assigned to load the machine.
- Do not enter the danger zone during operation.
- Keep the driver's cab of the loading vehicle closed.
- Never stand under moving loads or in the vicinity of moving feed equipment.
- After completing the work and before leaving the workplace, stop the material supply. Only then empty the machine, switch it off and secure it against being switched on again.
- Do not overfill the feed hopper
- Moisten dry or very dusty screenings and wear a respirator if necessary

NOTE!

In particularly dusty and dirty conditions, the cooling fins of the drive motor and the air filter must be checked at shorter intervals and cleaned if necessary.

Machine loading

1. Switch on the machine
2. Fill material from above with the help of the loading vehicle into the the hopper.

The following instructions must be observed when loading:

- Ensure that the loading device is stable.
- Only fill in material via the right-hand side of the feed hopper.
- Ensure that the filler funnel is visible.
- Do not overfill the hopper.
- Avoid dumping material from a too highly lifted shovel into the hopper.
- Do not throw material over the feed hopper.
- Do not push the material with the bucket or grab.

Empty the machine

1. When loading is complete, allow the machine to run completely empty.
2. Wait for moving parts to come to a standstill.

7.12 Overload control

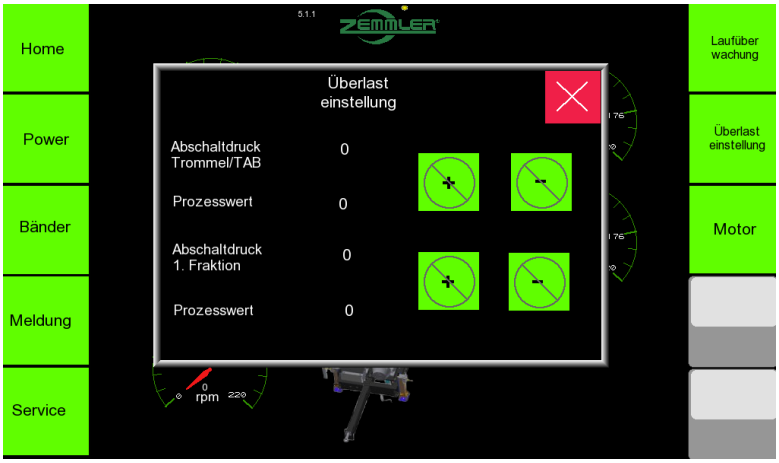


Figure 80: overload setting

NOTE!

Only authorised persons should make these changes.

The pressure at which the BAG is stopped is displayed here. The limit values for the switch-off pressure of the drum/TAB and the first fraction can be manipulated using the "+" and "-" buttons. The current measured values can be read in the Process value field.

7.13 Readjustment of the speed of the belt feeder (BAG)

In order to achieve an optimum screening result, the speed of the belt feeder may need to be adjusted. On the home screen of the display, you can use the BAG+ icon to increase the level of the belt dispenser. The selected level is displayed in the BAG bar graph. The level is lowered using the BAG icon. The BAG-Stop icon can be used to switch off the belt dispenser. If you then touch the BAG- icon, the tape dispenser runs backwards by holding down the button

7.14 Setting the engine speed

Starting from the home screen, the motor speeds can be set by clicking on Home-Power-Motor. The motor speed can be set with predefined speeds on this screen. The selected speed appears in red. The display is in revolutions per minute.

7.15 Control conveyor belts

The speed of the conveyor belts can be regulated and they can also be folded in and out using hydraulic cylinders. The speed levels of individual fraction belts can be adjusted in the belt menu. From the Home screen, you can access the ribbon screen interface by tapping on Ribbon menu. The desired band can be adjusted there.

NOTE!

The speed can be regulated in stages in the band menu. However, the selected belt cannot be brought to a standstill here.

In the maintenance menu, you have the option of starting up belts individually for any inspection or maintenance work. This menu can also be accessed via the home screen by tapping on Service.

7.16 Control screen drum

The speed of the drum can be customised in the belt menu.
Starting from the home screen, you can access the ribbon screen interface by tapping on Ribbon menu. The speed of the drum can be manipulated there. It is also possible to have the sieve drum rotate independently in the maintenance menu.

NOTE!

Another way to move the drum is in screen change mode.
However, this mode is only reserved for replacing the screen inserts.
For the exact procedure, please refer to the chapter on changing the sieve.

7.17 Screen change

DANGER!

Hazards due to rotating screen drum when changing screens
Pulling in, catching, winding up and crushing fingers or
Hands when reaching into rotating components of the screening drum when opening side doors

- Screen change by one person
- Never leave the key inserted

A remote control is supplied for changing the sieve, which is located next to the control cabinet. The sieve change can be activated and deactivated using the key switch on the main control unit. The remote control is only enabled for changing the filter when the filter change function is active. Other functions cannot be started while the sieve change mode is active.
The door safety switch of the drum door is deactivated in screen change mode.
In these instructions, an exemplary sieve element is replaced. The mesh sizes and quantities of screen grids installed may vary.
Never install damaged sieves!
The sieve can be easily changed at any location.
It should only be carried out by trained specialist personnel and with particular caution and care. The persons carrying out the work are thus sufficiently sensitised by their experience and knowledge to recognise impending dangers in good time.
When fitting the screens, the double drum screener must be completely empty.
Remaining material residues in the machine can make replacement considerably more difficult or impossible and even damage the screening machine.

7.18 Change outer sieve (with clamping station)

Key switch for changing the sieve
Located next to the display on the machine's control panel.

Preparations for screen change:

1. Empty the machine
2. Stop machine
3. Set the key switch to "I". This causes the screen change message to appear on the display and the remote control is activated.
4. Plug the remote control into the socket on the chassis carrier (as shown in the photo) on the right in the direction of travel.

Loosen the screen lining:

1. Open the right-hand side door of the drum in the direction of travel.
2. Bring the clamping station of the reel to assembly height in inching mode.
3. Loosen the screws.
4. Release both ends of the screen lining from the clamping station using the assembly lever.
5. Remove the sieve from the machine in inching mode.

Apply the screen lining:

1. Position the drum clamping station just above the TAB in inching mode.
2. Hook in the lower end of the screen lining without the screwing device.
3. Rotate the drum in inching mode until the lining is completely wrapped around the drum.
4. Position the end of the screen panel in the clamping station using the mounting lever
5. Tighten screws.

Restore operational readiness

1. After changing the sieve, check that the sieves, screws and clamping elements are positioned correctly. Pay attention to any irregularities.
2. Remove all tools and aids that were used for the change.
3. Close the drum door
4. Remove and stow away the remote control.
5. Deactivate the sieve change using the key switch. The screen change message disappears and the machine goes into home mode.

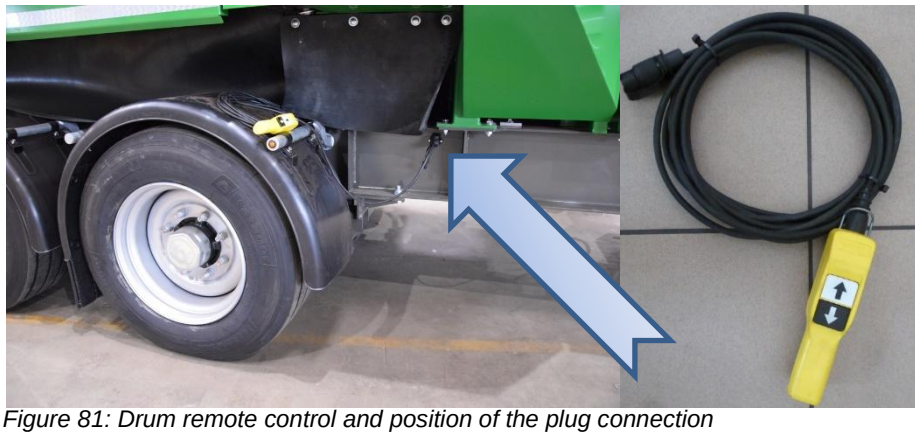


Figure 81: Drum remote control and position of the plug connection

Figure 82: Tensioning the screens with tensioning station

Figure 83: Clamping elements and screw connection via clamping station

7.19 Change inner sieve

Key switch for changing the sieve
Located next to the display on the machine's control panel.
The outer strainer must be removed.

Preparations for screen change:

1. Empty the machine
2. Stop machine
3. Set the key switch to "I". This causes the screen change message to appear on the display and the remote control is activated.
4. Plug the remote control into the socket on the chassis carrier (as shown in the photo) on the right in the direction of travel.

Loosen the screen lining:

1. Open the right-hand side door of the drum in the direction of travel.
2. Bring the screen's tensioning case to mounting height in inching mode.
3. Attach the clamping aid to the sieve drop.
4. Loosen the three screws.
5. Release the clamping aid.
6. Remove the sieve from the machine in inching mode.

Apply the screen lining:

1. Push one end of the screen lining in the direction of rotation of the drum and lock the screen lining in place with a tool.
2. Rotate the drum in inching mode until the lining is completely wrapped around the drum.
3. Lock the clamping aid through the centre hole of both ends.
4. Use the spanner to tighten the screw in the clamping aid. This causes the ends of the sieve to contract.
5. Insert the outer screws into the holes provided.
6. Release the clamping aid.
7. Attach the centre screw.

Figure 84: Tensioning the screens with a tensioning aid

Figure 85: Clamping elements and screw connection without clamping station

Restore operational readiness

1. After changing the sieve, check that the sieves, screws and clamping elements are positioned correctly. Pay attention to any irregularities.
2. Remove all tools and aids that were used for the change.
3. Close the drum door
4. Remove and stow away the remote control.
5. Deactivate the sieve change using the key switch. The screen change message disappears and the machine goes into home mode.

7.20 Stone grid (option)

DANGER!

Hazards due to falling screenings

Crushed by screenings falling or falling beside it
during loading of the feed hopper (with the wheel loader).
Crushed by sliding coarse material when tilting the stone grid

- Watch out for falling material
- No persons may be present in the danger zone while the screen is in operation. Cordon off the danger zone to prevent unauthorised access.
- Do not overfill the feed hopper
- Close feed hopper door before sieving operation
- Use a helmet

The stone grid is a hydraulically folding grid above the feed hopper.
It pre-sorts coarse pieces of rock and separates them from the rest of the screenings.
This creates a fourth fraction of screen material.
It is only available in conjunction with the 10-channel radio remote control.
The folding mechanism is realised via a dead man's switch and can only be controlled in push-button mode.
A warning signal sounds when the stone grid is set up.
There are no hazards from moving and rotating components of the stone grid.
The 10-channel radio remote control contains a button for operating the stone grille.

7.21 Work lighting (option)

Only operate the machine when there is sufficient lighting.
The optionally available work lighting can be switched on and off on the home screen using the Light button and the remote controls.

NOTE!

Do not operate the work lights for long periods using the machine's battery. There is a risk of the battery discharging too much.

7.22 Spiral fan (option)

The double drum screening machine is equipped with a spiral fan. This permanently prevents the engine cooler from clogging. The control unit of the spiral ventilator is controlled via an app. The QR code for the app is located on the control unit of the spiral ventilator.
To use the app, you must register with the serial number of the reversible fan. The serial number of the reversible fan is also located on the control unit.

NOTE!

The cleaning interval can be shortened for very fine and sticky screen material. For the exact procedure, please refer to the manufacturer's instructions for use.

7.23 Compressor (option)

The compressor is located in the engine compartment of the machine and can be reached via the engine compartment doors on the right. For use, the compressed air hose is connected to the quick-release coupling of the compressor and then fed downwards and outwards through the chassis. The compressor is switched on/off via the display (service menu) with the engine compartment doors closed and the engine started. A grille prevents the user from reaching into the rotating fan. Please read the manufacturer's operating instructions in the appendix before using the optional compressor!

8 Prepare the machine for transport

8.1 Preparations

DANGER!

Hazards due to participation in public road traffic
Collisions, equipment coming loose, accidents during the transport of the Machine with 80 km/h wheel axis on public roads

- The driver of the towing vehicle must be qualified and authorised for the transport
- Observe floor load capacity, floor surface, passage width, passage height, bends, inclines/declines and local driving restrictions of the transport route
- Do not use the gusset shoe on public roads

Ensure before transport:

- Move conveyor belts into transport position
- Attach conveyor belt transport locks
- Switch off the machine and secure against restarting
- Remove remaining screenings and residual material from the machine
- Close side doors and flaps and secure against opening
- Fitting the light strip
- fitting the side guard
- Coupling the chassis to the towing vehicle
- Connecting the compressed air and power lines
- Retract supports
- Fasten and secure equipment (gusset shoes, hook bar, etc.) adequately
- Visual inspection of the machine for proper condition and road safety

8.2 opening the feed hopper door

See: **4.20 Feed hopper door**

8.3 Fold in the straps and attach the transport locks

DANGER!

Hazards due to swinging of the conveyor belts
Catching, striking or being struck when lifting and lowering the hydraulically driven conveyor belts and when intervening in the Folding mechanism when folding the conveyor belts in and out during the installation

- Be aware that contact or interference with the folding mechanism when folding/unfolding the conveyor belts can cause catching, winding and crushing.
- No persons may remain in the danger zone during set-up operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

8.3.1 Fine fraction transport protection

See: 4.21.1 Fine fraction transport protection

8.3.2 Fine fraction Collapse

See: 4.21.3 Fine fraction Collapse

8.3.3 Medium fraction transport protection

See: 4.22.1 Centre fraction transport protection

8.3.4 Centre fraction Collapse

See: 4.22.3 Centre fraction Collapse

8.3.5 Coarse fraction transport protection

See: 4.23.1 Coarse fraction transport protection

8.3.6 Coarse fraction Collapse

See: 4.23.3 Coarse fraction Collapse

8.4 Retract supports

See: 4.19 Supports

8.4.1 Manual supports

See: 4.19.1 Manual supports

8.4.2 Hydraulic supports (option)

See: 4.19.2 Hydraulic supports (option)

8.5 Switch off the main switch

Press the main switch to switch off the main control unit.
See: 3.12.1 Functional safety devices

8.6 Flip and lock the battery disconnect switch

See: 4.6 Battery disconnect switch
Press the battery disconnect switch to disconnect the power supply.

NOTE!
Also use a padlock to prevent unauthorised use.

8.7 Fitting the underride guard

See: 4.11 Underride guard

8.8 Fitting the side underride guard

See: 4.18 Lateral protective device

9 Transport and storage

9.1 Transport on public roads

Transport inspection
If the machine is delivered by a transport agent, the transport responsibility up to the agreed place of delivery lies with the transport company carrying out the delivery. The machine must be checked for completeness and transport damage immediately upon receipt. In the event of externally recognisable transport damage proceed as follows:

- Do not or only accept the machine with reservations.
- Record the damage and its extent wither on the transport documents
  Or make a note on the carrier's delivery note.
- Initiate a complaint.

NOTE!

Complain about any defects immediately.
Claims for damages can only be asserted within the applicable complaint periods.
Corrosion damage due to salt coating on the machine!
After road transport in winter on salted roads or after sea transport, the machine must be cleaned of dirt. If the machine is operated or stored in the immediate vicinity of the sea, the salt residues must be regularly removed. Otherwise, permanent exposure to salt can cause corrosion damage.

9.2 Internal transport

An optional transport shoe is available for in-house transport. This gusset shoe is not suitable for use on public roads.
Move machine

1. Place the gusset shoe over the towing eye and lock with the bolt
2. Pick up the gusset shoe with the towing vehicle.
3. Retract supports
4. Remove wheel chocks
5. Actuate the service brake release valve if necessary
6. Release the parking brake
7. Move machine
8. Actuate the parking brake using the crank handle
9. Place wheel chocks on the wheels
10. Extend supports

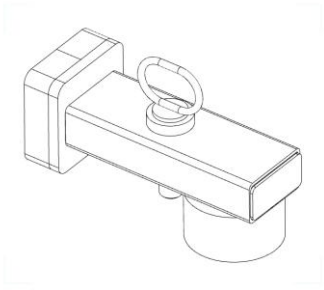


Figure 86: Gusset shoe

Service brake release valve

NOTE!

The release valve enables the emergency brake function to be cancelled and is intended exclusively for internal shunting work.

The release valve is located on the front left-hand corner of the vehicle frame.
If the black button is pressed, the emergency braking function is deactivated and the wheels are unbraked. Pressing it again reactivates the emergency braking function.
The manoeuvring and operation of this technical equipment should only be carried out with the utmost care and diligence. If there is too little air in the system and the emergency braking function is still active, the remaining air can be released via the test pressure socket brake pressure.

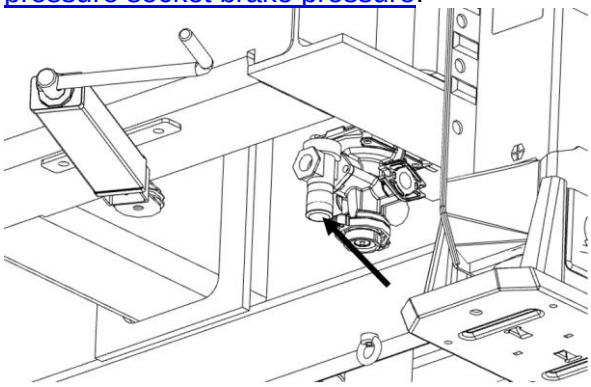


Figure 87: Brake release valve position front left bottom

9.3 Set up transport position

Requirements for participation in Road traffic

- Machine is empty and all belts are empty
- Machine is in transport position
- Trailer coupling is properly coupled to the towing vehicle and the supply lines are connected
- Supports are fully retracted
- Wheel chocks are removed and secured in their holders
- Parking brake is released
- All safety doors and flaps are locked
- All outboard parts are properly secured
- The underride guard at the rear is fitted and ready for use
- The side guard is fitted
- Road safety (brakes, lights, tyre pressure) has been established
- Suitability of the route has been checked and ensured

9.4 Coupling and uncoupling the machine to a towing vehicle

DANGER!

Hazards due to coupling/uncoupling the towing eye

Crushing and jamming when coupling/uncoupling the towing eye to/from the Towing vehicle

- Be aware of a possible crushing hazard when coupling and uncoupling the towing vehicle
- Maintain a safe distance from the towing eye

DANGER!

Hazards due to participation in public road traffic

Collisions, equipment coming loose, accidents during the transport of the Machine with 80 km/h wheel axis on public roads

- The driver of the towing vehicle must be qualified and authorised for the transport
- Observe floor load capacity, floor surface, passage width, passage height, bends, inclines/declines and local driving restrictions of the transport route
- Do not use the gusset shoe on public roads

Ensure before transport:

- Bring machine into transport position
- Attach and check the conveyor belt transport locks
- Retract supports
- Switch off the machine and secure against restarting
- Remove remaining screenings and residual material from the machine
- Close side doors and flaps and secure against opening
- Fasten and secure equipment (stop blocks, ladder, etc.) adequately
- Fitting the light strip and side protective device
- Coupling the chassis to the towing vehicle
- Connecting the compressed air and power lines
- Visual inspection of the machine for proper condition and road safety

The towing vehicle must have the following equipment:

- Authorised connecting device
- Compressed air connections for the brake system
- Electrical connection socket for the lighting
- Electrical connection socket for the ABS

Coupling the machine

1. Secure the machine with the parking brake.
2. Chocks on the wheels, on downhill gradients against the the slope of the ground in order to Secure the machine against rolling away.
3. Align the height of the towing eye.
4. Slowly reverse the towing vehicle towards the machine drive up until the trailer coupling of the towing vehicle reaches the The towing eye of the drawbar and picks up and engages.
5. Secure the towing vehicle with the parking brake.
6. Connect the compressed air line (brake line) marked in yellow to the towing vehicle.
7. Connect compressed air line marked in red (supply line) to the towing vehicle.
8. Connect the light cable to the connection (red) of the machine and the towing vehicle.
9. ABS cable to the connection (blue) of the machine and the towing vehicle.
10. Remove wheel chocks
11. Release the parking brake
12. Retract supports

Uncoupling the machine

1. Apply the parking brake of the towing vehicle.
2. Secure the machine against rolling away using wheel chocks
3. Extend the supports until the towing eye is raised.
4. Compressed air line marked in red (supply line) Disconnected from the towing vehicle.
5. Compressed air line (brake line) marked yellow Disconnected from the towing vehicle.
6. Attach both compressed air lines to the empty couplings of the trailer.
7. Disconnect the connector plug of the light cable from the towing vehicle.
8. Disconnect the connector plug of the light cable from the machine.
9. Disconnect the ABS cable connector plug from the towing vehicle.
10. Disconnect the ABS cable connector from the machine.
11. Release the coupling of the towing vehicle.
12. Release the parking brake of the towing vehicle.
13. Drive off the towing vehicle.

9.5 Move machine with chain drive

See: **4.26.1 Tracked undercarriage**

Moving the screening machine with cable remote control

1. Bring machine into transport position
2. Plug in the cable remote control connector from the operator
3. Move the machine carefully in transport mode


Forward


Right turn


Backwards


Left turn

NOTE!

A combination of buttons (e.g. forwards and left rotation for forwards left) is possible.

Travelling the sieve shaker with remote control Maxi (option)

1. Bring machine into transport position
2. Move the machine carefully using the buttons on the remote control in transport mode

NOTE!

A combination of buttons (e.g. left forwards and right forwards for forwards straight ahead) is possible.

9.6 Store machine

Switching off the screening machine for a short time

When parking the machine for a short time, ensure that the parking area has sufficient load-bearing capacity and that unauthorised persons do not have access to the machine
of the machine.

Switching off the screening machine for a longer period

The machine, components, assemblies or parts
should only be stored under the following conditions:

- Do not store outdoors
- Store in a dry and dust-free place
- Do not expose to aggressive materials (e.g. near the sea)
- Protect from sunlight
- Avoid mechanical shocks
- Storage temperature -15 °C to 40 °C
- Relative humidity, max. 60 %

NOTE!

Information on the storage of supplied components that are
beyond the requirements mentioned here must be observed!

When parking the machine for a longer period of time, follow
The following instructions:

- Ensure that the storage surface has sufficient load-bearing capacity.
- Ensure that unauthorised persons do not have access to the machine.
- Ensure that the machine is in the transport position.
- Support the machine.
- retract optional hydraulic supports.
- Treat all bare metal parts (e.g. piston rods of the hydraulic cylinders) of the machine with a suitable anti-corrosion agent.
- Ensure that the battery isolating switch disconnects the circuits and that the machine is secured against being switched on again.
- Ensure that the parking brake is applied.
- Grease all lubrication points.
- Ensure that the wheel chocks are properly positioned under the wheels.

After storage

Before recommissioning and after storage, first
carry out the following measures:

- Check the functionality of the brake system.
- Check and adjust the air pressure of all tyres.
- Check all fluid levels.
- Check the function of the electrical system.
- Check the charge status of the battery.
- Grease all lubrication points.
- Check the operational readiness of the safety devices.
- Check cables, hoses and lines for leaks and cracks.

10 Maintenance

10.1 General information on maintenance and servicing

The following sections describe the maintenance work required for optimum and trouble-free operation of the double drum screen. Consistently carrying out maintenance work and adhering to the time intervals are important prerequisites for the reliable operation of the machine.
This chapter specifies work that must be carried out by the machine's operating personnel or by qualified specialist personnel.
depending on the use of the screening machine, check all parts regularly for wear and damage. Replace defective parts in good time or have these parts replaced by qualified personnel to prevent damage to other parts. If guards are removed in the process, they must be reinstalled after the intervention. The manufacturer accepts no liability for damage caused by removed protective devices.

A summary and an overview of the upcoming work can be found in the maintenance schedule.

Daily and weekly maintenance can be carried out by an authorised machine operator. The hourly maintenance must be carried out by an authorised fitter/technician. All other maintenance work and troubleshooting not covered in these instructions or which cannot be carried out by the user must be carried out by ZEMMLER® Screening System Service.

If increased signs of wear are detected on the components during the regular inspections, the maintenance intervals should be adjusted based on the actual wear and tear.

Draw up a maintenance log for every maintenance job! The log helps with fault analyses and enables the required intervals to be adapted to the actual operating conditions.
In some cases, the execution of the specified work is time and/or load-dependent. When intervals are specified both in terms of time limits and operating hours (OH), the case that occurs first applies.

NOTE!

Please read the operating and maintenance instructions for the supplied components before use; these are part of these maintenance instructions and are not listed here.
When ordering spare parts, please state the machine type and the details on the type plate.

10.2 Operating materials

NOTE!

The information on filling quantities is intended as a guide. The fluid level must be checked during filling using the relevant control mechanisms (e.g. dipstick).

Operating equipment table MS4200/MS5200:

Operating resources	Quantity	Type	Standard
Hydraulic oil	310 litres	HLPD 46	DIN EN ISO 6743
Lubricating grease			ISO 6743
Diesel	200 litres		DIN EN 590
AdBlue/DEF	19 litres		ISO 22241 / DIN 70070 / AUS32
Engine oil (DH; DE)	See the manufacturer's manual		
Engine coolant (DH; DE)	See the manufacturer's manual		
Gear oil (DE)	See the manufacturer's manual		

Figure 88: Operating equipment MS4200 / MS5200

Hydraulic oils lose their properties due to ageing and water absorption and can lead to loss of performance, hydraulic failure and machine damage or even total breakdown. The oil change intervals must therefore not be exceeded. The use of unsuitable operating fluids impairs the use of the machine and can lead to considerable damage to the screening machine. Therefore, only use operating fluids that comply with the stated specifications.

10.3 Maintenance schedule

If damage, leaks and/or suspicious noises occur during the inspection, shut down the system and secure it. Arrange for the repair or replacement of defective components. If necessary, inform the ZEMMLER® screen system customer service.

10.3.1 Maintenance A - daily

A1
Carry out a daily visual inspection of the entire system.
Check that operating elements and safety devices such as emergency stop switches are in perfect technical condition.

A2
Carry out a daily visual check of all fluid levels in the system.
Particular attention is paid to the pressurised parts of the system.
If the diesel tank is empty, please refer to the engine manufacturer's operating and maintenance instructions.

A3
Carry out a daily noise check of the entire system.
Special attention is paid to wear and tear parts.

A4
Carry out a daily visual inspection of all wear and tear parts.

A5
If necessary, clean the machine thoroughly to avoid build-up that causes wear. Visual check of the fill level of the centralised lubrication system.

A6
Carry out a daily visual inspection of the air filters.
Clean the filter on the switch cabinet (DE), replace if necessary.

10.3.2 Maintenance B - weekly

B1
Lubricate the entire system weekly

B2
Carry out a weekly check of the drum brushes. The drum brushes must always engage in the drum in order to maximise the cleaning effect of the drum.

B3
Check the entire hydraulic system as well as the fluid reservoirs for leaks on a weekly basis.

B4
Carry out a weekly visual inspection of all belt conveyors.

10.3.3 Maintenance schedule

Interval	Pos. No.	Components / Naming	Page
A daily (10h)	A1	Visual inspection of the entire system	
	A2	Visual inspection of all fluid levels in the system	147, 150
	A3	Noise control	
	A4	Visual inspection of all wear parts - Belt scraper	143
	A5	Cleaning - removal of caking regularly depending on the material properties (at least daily)	154
	A6	Visual inspection of the air filter	151
B weekly (50h)	B1	Carry out lubrication plan	133
	B2	Check drum brushes	154
	B3	checking the hydraulic system - leakage	143
	B4	Visual inspection of all belt conveyors	143
C 100 h	C1	Maintenance by machine operator	
D 250 h	D1	Maintenance by machine operator	
E 500 h	E1	Maintenance by an authorised fitter	

10.4 Maintenance logs

Maintenance logs for 100h, 250h and 500h can be found in the appendix.

10.5 Positions of the lubrication points

Lubrication points must be lubricated at weekly intervals or every 40 hours.
Please note that components such as the running gear, the crawler drive, the supports or the parking brake are also equipped with lubrication points that are not mentioned in this chapter. Please use the operating instructions for the attachments in the appendix.
The bearings of the brush elements are replaced when the brushes are replaced and do not need to be lubricated.
Lubrication nipples, which are attached to the housing of the screening machine, connect poorly accessible points on the machine with a hose. It is advisable to maintain the hinges in the unfolded state. Carefully remove any leaked, used or surplus hazardous substances and dispose of them in an environmentally friendly manner!
A lack of lubrication increases wear considerably and can damage the screening machine.
The description of the items is divided into the following categories for better clarity:

- Position of the lubrication points on the hydraulic cylinders
- Position of the lubrication points on the fractions
- Position of the lubrication points on the housing of the screening machine
- Position of the lubrication points within the screening machine
- Position of the lubrication points on the optional stone grid

In the following chapter, Lubrication plans, the same headings are used again to clearly show which points need to be reached and in what quantity.

10.5.1 Position of the lubrication points on the hydraulic cylinders

Each hydraulic cylinder has two lubrication points. The fine fraction always has four hydraulic cylinders and therefore 8 bearing points to be maintained. The coarse fraction is always equipped with two lifting cylinders and therefore has 4 lubrication points. Only the centre fraction can be supplied in different versions. The short belt has only two cylinders (4 lubrication points), while the long version is equipped with four cylinders (8 lubrication points).

NOTE!

The hydraulic cylinders of the belts must also be lubricated manually with the centralised lubrication system option.

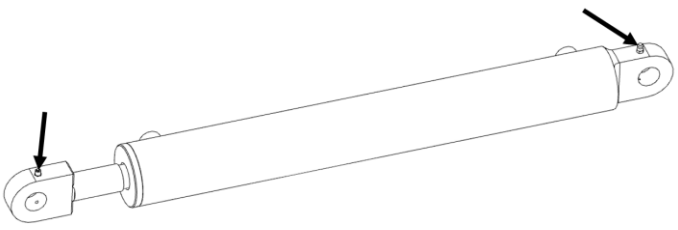


Figure 89: Hyd. cyl. Grease nipple

Positions of the hydraulic cylinders on the belts.

Position of the lifting cylinder fine fraction

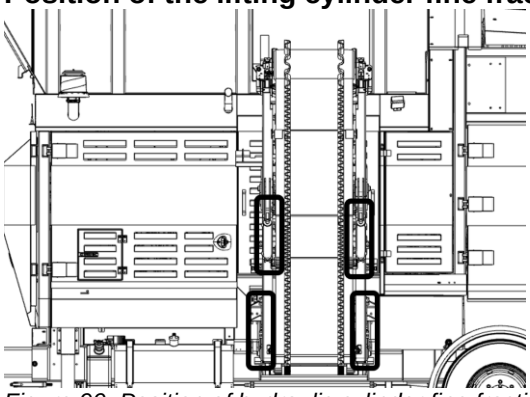


Figure 90: Position of hydraulic cylinder fine fraction (1-8)

Position of the lifting cylinders Centre fraction

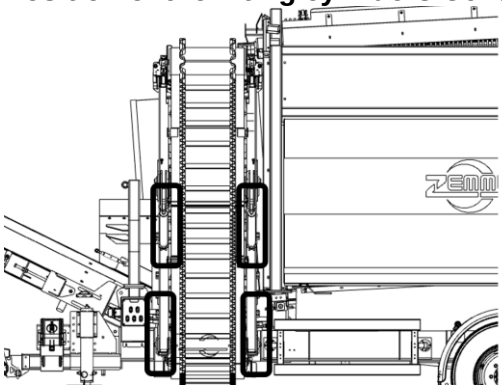


Figure 91: Hydraulic cylinder position Medium fraction long (9-16) Short version (9-12, bottom only)

Position of the lifting cylinders Coarse fraction

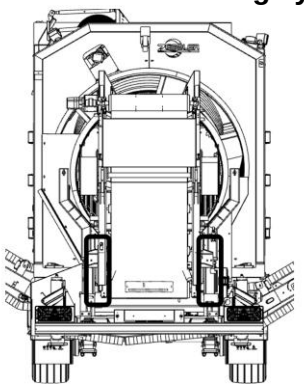


Figure 92: Position hydraulic cylinder coarse fraction long (17-20)

10.5.2 Position of the lubrication points on the fractions

The lubrication points of the belts are positioned symmetrically.
The lubrication points supply the upper bearings of the deflection or drive roller

NOTE - Is located near the lubrication point

NOTE!
The lubrication points are best reached in the working position.

Grease nipple on the belts of the fine fraction

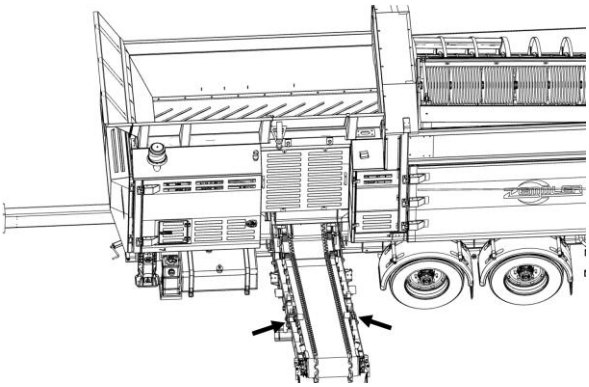


Figure 93: Position of lubrication points Fine fraction on both sides (21,22

Grease nipple on the centre fraction belts

Medium fraction long
2 lubrication points
(short medium fraction and short coarse fraction)

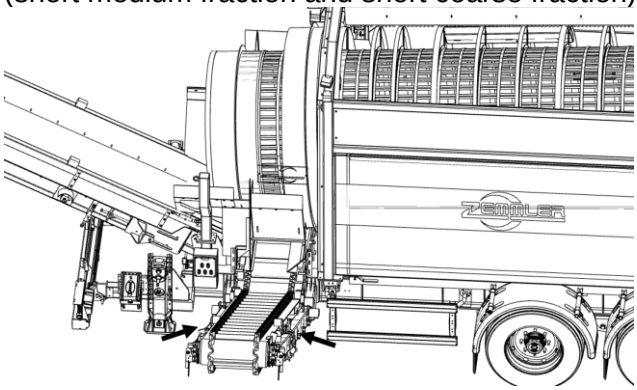


Figure 94: Position lubrication points centre fraction long on both sides (25,26)

Centre fraction short
2 lubrication points
The lubrication points of the short centre fraction are located at the uppermost point.
As shown on the short belt of the coarse fraction, the grease nipples of the short centre fraction are located on the right and left of the bearings of the upper return pulley.

Grease nipple on the belts of the coarse fraction

Coarse fraction long

4 lubrication points

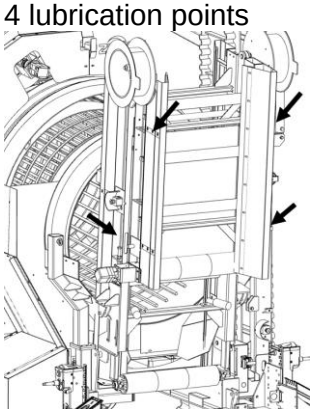


Figure 95: Position lubrication points coarse fraction long on both sides (27,28,29l,30l)

Coarse fraction short

4 lubrication points

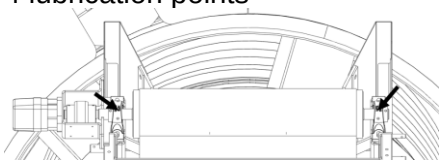


Figure 96: Position lubrication points coarse fraction just above (29k,30k)

10.5.3 Position of the lubrication points on the housing of the screening machine

Lubrication points on the left-hand side

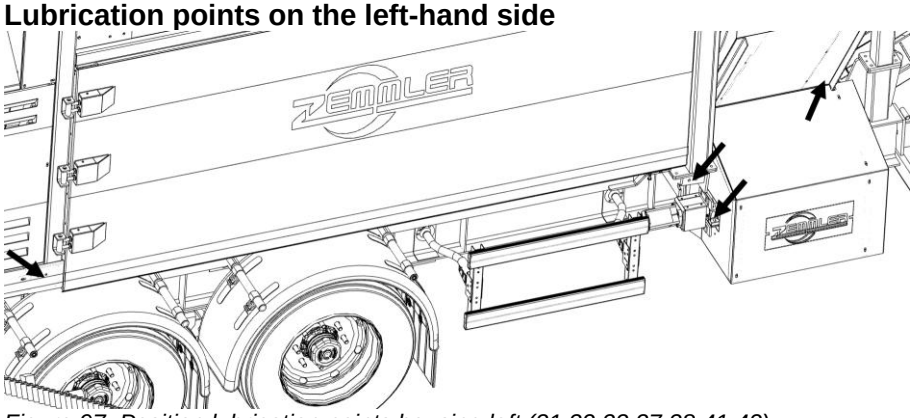


Figure 97: Position lubrication points housing left (31,32,33,37,38,41,42)

Lubrication points on the right-hand side

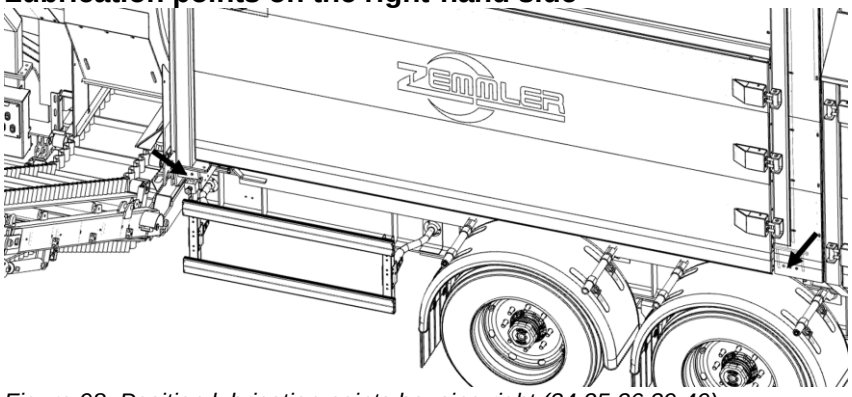


Figure 98: Position lubrication points housing right (34,35,36,39,40)

10.5.4 Position of the lubrication points within the screenmachine

NOTE!

The drum doors can remain closed to reach the areas inside the machine.

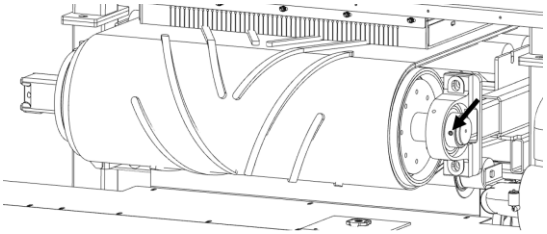


Figure 99: Position of lubrication point BAG VL (49) accessible via engine compartment door L

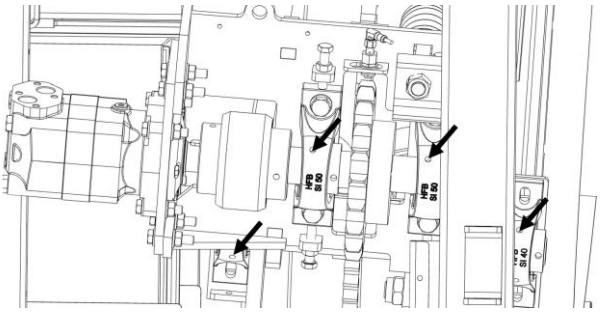


Figure 100: Position of lubrication points drum drive (45-48)

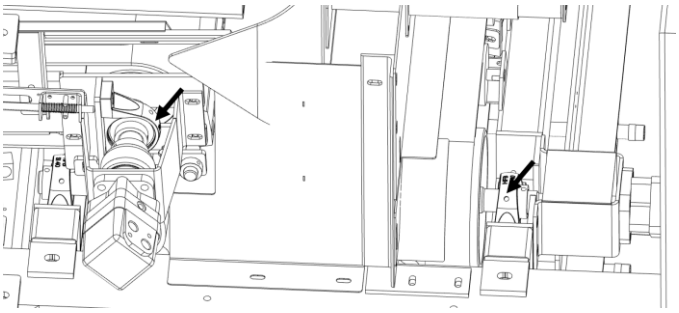


Figure 101: overview of lubrication points right machine door, behind switch cabinet (43,44)

10.5.5 Position of the lubrication points on the stone grid (optional)

NOTE! - Located in the vicinity of a grease nipple.

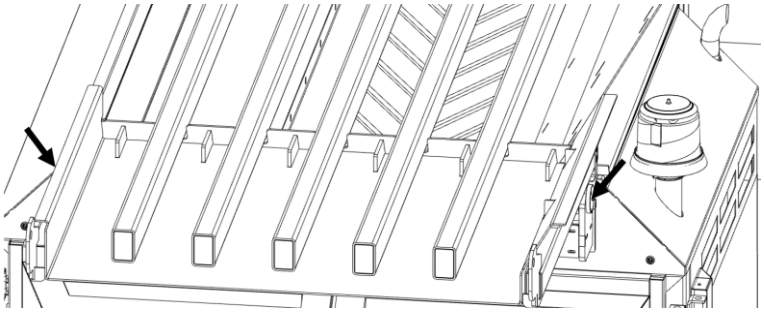
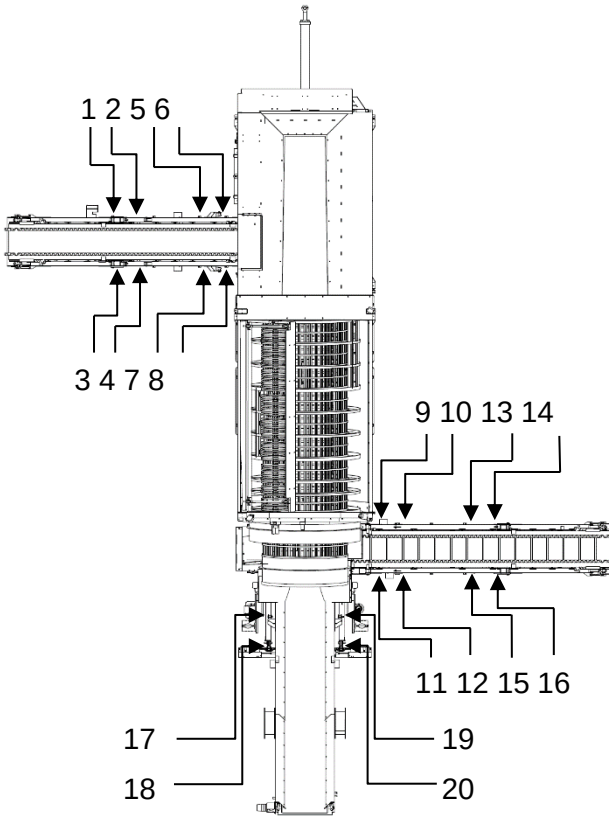


Figure 102: Position lubrication points stone grid (50,51)

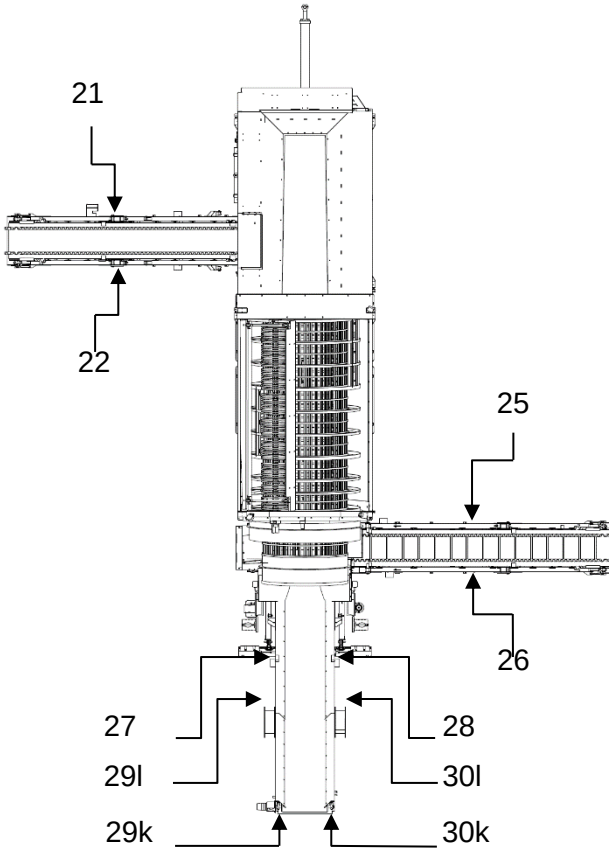
10.6 Lubrication plans

10.6.1 Lubrication schedule for hydraulic cylinders



Description of the	Option	Positions
Cylinder fine fraction	all	1,2,3,4,5,6,7,8
Cylinder centre fraction	short	9,10,11,12
Cylinder centre fraction	long	9,10,11,12,13,14,15,16
Cylinder coarse fraction	all	17,18,19,20

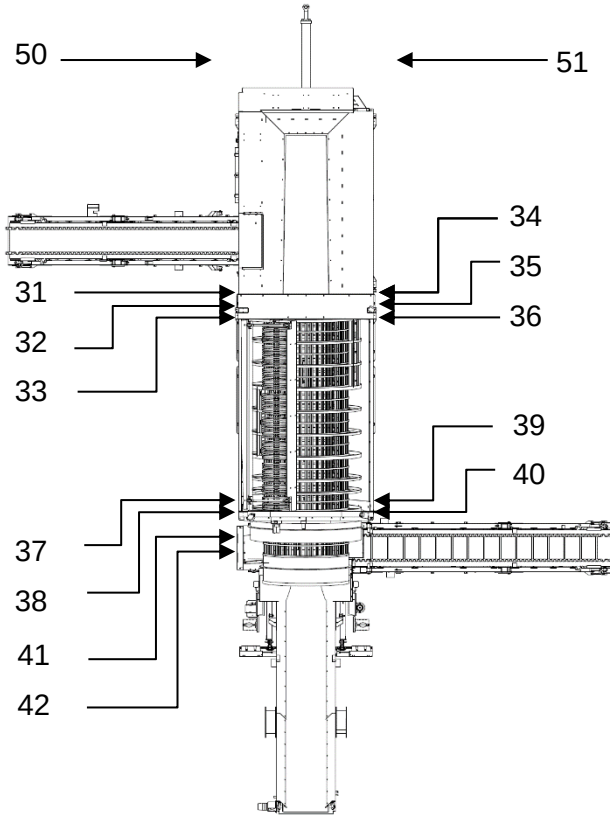
10.6.2 Lubrication plan Fractions



Description of the	Option	Positions
Fine fraction	all	21,22
Centre fraction	all	25,26
Coarse fraction	short	27,28,29k,30k
Coarse fraction	long	27,28,29l,30l

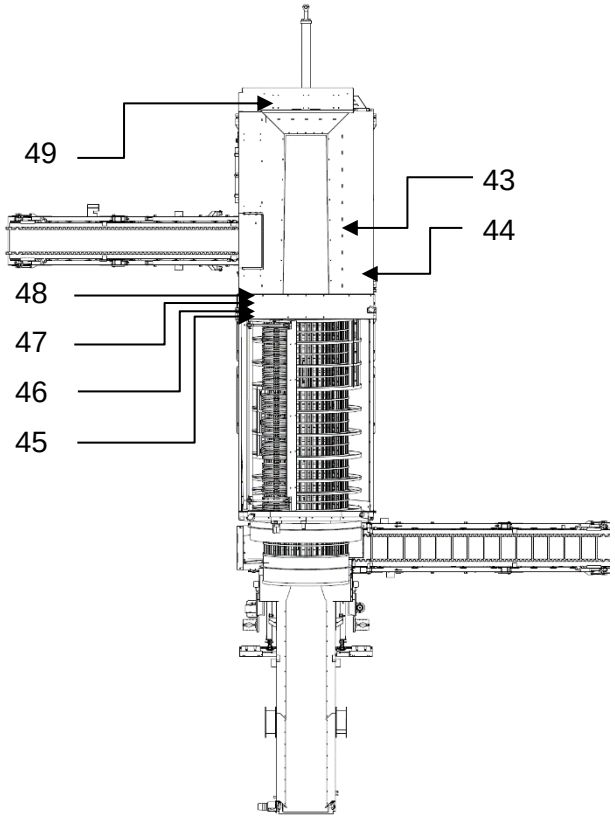
10.6.3 Lubrication plan housing exterior

The sequence and exact assignment of the connecting cables 31-40 on the housing may vary due to a different installation sequence.



Description of the	Option	Positions
BAG HL	all	31
TAB VL	all	32
Drum bearing VL	all	33
BAG HR	all	34
VR drum bearing	all	35
Drive fine fraction H	all	36
TAB HL	all	37
Drum bearing HL	all	38
TAB HR	all	39
HR drum bearing	all	40
Drive centre fraction V	all	41
Drive Medium fraction H	all	42
Swivel joint	Stone grid	50,51

10.6.4 Lubrication plan housing inside



Description of the	Option	Positions
Drive fine fraction V	all	43
TAB VR	all	44
Drum drive	all	45,46,47,48
BAG VL	all	49

10.7 SKF centralised lubrication system (option)

Selected lubrication points are lubricated via several centralised lubrication blocks, which are supplied by an electric metering pump. The lubrication intervals and lubrication quantities are fixed. When the minimum fill level of the lubrication system is reached, a message is shown on the display of the lubrication system. Check the fill level of the central lubrication system during the daily visual inspection of the screening machine. The quantity and the minimum fill level are clearly recognisable on the housing of the storage container.

NOTE!

Only the lubrication points of the hydraulic cylinders must be lubricated manually, even when using a centralised lubrication system. A detailed lubrication plan with the positions of the grease nipples can be found in the Maintenance chapter.

10.8 Maintenance of the sieve drum and TAB

10.8.1 Check drum guide rollers and TAB

The idlers are responsible for supporting and guiding the screen drum. They are located on the outer edges of the drum. The drum idlers and the TAB are completely inaccessible behind the drum doors during screening operation. The door safety sensors prevent the machine from starting when the doors are open.

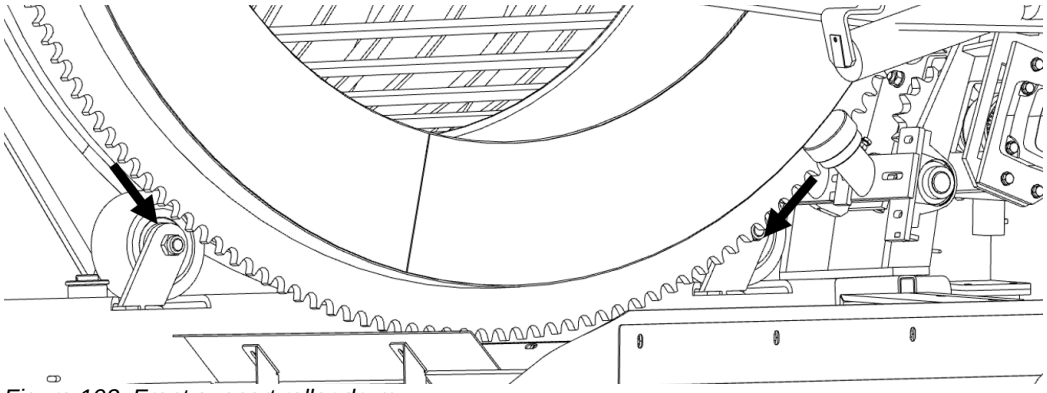


Figure 103: Front support roller drum

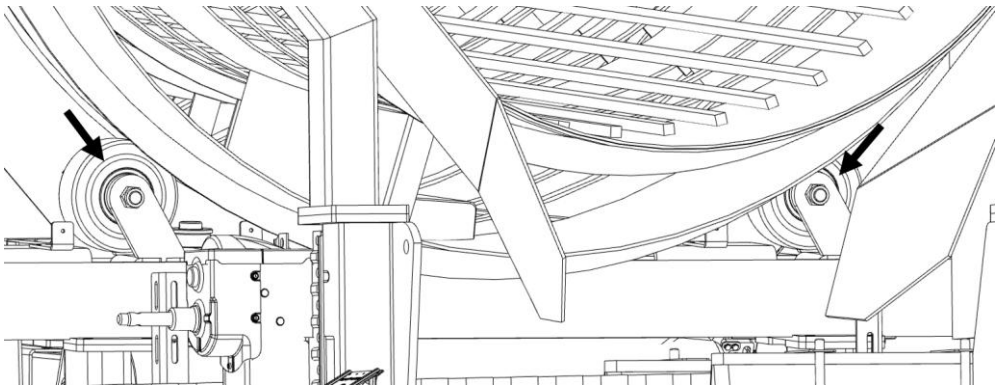


Figure 104: Rear support roller drum

10.8.3 Check screen drum drive chain

The drive chain of the sieve drum is located behind the drive door.
This door is located on the left-hand side of the screening machine between the drum and engine compartment door. The door is secured with a screw.
The drum is driven by a hydraulic motor, with DE by an electric motor. Both units are connected by a drive chain.
Depending on the screen material, the drive chain may become soiled at different speeds and to different degrees.
Clean the chain with a brush or high-pressure cleaner as required.
Do not point the high-pressure cleaner at the bearings or electrical components.

NOTE!

check the drive chain regularly for dirt and wear.
If increased signs of wear are detected during the regular checks, shorten the maintenance intervals based on the actual signs of wear!

10.9 Maintenance of the conveyor belts

DANGER!

Hazards due to falling from the machine
Falling or dropping from the machine during maintenance and repair work

- Operator obligation: Enable safe ascent and descent to the machine (e.g. working platform
- Exercise extreme caution when working at great heights. Take safety measures.
- Wear non-slip safety shoes

10.9.1 Clean conveyor belts and check for wear

WARNING!

Hazards due to moisture and moisture penetration
Malfunctions, leakage currents, short circuits due to penetrating
Rain or washing water when operating the machine outdoors

- Do not clean the housing with high-pressure cleaners or blow it out with compressed air

Conveyor belts are subject to constant attack from dust, sharp objects or heavy bulk goods. To avoid expensive repairs and long downtimes, the conveyor belts should be checked regularly and cleaned professionally.

1. Bring the screening machine into working position.
2. Switch off the machine and secure it against being switched on again.
3. Open safety gates
4. Visually inspect all conveyor belts for cracks, deformation, discolouration and excessive wear. Replace damaged parts immediately.
5. Check the condition and adjustment of the scrapers, their brackets and the internal scrapers under the conveyor belts.
   Replace damaged parts immediately.
6. Check the side guide rollers of the conveyor belt for wear.
7. Clean the running surface of the conveyor belt.
8. Close the safety doors.

10.9.2 Check conveyor belt run

NOTE!

The conveyor belts can be controlled individually in the service menu on the touch display.

Figure 105: Conveyor belt run check

1. Bring the machine into working position.
2. Start the belt to be checked in the service menu.
   - The distance of the belt on the drive roller must be the same on both sides.
   - The conveyor belt must be pulled along.
3. Switch off the machine and secure it against being switched on again.
   Never carry out adjustment work on a running conveyor belt!

10.9.3 Adjusting the conveyor belt run

DANGER!

Hazards due to moving and rotating conveyor belt components

Pulling in, catching, capturing, winding and crushing during intervention or contact with moving and rotating components of the conveyor belts

- Be aware that contact or interference with the moving parts of the machine can cause catching, winding and crushing
- No persons may be present in the danger zone while the screen is in operation. Operator must cordon off the danger zone to prevent unauthorised access.
- Start-up warning until all assemblies are in operation
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

NOTE!

The conveyor belts can be controlled individually in the service menu on the touch display.

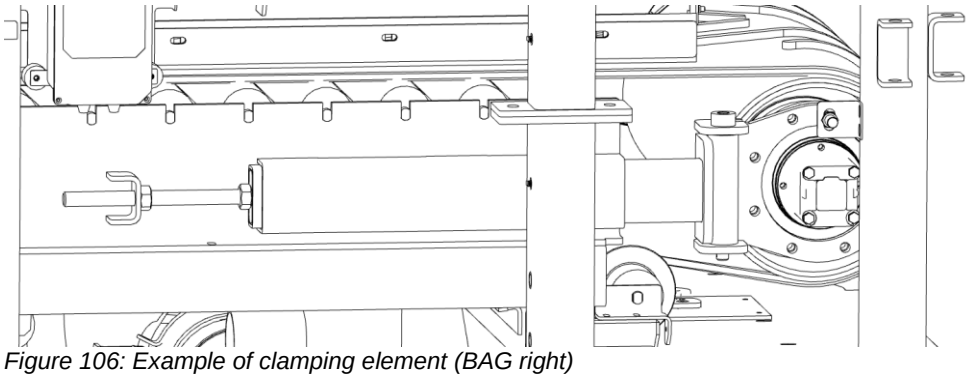


Figure 106: Example of clamping element (BAG right)

NOTE!

- The conveyor belt run is changed by adjusting the tensioning nut on the outer tensioning arms.
- When the right-hand tensioning arm is raised, the conveyor belt runs to the left; when the left-hand tensioning arm is raised, the conveyor belt runs to the right.
- If the conveyor belt tension is too low, the conveyor belt will run and the drive pulley will slip.
- Excessive conveyor belt tension leads to premature bearing wear.

Figure 107: Distance conveyor belt run

DANGER!

Hazards due to bursting belt

Belts can be damaged by overload or bulky, sharp-edged objects in the screenings. Belts can tear, parts of them can be propelled away and cause injuries.

- Check the condition of the belt regularly. Correctly adjust belt tension and belt tracking according to OI

Adjusting the conveyor belt

1. Move the machine to the working position, switch off the machine and secure it against being switched on again.
2. If necessary, set up a suitable climbing aid and secure it properly.
3. Adjust the tensioning nut on both sides so that the belt sits in the centre of the guide
   Never carry out adjustment work on a running conveyor belt.
4. Put away the climbing aid.
5. Check the conveyor belt run as described in the previous chapter.
6. If necessary, repeat the steps for adjusting the conveyor belt.

10.10 Maintenance of the chassis

10.10.1 Check chassis

1. Switch off the machine and secure it against being switched on again.
2. Check the chassis for damage and, if necessary, have defects rectified by an authorised service company.
3. Check wheel nuts for tightness.
4. Visually check tyres for wear.
5. Check mudguard including splash guard for tight fit.
6. Check the fastening of the side protection.
7. Check the lighting system.
8. Check the brake system for leaks.
9. Check the function of the hydraulic supports.

10.10.2 Check towing eye

NOTE!

Damaged fastening screws can cause the towing eyelet to break off.

- Check the fastening screws for tightness every 2500 km (tightening torque 295 Nm).
- Always replace loose fastening screws with new ones, do not tighten them.
- Do not paint the fixing screws of the towing eye.

10.10.3 Wheel change

NOTE!

In the event of a flat tyre, it may be necessary to use the jack even on rough terrain. Always secure the jack with a stable base.

1. Park the machine on a horizontal, level surface.
2. Switch off the machine and secure it against being switched on again
3. Use parking brake and wheel chocks to prevent Machine from rolling away.
4. Position the jack at the outer end of the axis tube.
5. Loosen the wheel nuts with the wheel nut spanner, do not unscrew them.
6. Raise the axle side with the jack until the wheel has lifted off the ground.
7. Loosen all wheel nuts on the wheel evenly and slowly, then unscrew them crosswise one after the other, making sure that the wheel does not fall off the wheel bolts.
8. Remove the wheel, taking care not to damage the threads of the wheel bolts.
9. Fit the new wheel on the wheel studs, taking care not to damage the threads of the wheel studs.
10. Screw the wheel nuts onto the wheel studs and tighten them evenly crosswise.
11. Lower the axis with the jack until the machine is firmly on the ground, then remove the jack.
12. Tighten the wheel nuts crosswise using a torque spanner.
13. Tighten the wheel nuts with the torque spanner after the first 50 km of driving and check that they are tight

10.10.4 Drain the air reservoir of the brake system

NOTE!

The air tank is located in the centre of the frame of the screening machine and is fitted with a valve on the underside. The eyelet on the valve is used for tool-free operation when draining the right and left tanks.

1. Switch off the machine and secure it against being switched on again.
2. Secure the machine against rolling away.
3. Open the drain valve by pulling the ring and drain the condensation.
4. When the ring is released, the drain valve closes automatically.

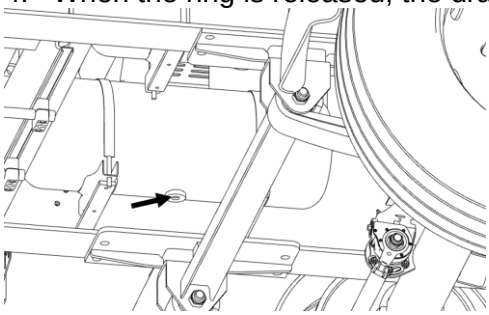


Figure 108: Drain valve position Air reservoir Brake system

10.11 Maintenance of the fuel system

NOTE!

Pay attention to the prescribed quality of the fuel and only store it in authorised containers!

Ideally, top up with fuel immediately after finishing work to prevent condensation forming in the fuel tank. The fuel tank is located at the front left of the machine. The fuel filter is combined with a water separator and can be accessed via the left-hand engine compartment door. For information on working on the filter system and maintenance, please refer to the enclosed manual.

Check fuel level

The current fill level is shown on the touch display.

Top up with fuel

1. Switch off the machine and secure it against being switched on again.
2. Open the fuel tank cap and put it down safely.
3. Carefully top up the fuel tank with fuel. Use suitable dosing aids.
4. Close the tank cap and secure it with the key to prevent unauthorised access.

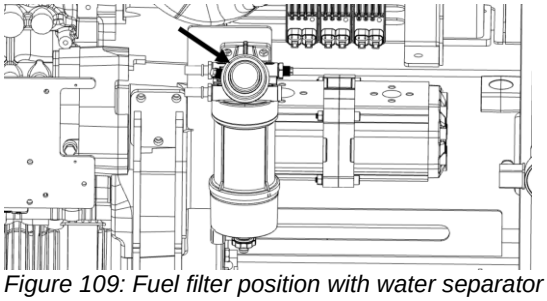


Figure 109: Fuel filter position with water separator

10.12 Maintenance of the AdBlue system

The storage tank for the AdBlue is located at the front left of the machine, directly next to the diesel tank. To improve the flow behaviour, especially at low temperatures, the supply hoses are equipped with an electronic heater. In addition, the liquid in the tank is tempered via the cooling water.

Check AdBlue fill level
The current fill level is shown on the touch display.

Top up with AdBlue

1. Switch off the machine and secure it against being switched on again.
2. Open the filler cap of the AdBlue tank and put it down safely.
3. Carefully fill the tank with AdBlue. Use suitable dosing aids.
4. Close the lid securely

The combined pump/filter unit is not located directly on the AdBlue reservoir. This unit is installed on the frame to the left of the motor.
The best way to reach the filter insert is from below. The picture was taken from the right-hand side of the machine. For information on working on the filter system and maintenance, please refer to the enclosed manual.

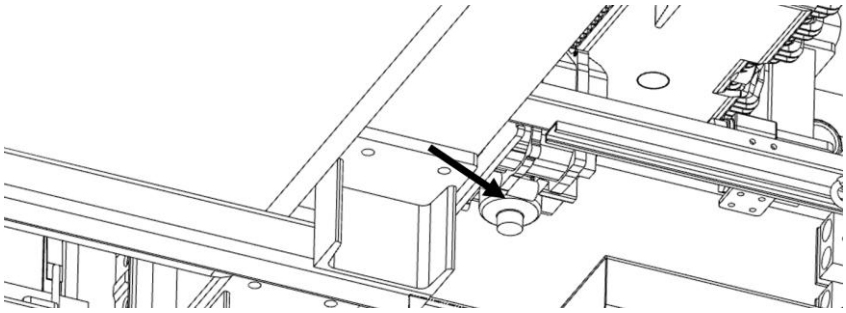


Figure 110: Position of the AdBlue filter insert

10.13 Maintenance of the hydraulic system

The reservoir for the hydraulic fluid is located at the rear of the engine compartment. It can be checked and filled after opening the right-hand engine compartment doors and opening the switch cabinet. The fill levels and temperature can be monitored with a sight glass. Both values are also recorded electronically.

DANGER!

Hazards due to pressurised hydraulic fluid

Injuries caused by hydraulic fluid escaping under pressure from
System components and connections that have to be replaced during
Operation

- Ensure that the hydraulic fluid is pressurised during operation
- Work on the hydraulic system only by specialised personnel
- Before starting work on the hydraulic system, switch it off, secure it against being switched on again and depressurise it. Check that there is no pressure.
- Do not use hydraulic hoses that were originally installed or subsequently replaced beyond the specified period of use
- Observe safety-relevant inspection and maintenance intervals
- Never change pressure settings beyond the maximum permissible values
- Wear eye protection

NOTE!

Always ensure that the work area is tidy and clean when working on the hydraulic system. Thoroughly clean all components that come into contact with the hydraulic oil and their surroundings beforehand.

10.13.1 Visually inspect the hydraulic system and clean

DANGER!

Hazards due to excessive heat generation

Risk of fire due to heat build-up caused by dirt, inadequate
Cooling or overload.

- Keep the hydraulic oil cooler clean and regularly remove all dirt deposits
- Clean ventilation openings and spaces between cooling fins regularly
- Do not store any flammable materials in, on or near the machine

1. Switch off the machine and secure it against being switched on again.
2. Visually inspect and clean all hydraulic components (feed pump, valves, cylinders, filters, pressure lines, connections, etc.) to ensure that they are in perfect technical condition and free of abrasion.
3. Have damaged components, e.g. defective seals, cracked or deformed components, replaced immediately.

10.13.2 Hydraulic system Check fill level and top up

1. Park the machine on a horizontal, level surface.
2. Switch off the machine and secure it against being switched on again.
3. Open the right-hand engine compartment door and open the switch cabinet.
4. Check the hydraulic oil level on the oil level glass and correct if necessary.
5. Close flaps and doors securely again.

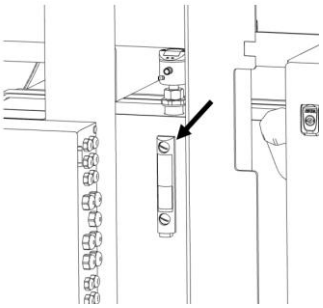


Figure 111: Combined sight glass for oil level and oil temperature

10.14 Maintenance of the engine (DH)

NOTE!

The exact maintenance instructions and description can be found in the enclosed operating manual for the motor.

If required

- Battery - replace
- Disconnect battery or battery cable
- Motor - clean
- Engine air filter element - check/clean/replace
- Take an engine oil sample
- Fuel system - venting

10.14.1 Exhaust gas aftertreatment

The engine control unit monitors the exhaust gas aftertreatment system for soot and ash deposits in the diesel particle filter (DPF). Under normal operating conditions, there is no increased particle load on the DPF. In rare cases and under certain operating conditions, soot particles are deposited in the DPF. This makes it necessary to regenerate the DPF. Regeneration happens completely automatically. You can recognise the process in the display by the symbols for DPF regeneration and the increased engine speed.

Figure 112: Display symbols-DPF regeneration

NOTE!

The operation of the screening machine is not affected by cleaning the particle filter. Do not switch off the machine while the filter is regenerating. If this process is cancelled repeatedly, only an authorised service company can put the screening machine back into operation.

10.14.2 Cleaning the engine compartment

To ensure optimum and trouble-free operation, you should also clean all parts in the engine compartment as part of the regular checks.

1. Switch off the machine and secure it against being switched on again.
2. Open all doors on the front side of the housing and secure them against closing.
   In most cases, cleaning with a broom and blowing out with oil-free compressed air is sufficient.
3. Clean the exhaust system and radiator.
4. Check that all lines and hoses are undamaged,
   Check that the flooring is laid without chafing and is fastened correctly.
5. Visually check the motor for leaks.
   In the event of leaks or damage, stop work immediately and have the damage rectified without delay.
6. Close all doors again.
7.

10.14.3 Cleaning the air filter

The air filter of the diesel-hydraulic drive is equipped with a sensor that detects the degree of contamination of the air filter. If the filter is saturated, a "Dirty air filter" message appears on the display. The PreCleaner extends the cycle for cleaning the following air filter. Thanks to its self-cleaning function, the PreCleaner is completely maintenance-free.

NOTE!

Before cleaning the air filter, please read the manufacturer's instructions in the appendix!

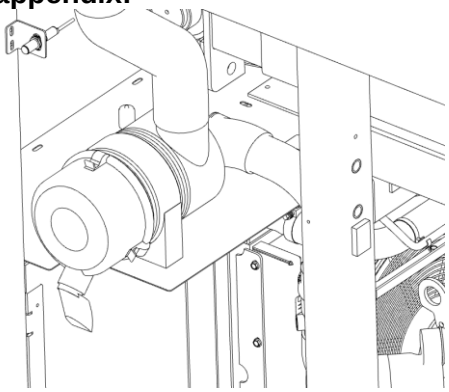


Figure 113: Air filter

10.14.4 diesel engine oil level

The engine oil level is checked via the oil dipstick.

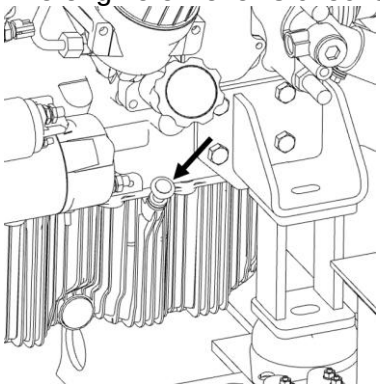


Figure 114: oil dipstick

10.14.5 Maintenance of the diesel engine cooling system

The water cooler is mounted behind the front engine compartment doors. Check the louvres regularly for dirt and damage. Clogged or defective louvres can significantly reduce the cooling capacity. The coolant level should be checked regularly (radiator sight glass). Coolant must be changed at the recommended intervals (see maintenance table).

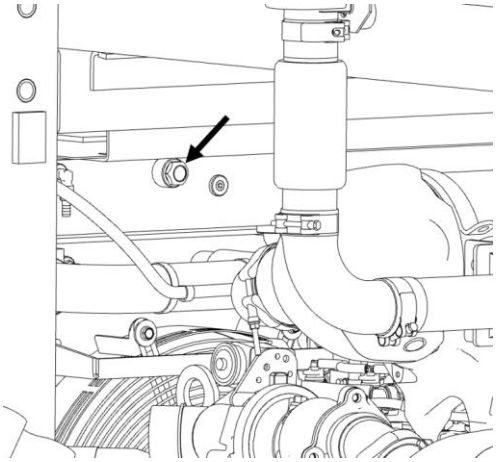


Figure 115: Sight glass cooler

NOTE!

Only use coolant additives approved by the engine manufacturer.
Only set the mixing ratio according to the manufacturer's instructions.

DANGER!

Only open the expansion tank cap. Never remove the radiator cap when the engine is hot.

10.15 Maintenance of the electrical system

DANGER!

Hazards due to electric current
Danger to life due to electric shock when touching live components of the electrical system

- Do not touch any live components
- Work on the electrical system only by qualified electricians
- Before starting work on the electrical system, first switch off the power supply and secure it against being switched on again. Lock the main switch with a padlock and fix a clearly visible "Do not switch" prohibition sign to the main switch

10.15.1 Visual inspection of the electrical system

Check electrical installations regularly to ensure they are in perfect condition. Have faulty installations and appliances repaired or replaced immediately by qualified electricians.

Information for qualified electricians:

- Never bypass fuses.
- When replacing, ensure the same rated current and tripping characteristics.
- Always use the same type of cable when replacing cables.

10.15.2 Clean air filter of switch cabinet (DE, E only)

To protect the electronic components in the switch cabinet, there is an electric fan in the switch cabinet. This air supply is equipped with a filter to prevent dust from entering the electrical system. This filter is located behind the left-hand engine compartment door.

NOTE!

Clean the filter regularly. A clogged filter can overheat the electronics and damage the machine. If the air filter is very dirty, shorten the cleaning interval.

10.15.3 Check/maintain battery

DANGER!

Danger from accumulators

Sparking, fire and explosion hazard in the event of a short circuit or bridging of the connection poles, e.g. due to discarded metal tools.

- Never bridge connection poles
- Never place tools on the batteries

The machine is equipped with maintenance-free batteries. There is no need to check the liquid for the entire duration of its use.

Instructions

1. Switch off the screening machine and secure it against being switched on again
2. Opening the engine compartment door on the right
3. Carry out the following maintenance and inspection work
   - Clean the terminal heads of the batteries and the terminals of the connecting cables
   - Check the cover of the positive pole. The cover must always be closed.
   - Check that the clamps are firmly seated
   - Protect battery from very low temperatures
   - Store the removed battery in frost-free rooms
   - For vehicles that have been parked or not moved for a longer period of time, charge the battery regularly.
4. Close the engine compartment door tightly again

10.16 Maintenance of the air compressor (optional)

For maintenance and use of the compressor, please refer to the manufacturer's operating instructions in the appendix! It also contains information on the maintenance intervals, the oil used and the corresponding quantity.

10.17 Cleaning the machine

WARNING!

Hazards due to moisture and moisture penetration
Malfunctions, leakage currents, short circuits due to penetrating
Rain or washing water when operating the machine outdoors

- Do not clean the housing with high-pressure cleaners or blow it out with compressed air

In the event of superficial soiling:

1. Switch off the machine and secure it against being switched on again
2. If necessary, set up a ladder or work platform and secure it properly.
3. Remove soiling properly.

Please note:

- Do not use aggressive cleaning agents.
- Absorb oil spillages with binding agent.
- Dispose of cleaning cloths and processing residues in an environmentally friendly manner and in compliance with applicable local regulations.

4. After cleaning, check that all previously opened covers and safety devices have been properly closed again and are functional.
5. If necessary, remove the ladder or work platform.

10.18 Checking the brush elements

DANGER!

Hazards due to rotating cleaning brush
Gripping, winding and crushing when engaging or coming into contact with moving parts of the cleaning brush

- Interference or contact with moving parts during operation of the cleaning brush is prevented by the positioning.
- Only carry out maintenance work when the drive is at a standstill and secured against being switched on again

The cleaning brush consists of closely spaced brush discs and is used to clean the sieve drum. The cleaning brush ensures a clean screening drum even with cohesive material. Carry out a weekly check of the drum brushes. The drum brushes must engage with the drum in order to maximise the cleaning effect. To order new brush elements, please contact ZEMMLER® Siebanlagen. For a better overview, a spare parts list for the brush elements is provided below.

NOTE!

The bearings are maintenance-free and must be replaced each time the brush elements are replaced.
Changing the brush elements

1. Dismantle the drive motor.
2. Remove the brush from the holder by dismantling and removing the bearings for the brush shafts.
3. Lift this assembly down from the system using a crane, pulley system or a suitable aid.
4. It is now possible to remove the spacers and the individual brush elements from the shaft.
5. The brush elements can be mounted in reverse order.

10.19 Maintenance of the remote control

NOTE!

Do not use solvent-based, flammable or corrosive cleaning agents or high-pressure or steam cleaning equipment.

Maintenance of the transmitter includes the following activities:

- Charge the battery daily, change the battery if necessary.
- Check the transmitter daily for damage and contamination.
- Remove dust and dirt with a soft, dry cloth.
- Check that all symbols on the keypad are clearly recognisable, repair if necessary.
- Clean the charging contacts with a soft, dry cloth.

Maintenance of the receiver includes the following activities:

The receiver is installed at the front right of the screening machine.

- Remove dust and dirt.
- Check the receiver and cable connection of the receiver to ensure that they are in perfect condition; in the event of defects, have the defective device repaired or replaced.
- Check that the receiving antenna and antenna cable are in perfect condition and have the antenna repaired or replaced if defective.

10.20 Check fire extinguisher

The double drum screener can be optionally equipped with a fire extinguisher.
After using a fire extinguisher, it must be refilled by a specialised company.
Unused fire extinguishing equipment must also be inspected by a specialised company at 2-year intervals and replaced every 10 years.

NOTE!

Replace used fire extinguishers or have them filled before putting the machine back into operation.

When fighting a fire, always switch off the machine using the battery isolator switch, as otherwise electrical fires cannot be adequately extinguished.

10.21 Other tests

Furthermore, national inspections must be observed and properly arranged by the operator.

This includes, for example, tests of:

- Vehicle according to StVZO
- Vehicle and machine after DGUV inspection
- Electrical testing
- Safety equipment

10.22 Recommissioning after maintenance

Recommissioning in the following steps:

1. Check that all previously loosened screw connections are tight.
2. Check that all previously removed guards and covers have been properly reinstalled.
3. Ensure that all tools, materials and other equipment used have been removed from the work area.
4. Clean the work area and remove spilled substances such as liquids, processing materials and lubricants in an environmentally friendly manner.
5. Close all safety doors.
6. Reset all emergency stop devices.
7. Ensure that there are no persons in the danger zone.
8. Switch off and secure against being switched on again.

11 Malfunction

11.1 Behaviour in the event of faults

1. In the event of faults that pose an immediate danger to persons. or material assets, immediately trigger an emergency stop.
2. Switch off all power supplies and secure them against being switched on again.
3. Inform those responsible at the place of use.
4. Depending on the type of fault, have the cause determined and rectified by authorised specialist personnel.

11.2 Recommissioning after a fault

After rectifying the fault before recommissioning:

1. Check that all previously loosened screw connections are tight.
2. Check that all previously removed guards and covers have been properly reinstalled.
3. Ensure that all tools, materials and other equipment used have been removed from the work area.
4. Clean the work area and remove spilled substances such as liquids, processing materials and lubricants in an environmentally friendly manner.
5. Close all safety doors.
6. Reset all emergency stop devices.
7. Ensure that no persons are in the danger zone

8. Acknowledge faults on the control unit with RESET.

11.3 Eliminate material backlog

To remove an overflow, it may be necessary to run the BAG backwards.
To do this, stop the belt feeder on the Home, Transport and BAG screens.
The BAG-STOP button can be used to switch off the belt dispenser.
When the BAG- (minus) button is then touched, the tape dispenser runs backwards by holding it down.
Forward operation can be restarted with BAG+.

11.4 Eliminate faults

Only allow persons to rectify faults who have been fully instructed by the manufacturer in the design and operation of the machine, trained for the required tasks and authorised by the operator in accordance with the specifications in these operating instructions. Persons who are not thoroughly familiar with the machine, its assemblies or individual parts, who have not received training for the required work or who are not authorised may not rectify faults under any circumstances. If you have any questions about troubleshooting or are unsure about the correct procedure, always consult the manufacturer before starting work.

11.5 Fault and solution table

Malfunction	Causes	Remedy
Drum runs against inner panelling, misalignment of the belts of discharge belts	• Lateral twisting of the machine during set-up	• Correcting the position of the machine • Re-align the support devices
Engine does not start / Engine stalls	• Battery • Sensors • Control system • Alternator • Emergency stop • Air filter dirty • Fuel	• Charging the battery • Correcting the position of the machine • Contact ZEMMLER® screening plants • Contact ZEMMLER® screening plants • Checking the engine compartment doors • Clean the air filter according to the engine operating instructions • check!
1. Fraction cannot be folded out	• Hydraulics • Control unit	• Contact ZEMMLER® screening plants • Press the "Transport" button
2. Fraction cannot be folded out	• Hydraulics • Control unit • Transport lock	• Contact ZEMMLER® screening plants • Press the "Transport" button • Removing the transport locks
3. Fraction cannot be folded out	• Hydraulics • Control unit • Transport lock	• Contact ZEMMLER® screening plants • Press the "Transport" button • Removing the transport locks
Conveyor belts do not start	• Hydraulics • Control system	Contact ZEMMLER® screening plants
Drum does not start	• Plastic coupling hydraulic motor defective • Control system • Chain • Hydraulics	• Changing the plastic coupling (only order original spare parts) • Contact ZEMMLER® screening plants
Drum overfill	• Belt feeder runs too fast	• Readjustment of the belt feeder
Machine cannot be shut down	• Control system	• Contact ZEMMLER® screening plants
Hydraulic oil too hot	• Hydraulic overload, hydraulic pump defective, motor defective	• Check the fuse for the hydraulic fan in the control cabinet Visual inspection of the fans on the oil cooler • Contact ZEMMLER® screening plants
Hydraulic oil level too low	• Hose damaged • Oil leakage • Screw connection	• Checking the machine for leaks • Order hose replacement part in case of leakage

	loosened	• Contact ZEMMLER® screening plants
On-board voltage too low	• Alternator defective • Cable break • Battery discharged	• Check the battery terminals, grounding points • Measure on-board voltage • Contact ZEMMLER® screening plants

Table 9: Fault and solution table

12 Decommissioning, dismantling and disposal

DANGER!

Hazards due to incorrect disassembly

Hazards due to dismantling and subsequent disposal

- Ensure that the machine is dismantled and disposed of correctly
- Disassembly and disposal only by qualified personnel or authorised representatives of the manufacturer

12.1 Set the machine out of operation

1. Switch off the machine and secure it against being switched on again.
2. Physically disconnect the power supply to the machine on the operator side, check that the machine is de-energised and depressurised.
3. Remove the battery.
4. Discharge residual energy in all individual installed appliances, then disconnect the power supply lines from the appliances.
5. The machine must be labelled with a notice clearly stating that it is out of service.
6. If necessary, deregister the machine with the registration authority.

12.2 Dismantling

1. Set the machine out of operation.
2. Remove operating and auxiliary materials as well as residual processing materials and dispose of or recycle in an environmentally friendly manner.
3. Clean assemblies and components professionally and dismantle them in compliance with applicable local labour and environmental protection regulations.

12.3 Waste disposal

If no take-back or disposal agreement has been made, disassembled components must be recycled.

NOTE!

Environmental damage due to incorrect disposal!
Incorrect or negligent disposal can result in considerable Environmental pollution.

- Electrical scrap, electronic components, lubricants, operating and other auxiliary materials disposed of by specialised companies.
- Dispose of batteries/rechargeable batteries in an environmentally friendly manner and separately from other waste.
- Observe the handling and disposal instructions in the safety data sheets for hazardous substances.
- If in doubt, ask the manufacturer or obtain information from the local municipal authorities or specialised disposal companies on environmentally sound disposal.
- Scrap metallic residues.
- Plastic parts for recycling.
- Dspose of the remaining components sorted according to material properties.

13 List of abbreviations

ABS ..... Anti-lock braking system

CF ..... Centre fraction

GF ..... Coarse fraction

BA ..... Operating instructions

BAG..... Belt feeder

Bh..... Operating hours

DE ..... Diesel-electric

DH ..... Diesel-hydraulic

DPF ..... Diesel particulate filter

E ..... Electric

EC ..... European Community

FB ..... Remote control

MS ..... Multi Screen

R ..... Crawler (tracked chassis)

SCR ..... Selective catalytic reduction

TAB ..... Drum haul-off belt

14 List of illustrations

15 List of tables

16 Appendix

EU Declaration of Conformity

Customer service documents

Vehicle documents

Plans
Spare parts list
Electrical circuit diagrams
Pneumatic plans
Hydraulic diagrams
Maintenance logs