

Operating Instructions

Translation of the original

BaleTainer



Strautmann
Umwelttechnik GmbH
Auf dem Haarkamp 22
49219 Glandorf

EC Declaration of Conformity

as defined by the EC Machinery Directive 2006/42/EC

Manufacturer

Strautmann Umwelttechnik GmbH
Auf dem Haarkamp 22
D-49219 Glandorf

Person resident in the community who is authorised to compile the technical documents::

Strautmann Umwelttechnik GmbH
Auf dem Haarkamp 22
D-49219 Glandorf

Description and identification of the machine:

Designation: automatic baling press
Function: Compressing recyclable waste
Model: BaleTainer
Type:
Serial Number.: 413. _____

We declare expressly that the machine complies with all the applicable provisions of the following EC regulations:

2006/42/EC	EC machinery directive
2004/108/EC	Electromagnetic compatibility
97/23/EC	Pressure equipment
2006/95/EC	Low voltage directive

The following harmonised standards have been applied:

EN ISO 12100	Safety of machinery - General principles for design
EN ISO 13857	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
EN 690	Hydraulic presses; Safety.
DIN EN ISO 4413	Hydraulic fluid power – General rules and safety requirements for system and their components
EN 60204-1	Safety of machinery – Electrical equipment of machines

A complete list of the applied standards, directives and specifications is on hand at the manufacturer's. Technical documentation is available in full.

The press-specific operating instructions are available.

Glandorf, 09/04/2013

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Identification data

Enter the machine identification data here. The identification data is on the type label.

Manufacturer **Strautmann Umwelttechnik GmbH**

Model designation: BaleTainer®

Type:

Order ID No.: _____

Machine ID No.: _____

Year of manufacture: _____

Manufacturer address

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Please always quote the ID no. of the machine when ordering spare parts.

Formal information about the operating instructions

Document number: 413 20 101

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1.1 Introduction

These operating instructions are an important aid for correct and safe operation of the BaleTrainer, referred to as the "press" for the remainder of these operating instructions.

The operating instructions contain important information for the safe, proper and efficient operation of the press. Observance of the operating instructions helps prevent hazards, reduces repair costs and downtimes and increases the reliability and service life of the press.

The operating instructions must always be available and must be read and used by any person authorised to work on or with the press. Amongst others, this includes:

- operation and troubleshooting during operation
- servicing (care, maintenance, repairs) and/or
- transportation

1.2 Information on copyright notice and property rights

These operating instructions must be treated as confidential. They are to be made accessible to authorised persons only.

They must not be handed over to third parties without the written consent of Strautmann Umwelttechnik GmbH.

All documentation is protected in accordance with copyright law. No part of this documentation may be reproduced or transmitted, nor its contents used or disclosed, without express written permission.

1.3 Information for the Operator

The operating instructions are an essential component part of the press. The plant operator shall ensure that the operating personnel takes note of these instructions.

The plant operator must supplement the operating instructions with operating procedures based on national regulations for the prevention of accidents and for the protection of the environment, including information on supervisory and reporting obligations in consideration of operational characteristics, e.g. with reference to work organisation, work flows and utilised personnel.

Apart from the operating instructions and the obligatory regulations for accident prevention applicable in the country of use as well as in the location of use, the acknowledged technical regulations for safe and correct operation must also be observed.

The plant operator must not modify, extend or convert the press without the approval from Strautmann Umwelttechnik GmbH! This applies in particular to the installation and adjustment of safety equipment and safety valves as well as to welding operations on load-bearing components.



Only original spare parts and consumables may be used, the use of any non-original spare parts and consumables exempts the manufacturer from any liability.

Use only trained/instructed personnel for the operation, maintenance, repair and transportation of the press. Clearly specify the responsibilities of the personnel for operation, maintenance, repairs and transportation.

1.4 Instructional and training assistance

As the employer/operator, you are obliged to inform and instruct the operating personnel applicable existing legal provisions and accident prevention regulations as well as about available safety equipment on the press. This obligation also extends to safety equipment that is installed around the press. In doing so, the various professional qualifications of the employees must be taken into consideration.

The operating personnel must have understood the instructions and it must be ensured that these instructions are observed.

This is the only way to ensure that your personnel are fully aware of safety and potential hazards when working. Observance of compliance with the instructions should be checked on a regular basis. As the employer/plant operator, you should therefore confirm in writing that each employee has received instruction.

You will find examples of training topics in the appendix.

A form master copy for the confirmation of participation in the training/instruction course can also be found in the appendix.

2 Safety

2.1 General

The press has been developed and constructed using state-of-the-art technology and in accordance with the acknowledged safety regulations.

During operation of the press the operator may be put at risk or the press and other material property may be damaged if it:

- is operated by personnel who have not received training or instruction
- is not used as intended and/or
- is not serviced properly.

2.2 Information on signs and symbols

The operating instructions contain the following designations, signs and symbols which are used for especially important information:

DANGER

Warning of an imminent hazardous situation, with the inevitable consequence of serious injuries or death if the designated instructions are not exactly obeyed.

WARNING

Warning of a risk, with the potential consequence of serious injuries or death if the designated instructions are not exactly obeyed.

CAUTION

Warning of a potentially hazardous situation, with the possible consequence of moderate or minor injuries as well as damage to property if the designated instruction is not obeyed exactly.



Reference to useful information about safe and proper handling.

- The bullet characterizes work and/or operating steps as well as enumerations. The steps must be performed in sequence from top to bottom.

Information and symbols, such as warning signs, actuation signs, component labels, etc. attached directly to the press must absolutely be observed. They must not be removed and they must always be kept in fully legible condition!

2.3 Intended use

The BaleTrainer is exclusively designed for compressing empty cardboard boxes, cardboard, paper (condition: dry, not containing solvent), film and empty disposable PET bottles, as well as other materials specified in the contract.

Strongly expanding materials such as film or foam filled with air may only be compressed after consultation with Strautmann Umwelttechnik GmbH.

The following may not be compressed:

- Hard paper core
- Potentially explosive substances and fluids, all potentially explosive substances and containers with such content.



Note the specifications in the **Technical Data** and always observe them.

Intended use also includes observance of the instructions

- on safety
- on operation and control
- on servicing and maintenance

which are described in these operating instructions.

Any other use or use in excess of that described is regarded as use not in accordance with the regulations. Exclusively the plant operator of the press is liable for any resulting damage.

2.4 Residual risk

Even when all the safety instructions are complied with, the following residual risk remains during the operation of the press.

All persons working on or with the press must know these residual risks and follow the instructions that prevent the residual risks from turning into accidents or damage.

During set-up and tooling work it may be necessary to remove protective equipment installed by the customer. This creates various residual risks.

DANGER



Danger of death from electric shock!

Before performing any repair, set-up or maintenance work, isolate the press from the power supply via the main switch!

Secure the press to prevent any unintentional reactivation!

Affix warning information sign!

DANGER



Life-threatening injuries may occur when operating the press!

Automatic motion sequences of the press during operation can cause perilous injuries.

Before operating the press, the operator is obliged to check that all protective equipment has been installed and is functioning!

WARNING



Severe injuries to hands and arms!

Hands and arms may be crushed or cut-off when the press cylinder is lowered.

Before starting work in the pressing chamber, the press cylinder must either be lowered or secured at its highest position.

2.5 Description of the protective equipment

Safety equipment (such as emergency stop switches, trigger lines etc.) must not be removed, bypassed or its function impaired in any other way. Perform a function test of all switchgear periodically.

2.5.1 Location of the Emergency Stop devices

- The emergency stop buttons are located
 - above the main switch on the control cabinet (2)

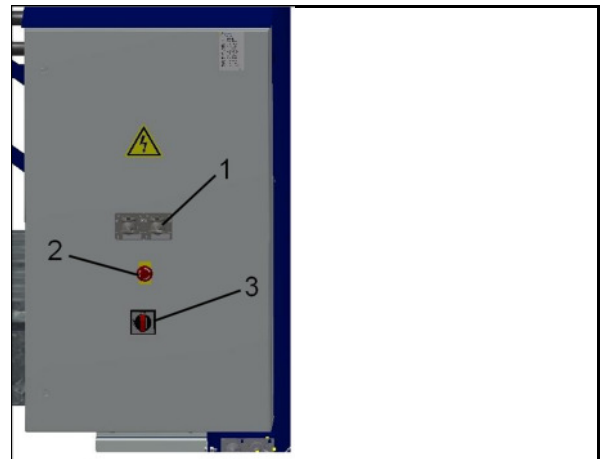


Fig. 1

- in the bottom left of the external control panel (2)

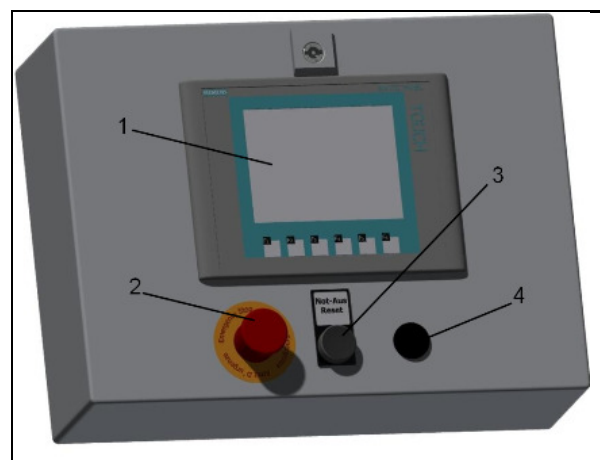


Fig. 2

- In the press feed hopper, before the infeed rollers there is a rip cord with vertical pull cords
- On the opening filling chute is a safety contact strip

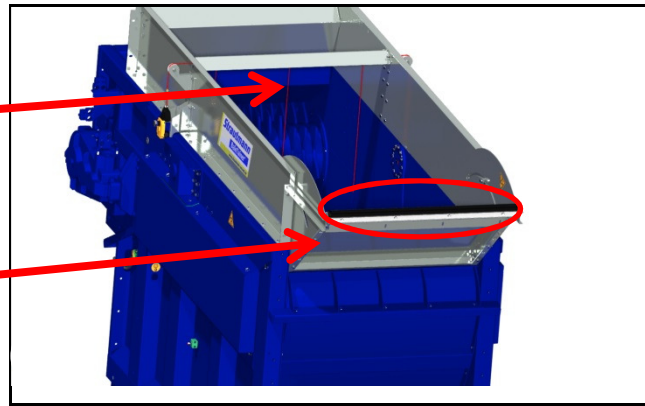


Fig. 1

2.5.2 Safety equipment on the press

The machine can only be turned on if both safety keys are inserted in the dead bolt lock in the control cabinet.



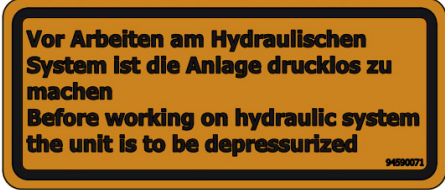
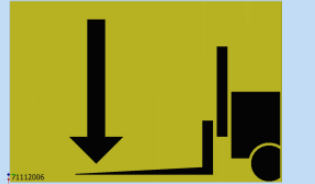
Fig. 3

As the sliding doors on the sides of the machine can only be opened using these safety keys, and the keys can only be removed when the doors are closed, it is not possible to start the machine when one or more doors are open.



Fig. 4

2.6 Labels and signs on the press

Sign	Meaning	Attachment location
	Laser beam warning	Above bale delivery
	Automatic start warning	- On bale delivery - On feed hopper
	Warning of hot surfaces	Around oil cooler
	Electrical voltage warning	Signs on all junction boxes, switch cabinets and control cabinets for low voltage
	Protective conductor connection	Next to the earthing screws
	Depressurise the system	Around the hydraulic system (oil sump)
	Forklift pocket	Around the location points for forks
	Attachment point	4x on feed hopper 2x on press unit

	Observe operating instructions	Around control system
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2.7 Labels and signs to be attached by the plant operator

The plant operator is obliged to attach other labels and signs to the press and in its immediate vicinity as required.

Labels and signs such as these may refer to the regulations for wearing personal protective equipment, for example.

2.8 Safety instructions for the operating personnel

The press may only be used in a technically perfect condition and for its intended purpose, in a safe manner and in compliance with these operating instructions! All faults, particularly those that may impair safety, must be rectified immediately!

Any person commissioned to start up, operate or service the machine, must have completely read and understood the present operating instructions before starting work, especially Chapter 2 **Safety**. Doing this when work has already started is too late. This applies in particular to personnel working on the press only occasionally.

The operating instructions must always be in reach at the press.

No liability shall be accepted for damage and accidents that occur due to non-observance of the operating instructions.

Observe the relevant accident prevention regulations as well as the other generally acknowledged safety and occupational health regulations.

Clearly specify and observe the responsibilities for the various activities connected with maintenance and servicing. This is the only way of avoiding mistakes, in particular, in hazardous situations.

The plant operator shall ensure that the operating and maintenance personnel wears personal protective equipment. This shall include especially the safety shoes, safety goggles, gloves and hearing protection, if required.

Do not wear loose long hair, loose clothing or jewellery! This generally bears the risk of becoming caught, being pulled in or entrained by moving parts!

If safety-related changes are made to the press, immediately shut down and secure the press and notify the relevant body/person of the process.

When maintaining the press, follow the instructions for maintenance work!

Work on the press may be performed by reliable, trained personnel only. Observe the statutory minimum age.

Personnel to be trained, educated, instructed or personnel receiving a general education may only operate the press under the constant supervision of an experienced person!

2.9 Safety instructions for maintenance and troubleshooting on the press

Observe the stipulated periods or the periods indicated in the operating instructions for recurring checks/inspections.

When servicing the machine, suitable workshop equipment for the specified work is indispensable.

Set-up, maintenance and repair work as well as troubleshooting may only be performed when the press is switched off.

Safeguard an appropriately large zone around the maintenance area.

Cordon off the work area with a red and white safety chain and a warning sign.

When performing maintenance and repair work, always tighten loosened screwed connections! If mandatory, tighten the intended screws using torque wrenches. (See the appendix for the table with the tightening torques).

In particular, remove dirt or care products from connections and screwed connections at the start of maintenance/repairs/care.

When replacing individual parts and large assemblies, carefully attach and secure them to lifting devices to minimise the risk they pose. Use only suitable and technically flawless lifting devices and load suspension devices with adequate load-bearing capacity!

Never stay or work under suspended loads!

Do not use aggressive cleaning agents! Use non-linting cleaning cloths!

Dispose of operating and auxiliary materials as well as replacement parts safely and in an environmentally friendly manner.

2.10 Information on particular types of danger

2.10.1 Electrics

Work on the electrical equipment of the press may be performed by electricians or instructed personnel under the management and supervision of electricians in accordance with the rules of electrotechnology!

Before opening the control cabinet, switch off the press at the main switch and secure it with a safety lock to prevent reactivation.

If the electric power supply is defective, immediately switch off the press at the main switch!

Use only original fuses with the stipulated nominal current!

Electrical components which have to be inspected, maintained or repaired must be de-energised. Secure operating facilities which were used for activation to prevent unintentional or automatic reactivation (lock away fuses, block disconnectors, etc.). Should any electrical components be active, first check that they are de-energised, then isolate adjacent energised components. In the case of repairs, ensure that the safety of design features is not compromised (e.g. do not reduce creepage distances and air gaps nor distances by insulation)!

If work has to be performed on live components (in exceptional situations only!), request the assistance of an additional person who can press the emergency stop button or the main switch in an emergency. Use insulated tools only.

The electrical system must be properly earthed by means of the protective conductor system.

Even when the machine has been switched off, certain assemblies can still be live or charged.

Regularly check cables for damage and, if required, replace.

2.10.2 Hydraulic system

Work on the hydraulic equipment may only be performed by personnel with special knowledge and experience in the field of hydraulics!

When servicing hydraulic maintenance personnel with the hydraulic circuit diagram completely familiar and function as well as the possible consequences of misuse must be taught.

Check all pipes, hoses and fittings for leaks daily. In case of leakage, immediately shut down the press and correct the error. Record Leaking hydraulic fluid and disposed of properly.

To assure that work on the hydraulic accumulators that the memory circuits have been depressurized.

Make system sections and pressure lines to be opened before the repair work under pressure!

The maximum permissible period of use hydraulic hoses is six (6) years, including any periods of storage! The storage period should not exceed two years.

2.10.3 Noise

The A-weighted equivalent continuous sound pressure level at the operator workstations for a normal operation of the press is below 78 dB(A).

Because of local conditions and of different materials, a higher sound pressure level at the site of the press may arise. In this case, the operator is obliged to provide the operating personnel with the appropriate protective equipment.

3 Product description

3.1 General

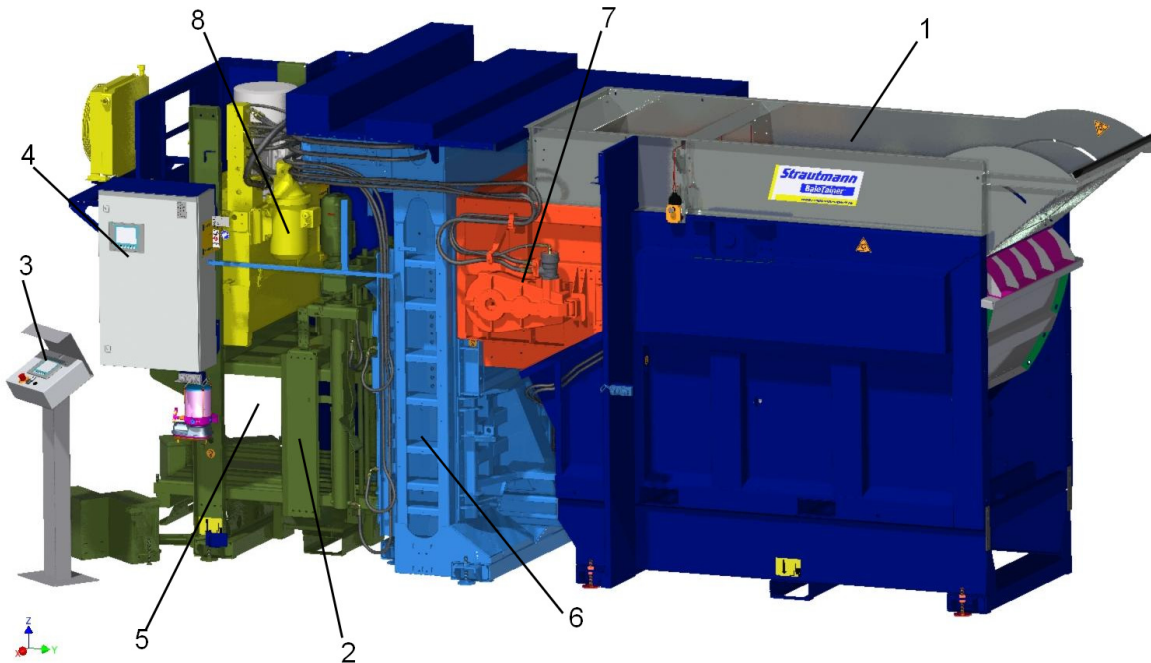


Fig. 5

1 Feed hopper	6 Pressing chamber
2 Binding unit	7 Infeed roller drive
3 Control panel	8 Hydraulic system
4 Control cabinet	
5 Bale delivery	

The feed hopper on the press can be continuously filled. A linkage pushes the material to the rotor, which takes in the material, pre-compresses it and conveys it into the pressing chamber. At a defined fill height, the pressing process starts automatically. When the required segment height is reached, the segment is ejected and pressing of a new segment begins. Once three segments have been ejected, they are bound into a bale. This bale is then ejected to the rear through the bale delivery and can then be removed.

3.2 Assemblies

3.2.1 Feed hopper

The linkage in the feed hopper guides the material to the infeed rotor. As an option, it is possible to fit a photoelectric barrier on the side walls of the hopper to monitor the level in the hopper. This triggers a signal as soon as the monitoring light beam is broken for longer than a certain, adjustable time. Provided the BaleTrainer is ready for operation, it is automatically started by the signal.

3.2.2 Pressing chamber

Once the infeed rotor has acquired the material, it conveys it into the pressing chamber. If the pressing chamber is full, the segment produced is transported onwards.

3.2.3 Binding

The slabs are automatically bound into a bale with wire. The resulting bales are slowly pushed out of the machine and can be removed by a bale delivery unit. The weight of a bale can be up to 400 kg.

3.3 Electric system

The electrical control system for the press is located in the control cabinet (1). The controls on the control cabinet (1) and on the control panel (2) can issue commands to the control system.

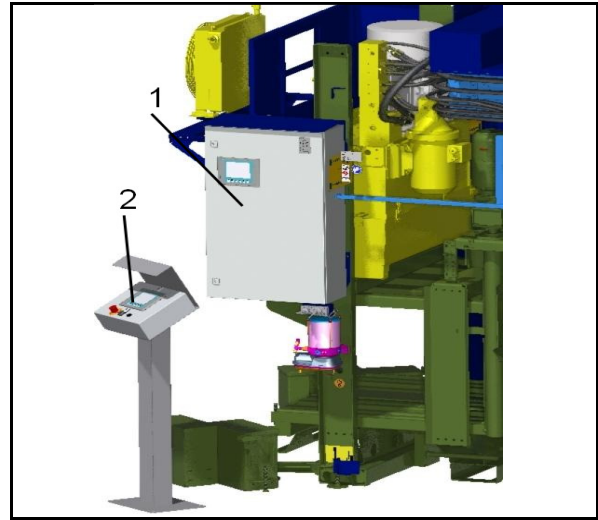


Fig. 6

3.4 Hydraulic system

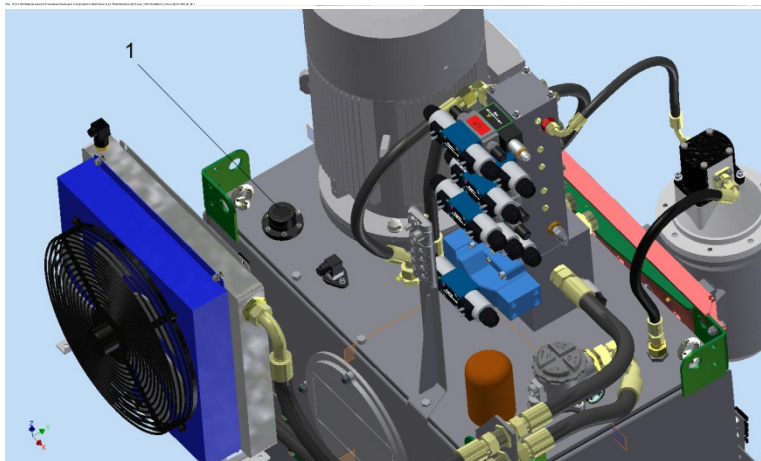


Fig. 7

On the oil tank are the motor and oil pump along with the filler neck (1). The oil cooler is attached before the oil tank outside the panelling.

3.5 Technical data

BaleTainer NP 22 HS SW 1R RA SG (V4130001)

Total height	2756 mm
Dimensions (Length x width x height)	Approx. 6406 x 2056 x 2756 mm
Feed opening (width)	1069 mm
Weight	Approx. 7350 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	22 kW
Total connected load	27.5 kW
Protection rating	IP 54
Fuse protection	63 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 9.2 ST SW 1R RA SG (V4130002)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6355 x 2056 x 2756 mm
Feed opening (width)	1069 mm
Weight	approx. 7150 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	9.2 kW
Total connected load	14.7 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 5.5 HS SW 1R RA SG (V4130003)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6355 x 2056 x 2756 mm
Feed opening (width)	1069 mm
Weight	approx. 7050 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	5.5 kW
Total connected load	11 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 22 HS SW 1R EB SG (V4130004)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6415 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7450 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	22 kW
Total connected load	27.5 kW
Protection rating	IP 54
Fuse protection	63 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 9.2 HS SW 1R EB SG (V4130005)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6364 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7250 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	9.2 kW
Total connected load	14.7 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 5.5 HS SW 1R EB SG (V4130006)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6364 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7150 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	5.5 kW
Total connected load	11 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 5.5 HS SW 1R RA SG KV (V4130007)

Total height	2756 mm
Dimensions (Length x width x height)	Approx. 7516 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7500 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	5.5 kW
Total connected load	11 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NV 22 SP SW 1R RA SG (V41300008)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6406 x 2056 x 2756 mm
Feed opening (width)	1069 mm
Weight	approx. 7350 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	22 kW
Total connected load	27.5 kW
Protection rating	IP 54
Fuse protection	63 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NV 9.2 HS SW 1R RA SG (V4130009)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 6355 x 2056 x 2756 mm
Feed opening (width)	1069 mm
Weight	approx. 7250 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	9.2 kW
Total connected load	14.7 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NV 22 ST SW 1R RL VG (V41300010)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 5951 x 2056 x 2756 mm
Feed opening (width)	1714 mm
Weight	approx. 7500 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	22 kW
Total connected load	27.5 kW
Protection rating	IP 54
Fuse protection	63 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NV 9.2 HS SW 1R RA SG KV (V41300011)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 7516 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7500 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	9.2 kW
Total connected load	14.7 kW
Protection rating	IP 54
Fuse protection	32 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

BaleTainer NP 22 HS SW 1R RA SG KV (V41300012)

Total height	2756 mm
Dimensions (length x width x height)	Approx. 7516 x 2056 x 2756 mm
Feed opening (width)	1085 mm
Weight	approx. 7650 kg
Surface load	700 kg/m ²
Operating voltage	400 V / 3 ph + N + PE / 50 Hz
Motor power	22 kW
Total connected load	27.5 kW
Protection rating	IP 54
Fuse protection	63 A, Category C
Installation location	Inside or outside, preferably under a roof
Pressing force	600 kN
Bale dimensions	1100 mm x 1100 mm x max. 800 mm
Noise level	below 78 dB(A)

4 Transport and Assembly/Installation

4.1 General

The footprint must be freely accessible and it must be ensured at the customer's that the local conditions (e.g. water protection area, food production etc.) are suitable for a press with standard hydraulic fluid.

The press is installed by Strautmann Umwelttechnik GmbH or the respective dealer. In doing so, all technical and safety concerns were taken into consideration.

Following commissioning and after the safety equipment has been tested, the press is ready to be operated as intended.

4.2 Transport using a crane

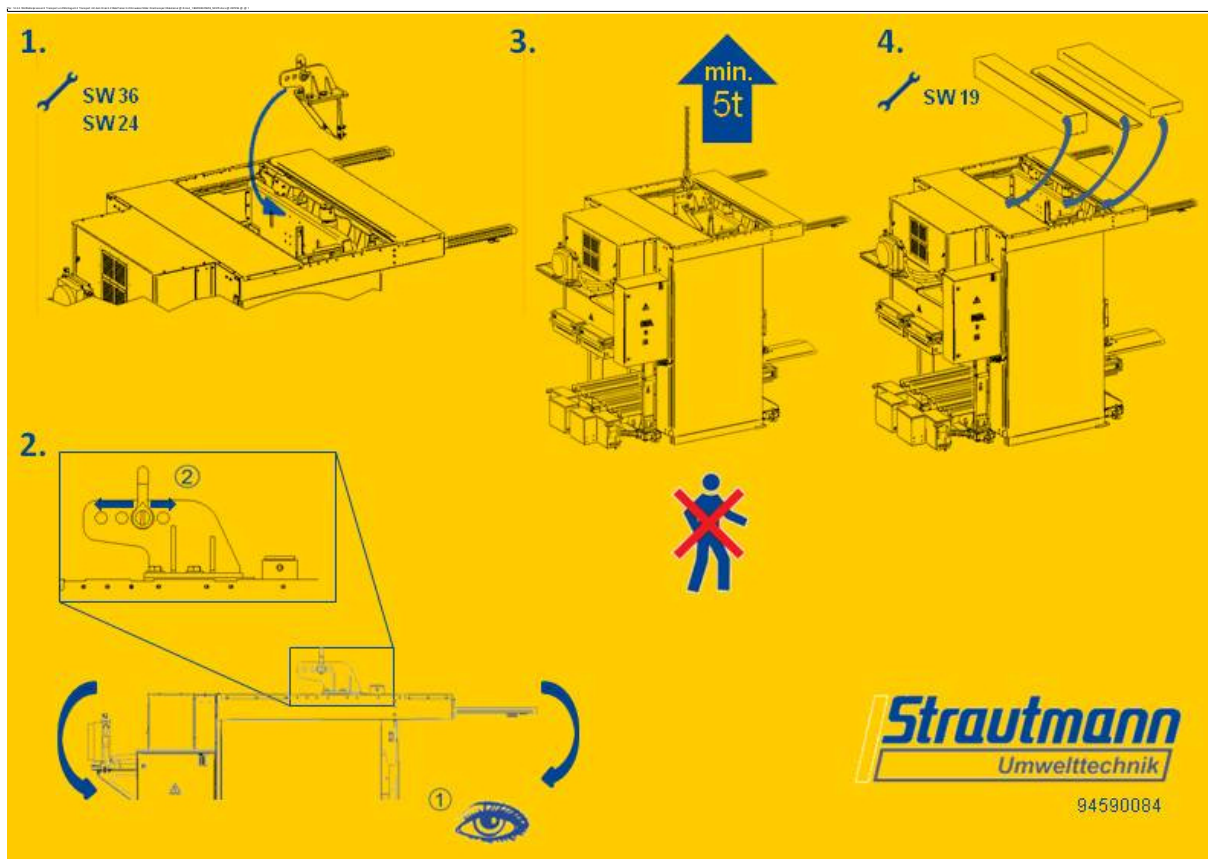


Fig. 8

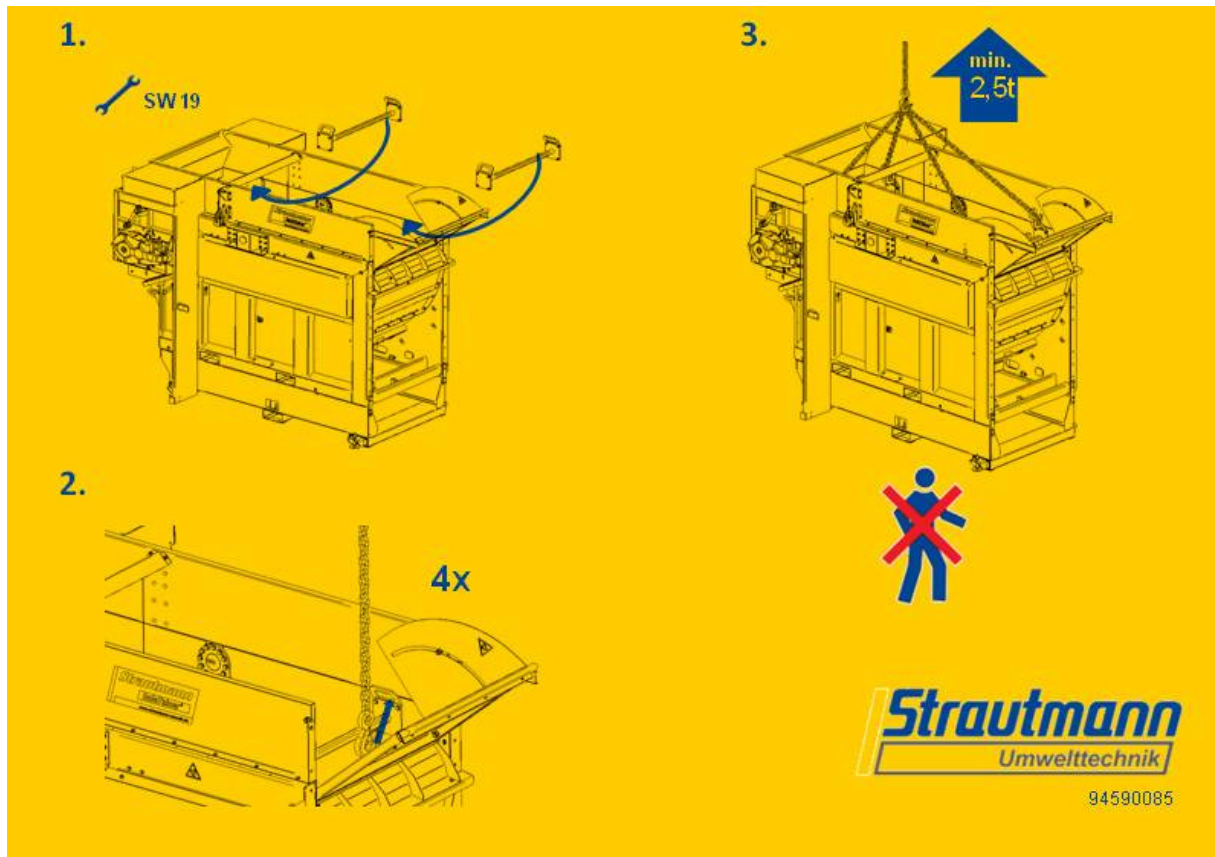


Fig. 9

Observe the following safety instructions if the press is transported by crane:

DANGER



Life-threatening crush injuries when lifting and transporting the system components.

If lifted and transported improperly, the machine components may tip over and fall down!

The components may be lifted and transported applying suitable lifting tackle only.

- **Only use lifting tackle with a minimum load-bearing capacity of half the machine weight (evenly distributed load) that is in a technically perfect condition!**
- **The components must be attached at the appropriately identified attachment points!**
- **Never stand under suspended loads!**

- Observe the applicable accident prevention and occupational safety regulations!
- Follow the instructions and regulations of the carrier!
- Check that the lifting gear is securely fixed to the attachment points and to the crane hook.
- For this type of transportation, the machine base is equipped with suspension clips (welded or bolted) with bores.
- Attach the transport cables to the crane hook in such a way that when they are taut they do not touch machine components located above the suspension bores.
- If required, use cargo gear.

- Adjust the lengths of the 2 support cables such that the press is suspended horizontally. Attach the support cables to the suspension brackets using shackles.
- When selecting the shackles, ensure that each and every shackle has an adequate load-bearing capacity!

4.3 Transportation using an industrial truck

Heed the following safety instructions if the press is transported by crane:

DANGER



Life-threatening crush injuries during transport of the press!

Improper lifting and transportation may cause the press to tip over and fall down!

Close the press completely. This will avoid any centre of gravity displacement and the associated risk of tipping over!

Never stay under suspended loads!

The following industrial trucks are permitted for transporting the press:

- Roller pallets,
- Forklifts and
- Pallet trucks



The supporting forks must be long enough for the press resting fully on the forks.

- Ensure that the front side of the machine is not approached too closely.
- Select the minimum distance of the forks to prevent the machine from tipping over.
- The minimum load-bearing capacity of the forklift must withstand the weight of the press. The perpendicular of the centre of gravity may maximally be located at the inner edge of the forks when lifting the press.
- Always avoid blows and impacts.

4.4 Mounting

4.4.1 Setup

Place the press on a level and anti-slip base. The subgrade must withstand the area loading of the press (area loading see Technical data).

Check the press using the checklist (see appendix).

Align the machine in such a way that all feet simultaneously have firm contact with the ground.

CAUTION



Risk of injury or damage to press.

Provide a clear area of at least 1.5 m for the delivery area of the BaleTrainer.

No-one may stand in this clear area, and no objects may be placed into it.

4.4.2 Electrical connection

DANGER



Danger of death from electric shock!

Before performing any repair, set-up or maintenance work, isolate the press from the power supply via the main switch!

Pull the plug of the press.

Secure the press to prevent any unintentional reactivation!

Affix warning information sign!

The connection may only be performed by skilled and authorised personnel in accordance with the well-established VDE (Association of German Electrical Engineers) regulations.

The 5.5 or 9.2 kW press should be fitted with a plug for a CEE 400V 32A socket.

The 22 kW press should be fitted with a plug for a CEE 400V 63A socket.

Check whether the electrical fuse protection matches the press rating (see chapter Technical data).

Route the connecting cable in such a way that it does not present a tripping hazard.

CAUTION



The press may suffer considerable damage.

There must be a clockwise rotating field on the socket of the operating voltage.

Before switching on the machine for the first time, check the rotating field of the socket.

4.4.3 Hydraulic system

Fill the hydraulic unit with the specified hydraulic oil. Only use oil of the same grade and viscosity, i.e. DIN-HPL 32, ISO-HM 32.



Also refer to the chapter entitled Hydraulic oil.

5 Operation and Control

5.1 Commissioning

Only instructed and authorized personnel may commission and prepare the press for operation.



Chapters 2.8, 2.9 and 2.10 should be read carefully before commissioning.

5.1.1 Preparing the Press for operation

5.1.2 Inserting the wire

The wire coils are loaded into the storage slots provided before the first pressing operation or when they are used up.

- Insert 2 wire coils of 20 kg each in slots 1 and 2 in turn.
- Insert 2 wire coils of 40 kg each in slots 3 and 4 in turn.

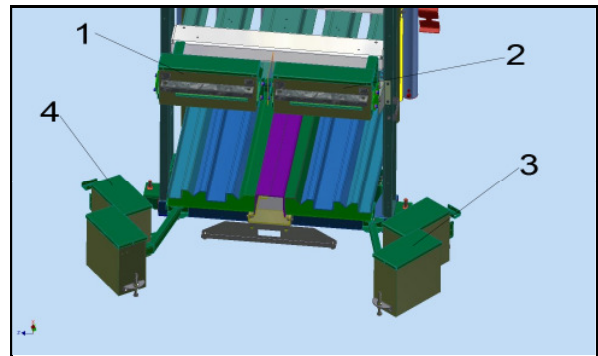


Fig. 10

- First pull the inner ends of the wire slightly out of the wire coil through the large opening.
- Repeat this procedure for all 8 wire coils.

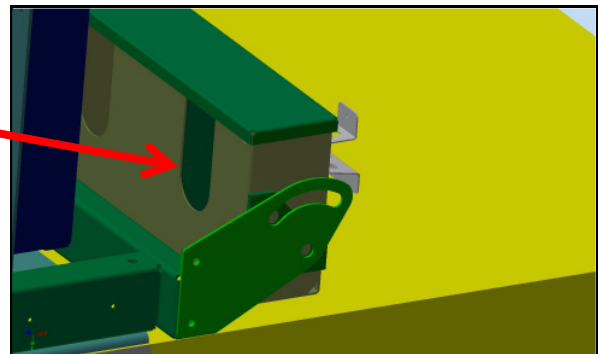


Fig. 11

- Next, push the outer end of the wire on the opposite side through the hole and thread the wire through the holes over the wire sensor as shown.
- Repeat this procedure for all 8 wire coils.

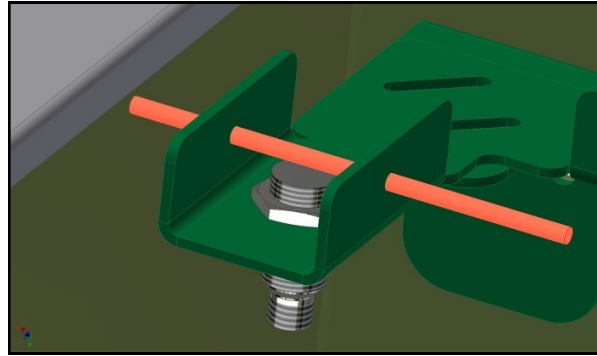


Fig. 12

- After a wire coil has been replaced, the inner end of the wire must be twisted with the remainder of the old wire.

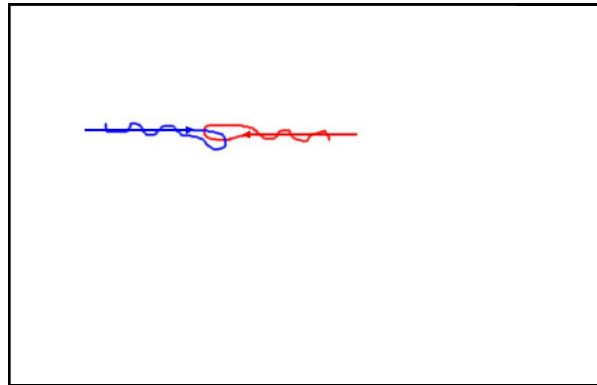


Fig. 13

- Before starting pressing for the first time and at each change of wire in which the new coils have not been tied to the ends of the old coils, the bale binding wires must be threaded all the way into the guides again.

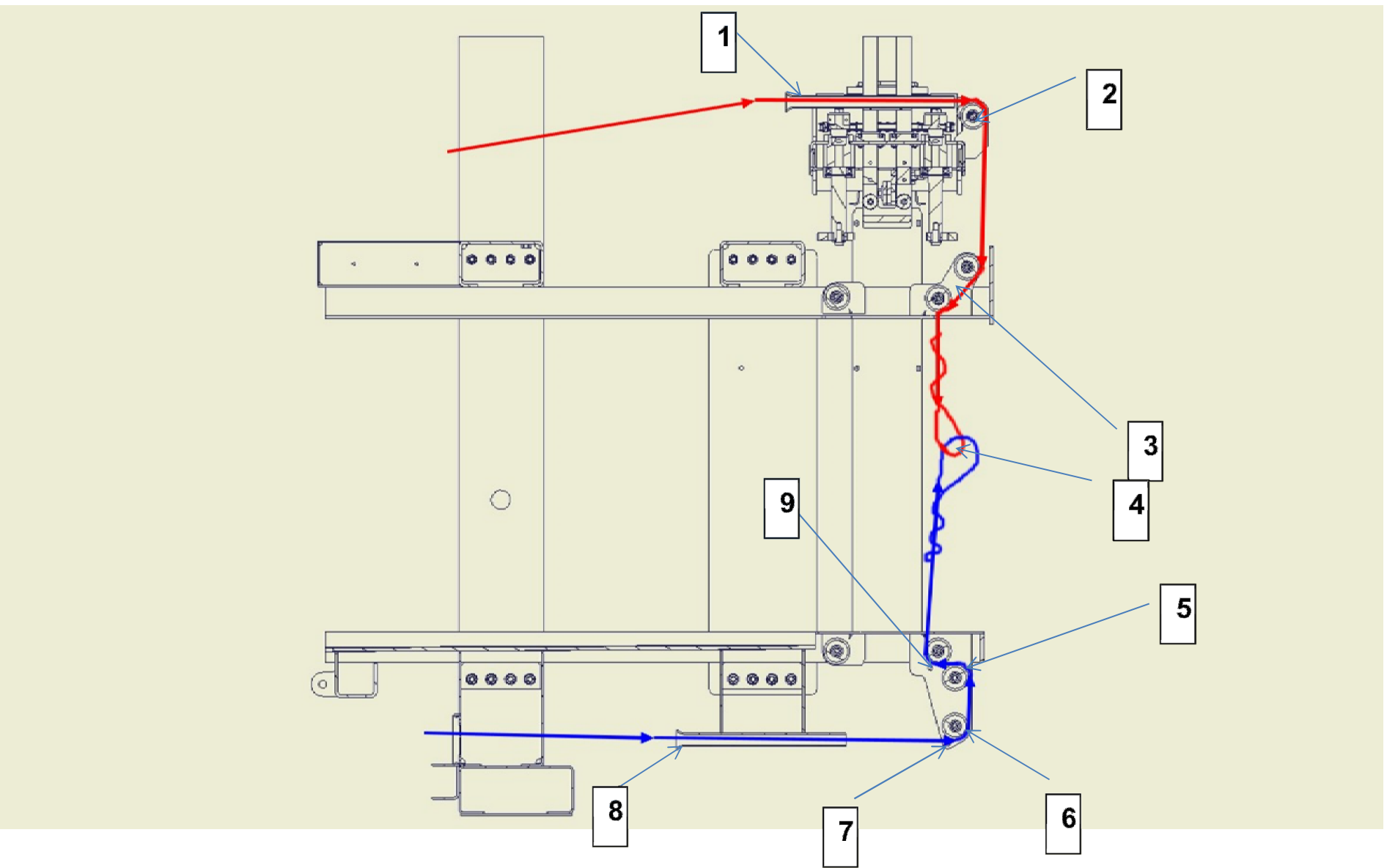


Fig. 14

Wire insertion, top

- Run the inner wire from the wire coil through the guide tube (1).
- Run the wire over the roller (2) to the roller pair (3) and then towards the centre of the press channel as shown, where an eye is created (4).

Wire insertion, bottom

- Run the inner wire from the wire coil through the guide tube (8).
- Then run the wire over the roller (6) to the roller pair (5) and towards the centre of the press channel as shown, push the wire through the eye from above and then create another eye (4).



Follow the specified path of the wire when exactly when threading in.

Do not run the wire below the safety pins (7 and 9).

After twisting the eyes, make sure you press them together flat with pliers so that the wire fits through the wire channel better.

- Thread in all four wires

5.2 Controls and displays

Control cabinet:

1 Safety locks

2 Emergency stop

3 On/off switch

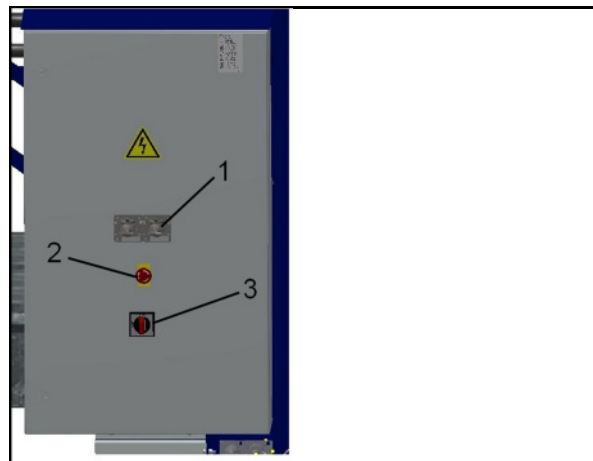
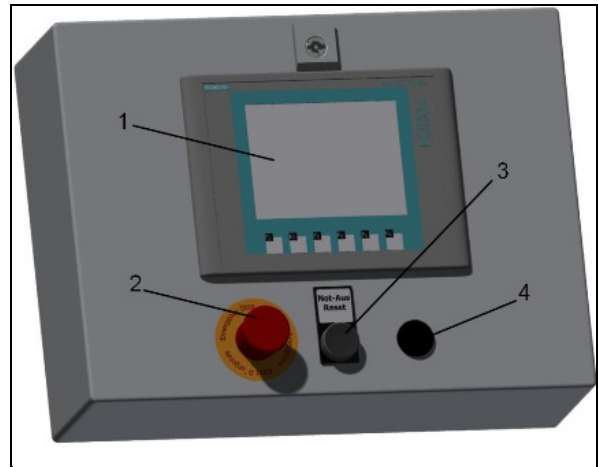


Fig. 15

Control panel:

- 1 Touch panel
- 2 Emergency stop
- 3 Reset after emergency stop
- 4 Binding key switch (optional)

**Fig. 16**

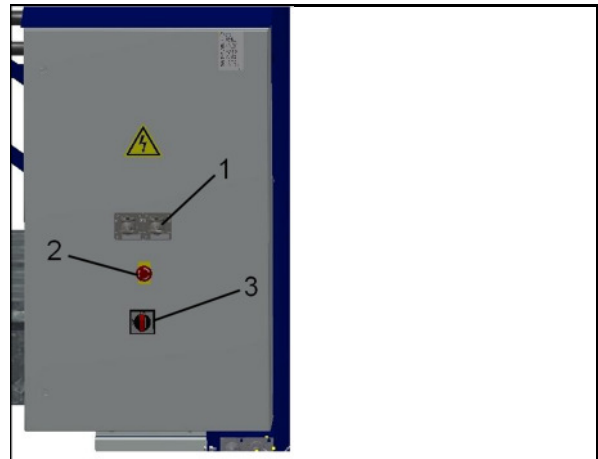
Other controls are emergency stop mechanisms that trigger an immediate machine shutdown.

5.3 Switching on the press

- Plug the mains plug into the designated socket.

Make sure that all emergency stop mechanisms are released.

- Turn on the power supply for the press at the main switch (3) on the control cabinet.

**Fig. 17**

Wait until the BaleTrainer has started up and the adjacent display appears on the touch panel.

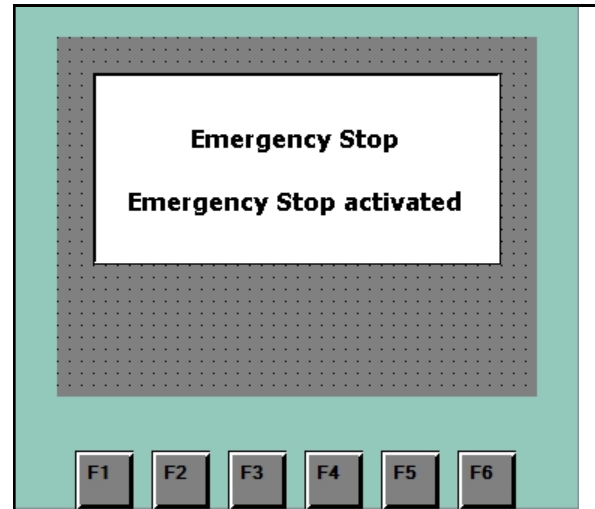


Fig. 18

5.3.1 Turning on after emergency stop actuation

If the machine was previously stopped using an emergency stop mechanism, the adjacent figure appears on the touch panel.

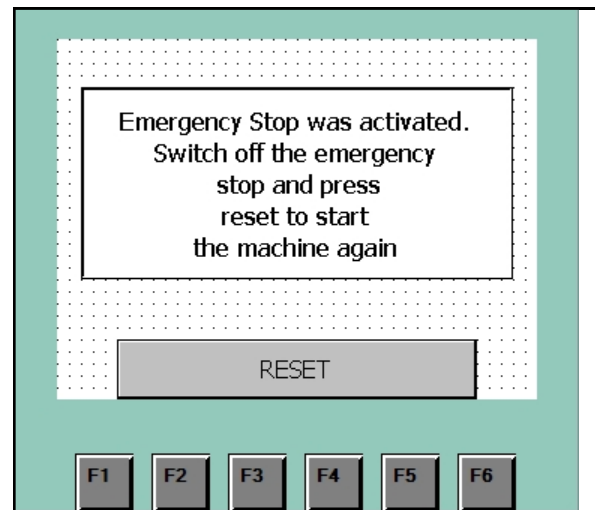


Fig. 19



Before the Reset button is pressed, the operator must make sure that nobody is in any danger and that nobody is inside the machine.

To restart the machine, the

- Reset button (3) on the control panel must be pressed.

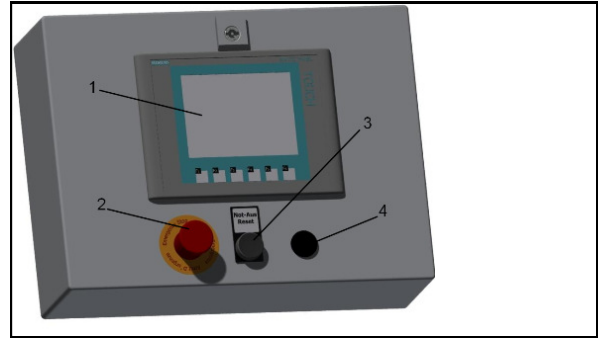


Fig. 20

5.4 Operation of the press

The BaleTainer can be started in various ways:

- For a restart, the press must be started using the Start button.
- An optional photoelectric barrier fitted in the hopper allows an automatic start when the press is in standby mode after a restart.
- on the touch panel.



Do not start the BaleTainer until you have worked through the checklist (see appendix) and the wire coils have been inserted.

5.5 Operation with touch panel

Once the machine has been turned on correctly, the main menu appears on the touch panel.

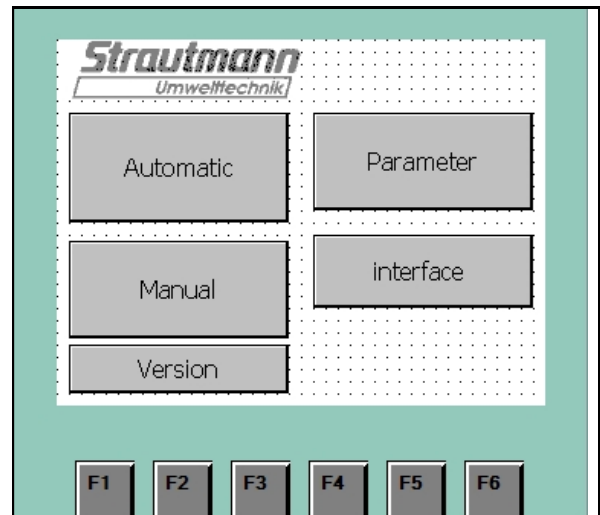


Fig. 21

For everyday use of the press, the "Automatic" option should be selected. The "Manual" and "Version" options are intended for installation and maintenance purposes. The "Parameter" and "Interface" options are used to adjust or program the machine.

The control system manages various user levels, which are protected by corresponding passwords. If a menu point (e.g. Manual or Parameter) with a password query is selected, enter the password to enable the corresponding user levels.

If the "Automatic" option is selected in the main menu, the adjacent Automatic screen appears on the touch panel.

The fields with a dark background are only displayed if the process is active.

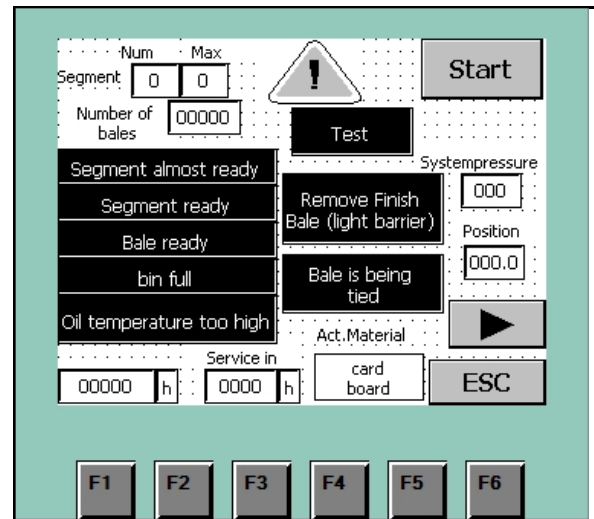
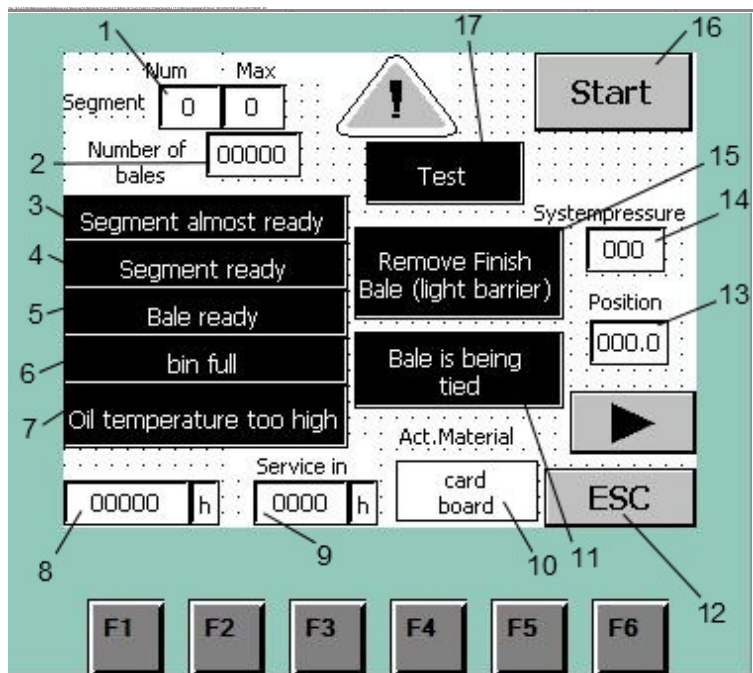


Fig. 22



Item	Designation	Function
1	Display	Curr: Which slab is currently being compressed? Max: How many slabs belong to a bale? The number of slabs per bale is factory preset to 3.
2	Counter	How many bales in total have been compressed?
3	Illuminated display	Lights up when the segment/slab is - almost - finished.
4	Illuminated display	Lights up when the segment/slab is finished.
5	Illuminated display	Lights up when binding of the bale is complete.
6	Illuminated display	Lights up in case of overfilling.
7	Illuminated display	Lights up if the oil temperature is too high.
8	Operating hours	Indicates the operating hours.
9	Service hours	Indicates the hours until the next service.
10	Display	Indicates the current material.
11	Illuminated display	Lights up when the bale is being bound.
12	Button	ESC button exits the menu.
13	Display	Current position of pressing shield in cm (analog measured value).
14	Display	Current hydraulic pressure in main system in bar.
15	Illuminated display	Lights up when bale monitoring trips.
16	Button	Starts the press in automatic mode.
17	Illuminated display	For internal purposes only.

When the Start button has been pressed, the BaleTrainer starts running, and you can clearly hear the hydraulic systems, pumps and motors starting.

The start procedure is now complete and material can now be inserted.

The subsequent process is fully automatic and is controlled by the machine itself.

- For large quantities, continuous operation can be set. In this case, the machine operates continuously.
- For smaller quantities, cyclic operation can be set, so that the machine operates for an adjustable period at adjustable intervals.
- If the optional photoelectric barrier is fitted, the BaleTrainer starts as soon as the feed hopper is sufficiently filled and the light beam is broken.



Automatic start is only possible if the BaleTrainer is in standby mode and the automatic screen is displayed.

The machine shuts down after a run-on time and the adjacent ready screen appears if the system detects that material is no longer being fed to the infeed rollers.

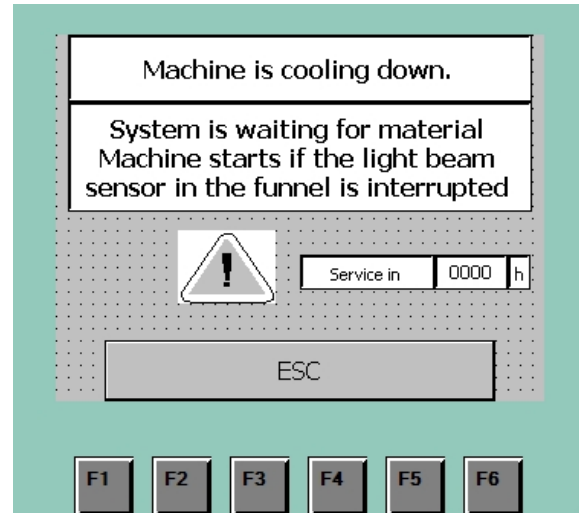


Fig. 23

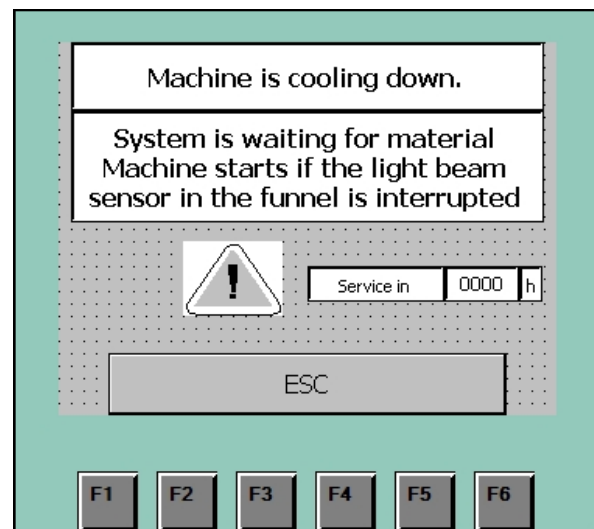


Fig. 24



During operation, the "Segment finished" screen appears for a short time as soon as a slab is fully compressed.

The consecutive number is also displayed on a pop-up screen. This disappears automatically but can be closed sooner using ESC. In both cases, you are taken back to the automatic screen and the machine continues running.

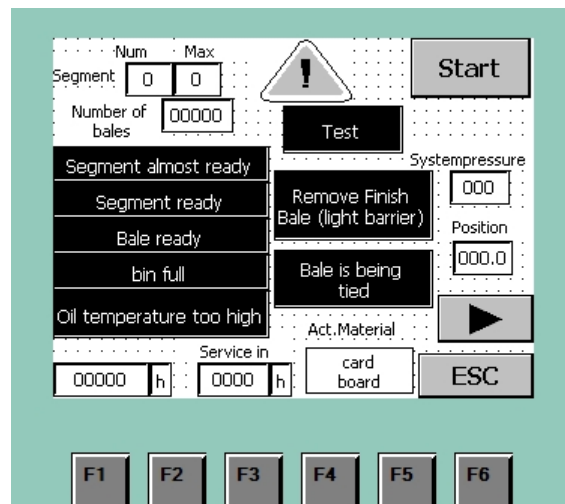


Fig. 25



After you have loaded the press with material several times and the last slab in a bale has been compressed, the "Bale ready" field lights up on the automatic screen.

The message "Bale ready" also appears on a pop-up screen. This disappears automatically but can be closed sooner using ESC. In both cases, you are taken back to the automatic screen and the machine continues running.

The bale is bound.

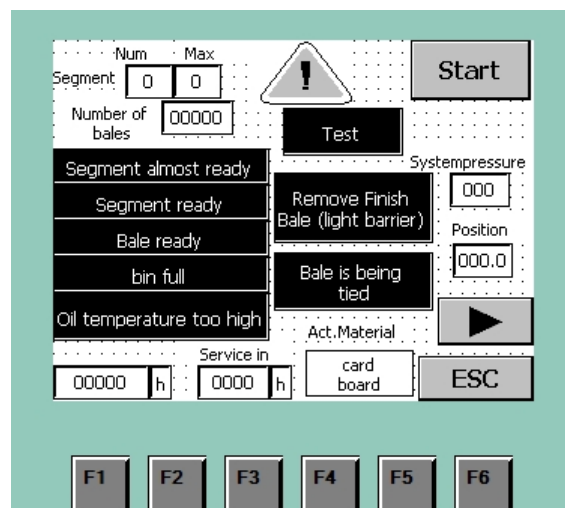


Fig. 26

5.5.1 Filling the press

To supply the press with material, it only has to be fed into the feed hopper. A linkage fitted in the feed hopper conveys the material to the infeed roller, which initiates the pressing process.

5.6 Settings on the press

- Selecting the "Version" option in the main menu displays detailed information about your BaleTrainer.

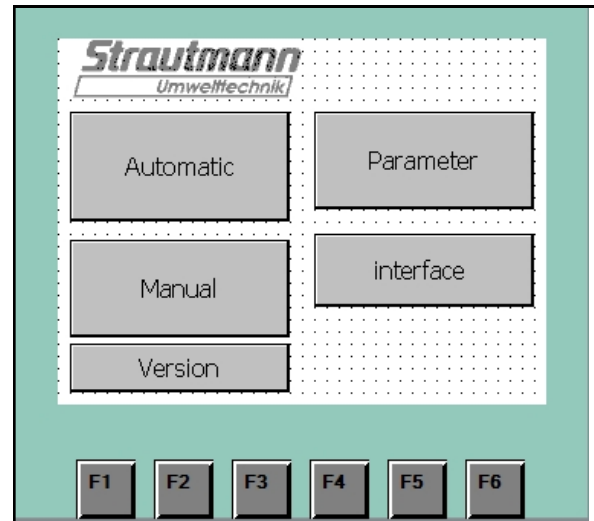


Fig. 27

- When you press the Version button, the adjacent screen appears. In this menu, you can read off the program version number of the software loaded (PLC version) and the touch panel (TP version)
- Pressing ESC takes you back to the main menu

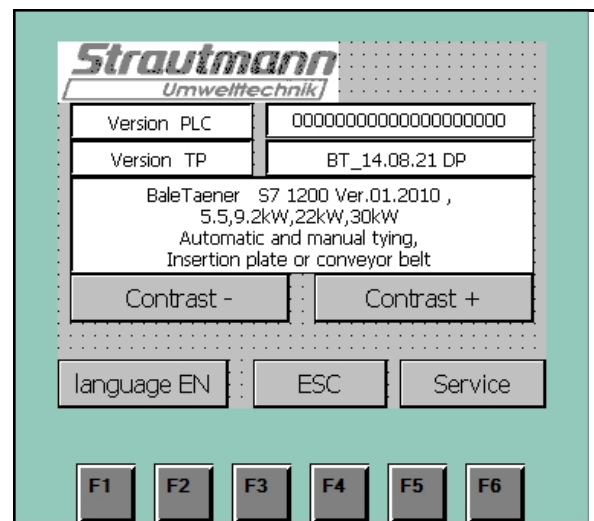


Fig. 28

5.7 Turning off and stopping

→ If the BaleTrainer is running in automatic mode, it stops running when you press the ESC button in the adjacent display or the Start button on the Touch panel. In automatic mode, the labelling of the Start button changes to Stop.

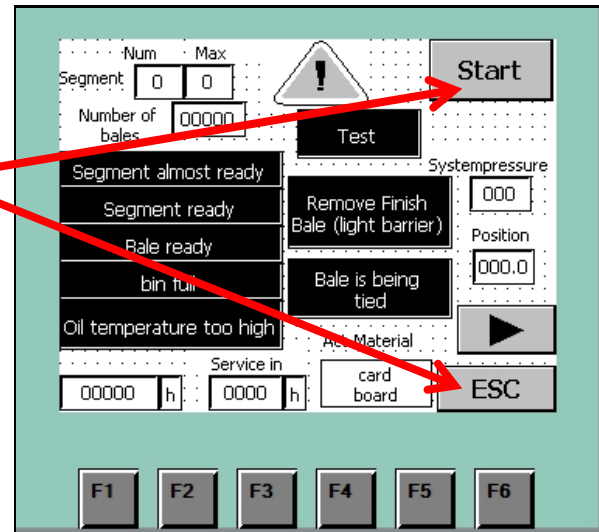


Fig. 29

If the BaleTrainer is running in manual mode, it stops if the ESC button is pressed on one of the three manual screens. Alternatively, it can be stopped using the Hydraulics on/off button

Once the BaleTrainer has stopped, the machine can be turned off.

Turn off the BaleTrainer at the main switch (3).

Secure the BaleTrainer against being turned back on again by:

- Pressing one of the emergency stop mechanisms (e.g. (2))
- Disconnecting the power connector from the mains (especially for longer shutdowns)

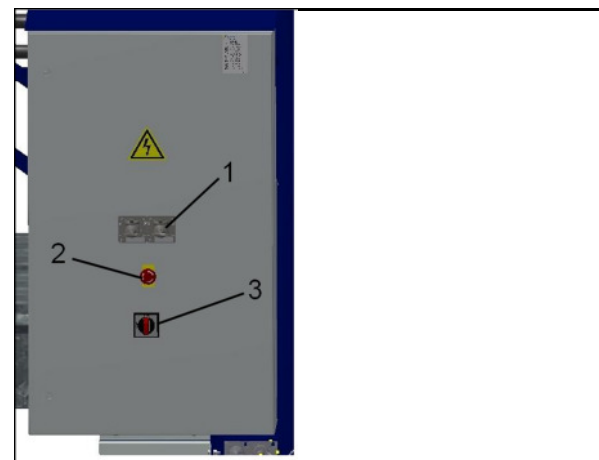
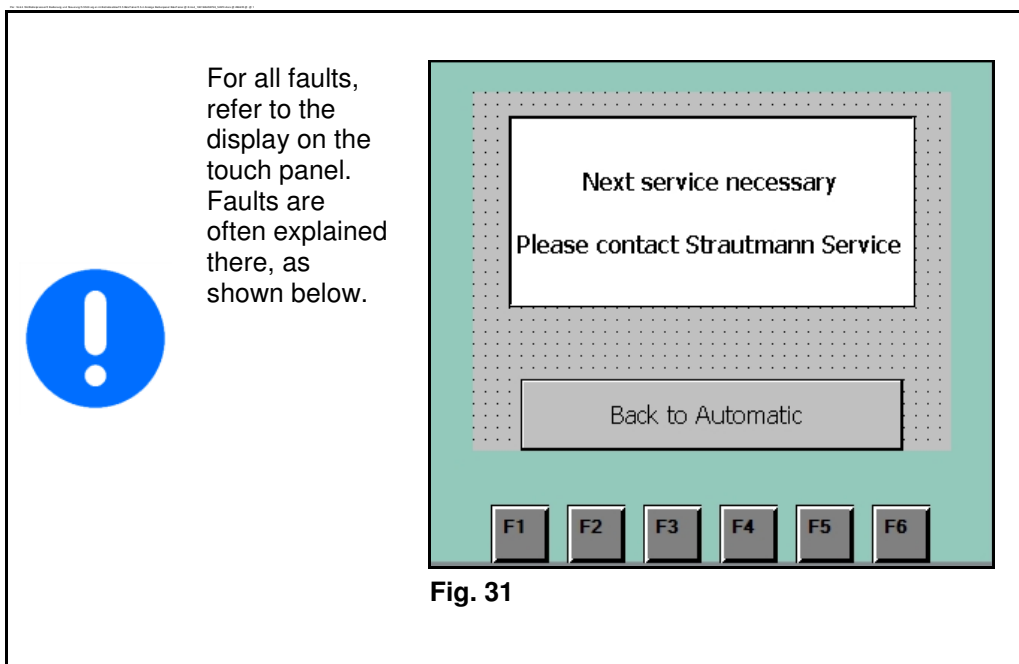


Fig. 30

5.8 Faults in the operating sequence



	If the fault cannot be eliminated, please contact the manufacturer's Technical Service department (<i>the address is printed on the cover sheet</i>).
DANGER 	- Danger of death from electric shock. - Disconnect the power at the main switch and secure it against being switched on again before performing any repairs, setting-up work or maintenance tasks! - Attach a warning sign to notify people not involved

Press does not start:

Causes:	Doors not closed
	Not connected to mains power
	Emergency stop triggered
Remedy:	Close/lock all covers on the machine
	Connect machine to the mains
	Release all emergency stop mechanisms
	Reset ready for operation

Press stops suddenly:

Causes:	Safety key has been removed
	Supply voltage has been interrupted

	Emergency stop has been triggered
Remedy:	Re-insert safety key
	Ensure power supply
	Check emergency stop mechanisms, if necessary release and restart machine
	Check fuses in control cabinet (only to be done by a qualified electrician)

Bale binding defective:

Causes:	Wire feed clogged
	Wire torn
	Wire finished
Remedy:	Clean wire feed
	Insert new wire
	If wire is torn, remove old wire and insert new wire

6 Repair

6.1 Care

Care of the press is limited mainly to the periodical cleaning of all surfaces of dust and other deposits.

CAUTION



- Improper cleaning of the press may result in malfunctions and damage!
- Do not select an aggressive cleaning agent that attacks the metal and plastic surfaces as well as hose connections.
- Never clean the press with a water jet or a high-pressure cleaner.

Clean the press thoroughly at least once a week.

6.2 Cleaning schedule

6.2.1 Weekly

WARNING



Turn the machine off using the main switch for cleaning.



The BaleTrainer should be cleaned weekly. If operation is impaired due to increased soiling, the cleaning intervals must be shortened.

→ Open the front sliding doors with the safety keys. The safety keys are located in the control cabinet.



Fig. 32

WARNING

Hands and arms may be crushed or cut off when the binding device is lowered.

After opening the doors, immediately secure the binding device against lowering.

- Any material residue must also be removed from around the binding device.

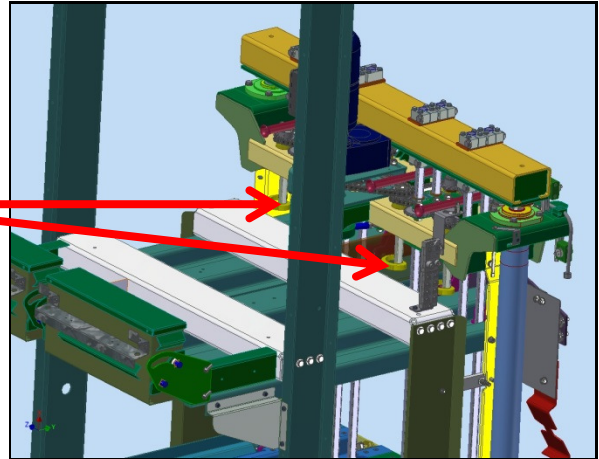


Fig. 33

- To guarantee correct wire binding of the bales, the eight gabion cages must be kept clean.

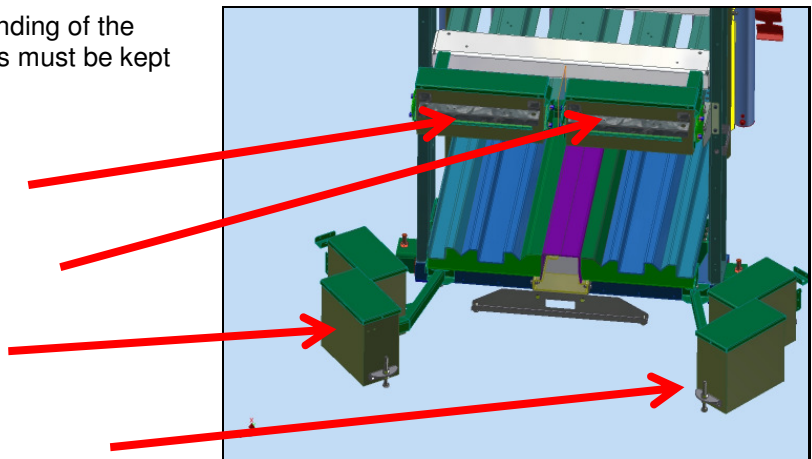


Fig. 34

6.3 Maintenance

6.3.1 General maintenance instructions

High availability is influenced positively by adhering to the suggested care and maintenance intervals. For this reason you should check the press at periodical intervals and inform the person responsible for the press as soon as repair or maintenance tasks are required.

WARNING**Warning of serious physical injuries**

There is a risk of serious physical injuries due to inappropriate behaviour, e.g. the risk of crushing, the loss of your fingers or your hand due to uncontrolled movements of individual machine elements.

Repair and maintenance work on the baling press may only be performed by trained and authorised technicians in accordance with the safety instructions and the applicable accident prevention regulations!

Set-up, maintenance and repair work as well as troubleshooting may only be performed when the baling press is switched off.

Before conducting any repair and maintenance work:

- Depressurise the hydraulic system. Use a pressure gauge to verify that system is at zero pressure.
- When working, use only proper tools; replace worn parts, bolts, nuts, etc. with original spare parts only.
- Carefully identify components and pipelines before removing them.

6.3.2 Safe maintenance of electrical equipment

Only have qualified electricians work on the electric supply system.

DANGER**Danger of death from electric shock!**

- Before performing any repair, set-up or maintenance work, isolate the press from the power supply via the main switch!
- Secure the press against unintentional reactivation!
- Verify that the press is de-energised!
- Lock main switch and affix warning signs!
- Additionally press the EMERGENCY STOP button.

- Regularly check the electrical equipment of the press.
- Immediately rectify loose connections and damaged cables.



When working on live parts, it is essential to request the assistance of a second person, as follows:

The 1st person works and the 2nd person stands at an emergency stop button at all times to actuate it in an emergency.

6.3.3 Safe maintenance of hydraulic equipment

Only persons with specific knowledge and experience in hydraulic systems may work on hydraulic equipment.

WARNING**Warning of serious physical injuries.**

There is a risk of serious physical injuries due to inappropriate behaviour, e.g. the risk of crushing, the loss of your fingers or your hand due to uncontrolled movements of individual machine elements.

- Switch off the main switch and secure it to prevent unauthorized reactivation.
- Before starting repair work, depressurise system sections and pressure lines that are to be opened.

- Change the hydraulic hose lines at every 6 years even if safety-relevant defects cannot be identified.
- Check hydraulic lines for chafe marks.
- If required, replace damaged hoses and eliminate the chafing risks.

6.3.3.1 Depressurising the hydraulic system

- Set the power switch to OFF and secure it.
- Switch the solenoid valves manually.
- The reading of the manometer must be 0 bar.

WARNING

Only authorised personnel may depressurise the hydraulic system!

6.3.4 Hydraulic oil

Check the oil level in the hydraulic unit weekly and always check it after extended periods of downtime.

CAUTION

Hydraulic oil may spurt out

Hot oil may cause burns.

Check the oil level in the hydraulic unit only when the press is switched off.

Top up oil

The oil grade for the gear and the hydraulic oil must comply with DIN 51524/2 HLP 32.

CAUTION**Water-polluting substances!**

These may pollute the ground and the groundwater or get into the sewage system!

Eliminate leaks immediately.

Wipe up leaking hydraulic oil immediately.

Dispose of the waste professionally.

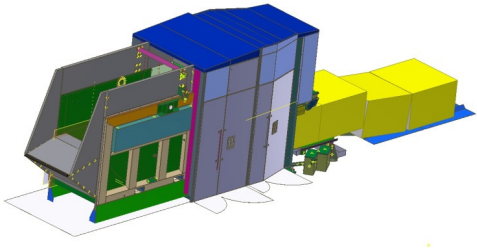
Risk of slipping due to leaking hydraulic oil

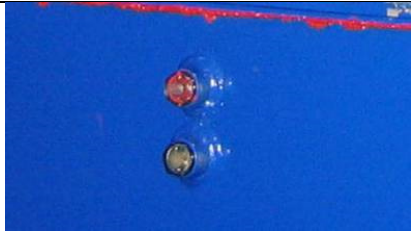
Immediately remove oil patches from accessible platforms and the operating area of the press professionally!

6.4 Maintenance Schedule

WARNING

During maintenance, the machine should be shut down using the main switch.

Interval	Component	Activities	
After commissioning	Complete press	Inspection/checking of components	
Daily	Press	Check that the press is in proper condition (particularly the safety equipment)	
	Hydraulic system	Check for leaks on the hydraulic system and the hydraulic hoses and, if necessary, soak up escaped oil immediately with a binding agent.	
Weekly	Hydraulic		

	system	Check the oil level, top up if necessary. The lower inspection glass must be completely covered and the upper one clear.	
Annually or after 1000 operating hours T	Hydraulic system	Replace the air and oil filters	
		Replace the hydraulic oil	
		Check the cylinders for signs of leaks and wear	
		Clean the hydraulic system	
	Press	Perform a operational reliability test	
		Check the cables for damage and replace if necessary.	
		Test the function of the bulbs	

6.5 Repair

Repair work on the press may only be performed by trained and authorised technicians of the plant operator. The instructions in this chapter are limited to important general information and instructions which must be followed for repair work.



The following applies to all work involving extensions or disassembly:

- Identify parts that belong together
- Identify and make a note of the installation position and location

Following re-installation, retighten all mechanical connections.

6.6 Lubrication

Lubrication is carried out using grease cartridges. These are located on the left and right in the rotor frame.

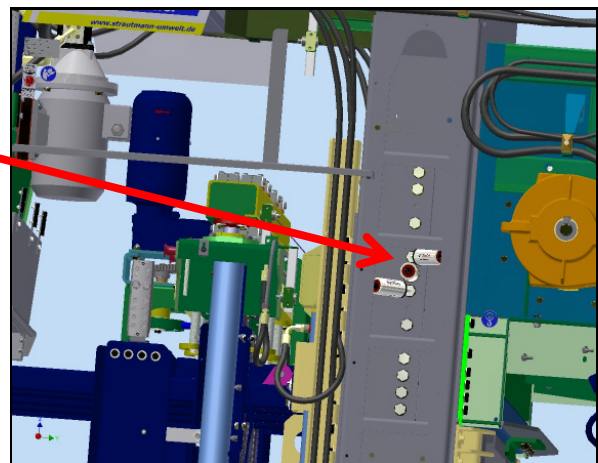


Fig. 35

On versions above 22 kW, there is a central lubrication unit located below the control cabinet on the outside of the press. The level should be checked regularly and topped up as required (see appendix).

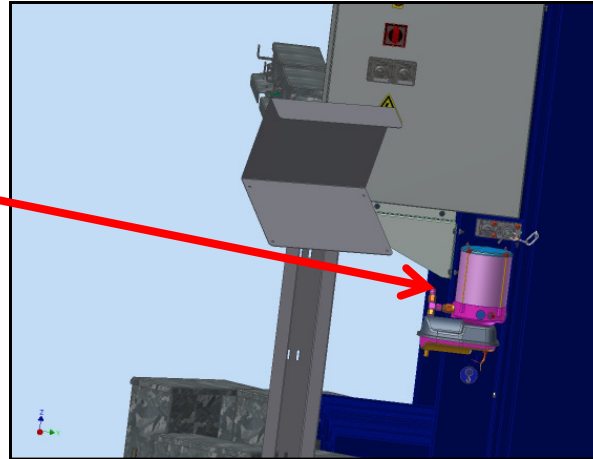


Fig. 36

7 Disposal

7.1 Environmental protection

CAUTION**Water-polluting substances!**

These may pollute the ground and the groundwater or get into the sewage system!

When performing any work on or with the press, observe the statutory obligations for the avoidance of waste and proper utilisation/disposal!

In particular, when performing installation, repair and maintenance work, ensure that water-polluting substances such as lubricating greases and oils do not pollute the ground or get into the sewage system!

When disposing of expendable or replacement material during maintenance or when shutting down the baling press, it is essential to follow the applicable statutory regulations!

7.2 Oil and oily wastes, grease

Oil and oily wastes as well as greases bear a high risk potential for the environment. Therefore, this waste is disposed of by specialist companies!

- Take this waste to the in-house disposal area which forwards it to specialist companies!

7.3 Plastics

The utilised/processed plastics must be sorted as far as possible.

Plastic must be disposed of in accordance with statutory requirements.

7.4 Metals

Separate miscellaneous metals and dispose of them. Disposal must be implemented by an authorised company.

7.5 Electrical and electronic scrap

Electrical and electronic scrap

Devices with this logo on the packaging or on the device must be disposed of separately. These devices must not be disposed of via the normal household refuse.

You are responsible for disposing of any electrical or electronic waste via the appropriate centres, e.g. the recycling depot.



Fig. 37

7.6 Final shutdown

Check which materials can be recycled and arrange for it to be done.

8 Appendix

8.1 Examples of training topics

1.	Safety
Accident prevention regulations	
General legal provisions	
General safety instructions	
Emergency measures	
Safety instructions for the operation of the press	
Handling the safety equipment of the press	
Safety equipment in the vicinity of the press	
Meaning of symbols and signs	
2.	Operation of the press
Handling the controls of the press	
Explanation of the operating instructions for the operating personnel	
Particular experience of the plant operator in handling the press	
Troubleshooting	
3.	Servicing and maintenance instructions
Approved handling of cleaning agents, lubricants	
Particular experience of the operating company in the areas of maintenance, repair, cleaning and care of the press	

8.2 Table - Master for Training

Confirmation of instruction		
Subject of the instruction:		
Date:	Training manager:	Training manager signature:
No.	Last name, first name	Signature
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

8.3 Operational reliability test

Table - operational reliability test		Machine type	Serial number
Delivery date			
No.	Date	Company/fitter	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

8.4 Tightening torques for metric screws

Strength category	8.8	10.9	12.9
M 8x1.25	25.0	36.0	43.0
M10x1.50	49.0	72.0	84.0
M12x1.75	85.0	125.0	145.0
M16x2.00	210.0	310.0	365.0
M20x2.50	425.0	610.0	710.0
M24x3.00	730.0	1050.0	1220.0
M27x3.00	1100.0	1550.0	1800.0

→ Regular type screw thread

→ Tightening torque in Nm

8.5 Filling the central lubrication unit

(Extract from operating instructions from Beka-Max)

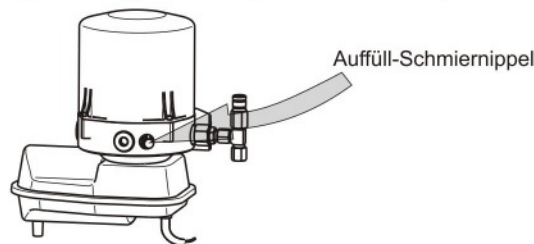
...ein Produkt von BEKA

BEKA-MAX

13. Befüllen der Pumpe:

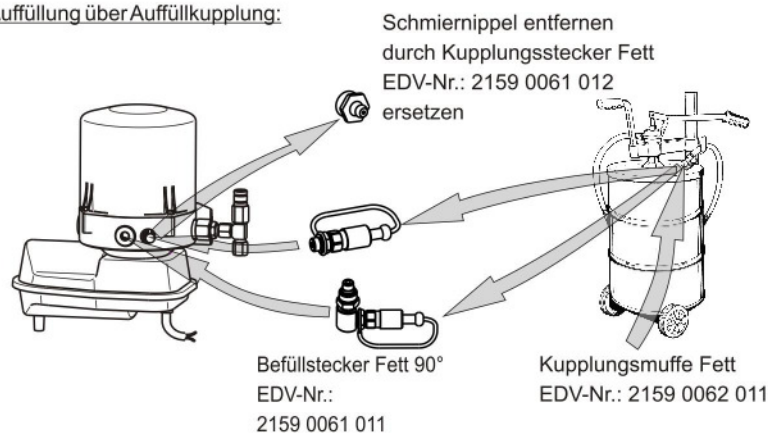
13.1. Standardbefüllung über Kegelschmiernippel mit handbetätigter oder pneumatischer Fettpresse:

D

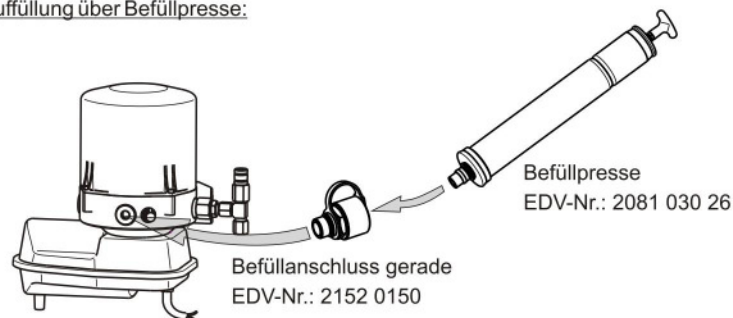


13.2. Auffüllung über Auffüllkupplung:

32



13.3. Auffüllung über Befüllpresse:



Achtung!

Bei dieser Arbeit unbedingt auf äußerste Sauberkeit achten!
Nur sauberen Schmierstoff einfüllen!

Hinweis!

Die Lebensdauer der Pumpenelemente hängt entscheidend von der Qualität und Sauberkeit des verwendeten Schmierstoffes ab.

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8.6 Checklist

After delivery and whenever the baling press is installed, the following checks must be performed:

	Date	Name
Check the press against the delivery note for completeness.		
Visible inspection for signs of damage and transport damage (damage to be reported immediately to manufacturer, haulage company or service engineer).		
Install the press at ground level on a base with adequate load-bearing capacity (see chapter 4.4.1 Setup)		
Check the oil level in the hydraulic unit (inspection glasses on tank: minimum level at lower end and maximum in centre of inspection glass).		
Check whether the safety guards, hydraulic lines and the wire are properly installed.		
Check whether the chain drives for the roller infeed and the binding device are properly tensioned.		
The control cabinet and doors (including safety guards) must be closed and the pressing shield lowered.		
Check the voltage in the customer system. Apply voltage to the press (pay attention to electrical connection and rotating field)		
First manually test run the press without any material		
When the machine is running, check the electrical function of the safety equipment (switches, pull cords, safety contact strip, main switch, safety key system - it must not be possible for doors to be left open during operation of the machine).		
The operating instructions must be kept within easy reach of everyone in the vicinity of the press.		
Attach the safety instructions in a clearly visible location on the press.		
Display the safety checklist and maintenance schedules in a clearly visible location on the press.		
Instruct qualified personnel in maintenance and fault resolution.		
Instruct operating personnel.		

If required, copy this list. Enclose the signed technical documentation list of the baling press.

8.7 BaleTrainer package contents

1 x Operating instructions, English



Fig. 38

4 x Wire coils 20 kg

Item no.: 94.89.0075

4 x Wire coils 40 kg

Item no.: 94.89.0077



Fig. 39