Original version
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Operating manual and maintenance instructions

CHANNEL BALING PRESS

TYPES:

CONTI COMPACT

CC-20 V,
CC-30 V,
CC-40 V

Project: Channel Baling Press

Type: _____

Machine.- no.:_____

Year of construction: _____

Customer: _____

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Summary

1. Preface

1.1. Introduction

Dear customer

Please read this operating manual carefully before putting the machine into operation in order to ensure that it is used safely and efficiently. The operating manual contains all the details for operating and servicing the channel baling press. It must therefore always be kept in the designated place.

Chapters 1 to 10 contain information on the standard features. Optional extras, as far as they are installed, are dealt with in chapter 11.

Other essential parts are:

- Electrical and circuit diagrams,
- Assembly or layout diagram
- Declaration of Conformity or alternatively Declaration of Incorporation

In principle, every machine is supplied with a Declaration of Conformity. This states that the machine fulfils the basic safety and health requirements of the EC Directive on Machines.
Conformity in accordance with EC directive 2006/42/EEC

In the event that no Declaration of Conformity is issued, the attached EC Declaration of Incorporation for incomplete machines states with which additional components the machine must be assembled before it is put into operation. Until the machine has been completely assembled, commissioning of individual components is forbidden.

If maintenance tasks have been neglected or performed incorrectly, we can no longer fulfil our guarantee obligations according to our conditions of sale. All safety requirements must always be met before starting to operate the channel baling press.

Every machine has a nameplate and a brief manual instruction at the switchgear box. Besides the brief manual instruction, the nameplate also contains important information on the machine, for example the machine type and the machine number. Please be aware that these brief instructions are not a replacement for the operating manual.

Fig 1:brief manual instruction

Please have the information on the nameplate to hand when talking to our customer service department.

Fig. 2: nameplate & seal of approval for accident prevention

1.2. To observe upon delivery

The machine left the factory in a technically and operationally safe condition and is ready for operation if it has been installed according to the technical documents. Please check the condition and completeness of the machine according to the scope of delivery and effect a functional control. Any complaints should be taken to the manufacturer PRESTO GmbH & Co. KG and leave a note on the packing slip.

1.3 Duties and notes for the operator

As the operator of this machine you must inform about, instruct and/or train operating staff in the existing legal provisions and safety regulations as well as existing safety features and devices and user controls and facilities on the machine.

Your operating staff must have understood the instructions and it must be guaranteed that they are followed.

The instruction has to be documented on the prepared form (see annex).

In this way you ensure that your employees work safely and are aware of the risks.
We have prepared some examples of instruction topics below.

On safety
- Safety regulations
- General legal provisions
- General safety instructions
- Emergency measures
- Safety instructions for operating the machine
- Using the safety devices of the machine
- Meaning of symbols and signs

On operating the machine
- Using the operating controls
- Explaining the operating manual to the machine operators
- Using aids and accessories
- Experiences in using the machine

Service and maintenance instructions
- The proper use of input materials
- Operator's special experience for cleaning, and care, servicing and maintenance of the machine

1.4 Structure of the operating manual

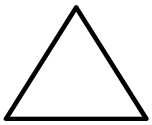
The operating manual is divided into chapters in line with the table of contents. Each chapter shows the appropriate page number.

Date of issue and page number are shown in the footer.

1.5 Safety instructions of the operating manual

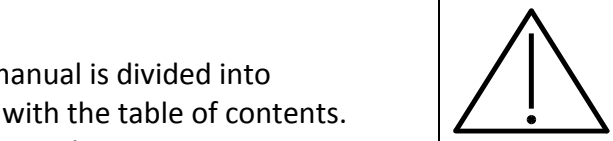
The following symbols are used in this operating manual:

	Read and understand the manual !

	**Caution!** Risk of damage to or destruction of the machine or its parts!

	**Caution!** This maintenance work may only be carried out by skilled personnel

	**Caution!** **Risk of crushing**!

	**Danger!** **Risk to life and limb**!

	**Caution!** **Risk from electric current**!

	**Note:** Additional important information can be found here.

1.6 All rights reserved

All technical specifications, descriptions and illustrations are valid on the day of printing of this documentation and/or its amendments. We reserve all rights and the right to make changes as a result of technological developments.

The operating manual is intended to inform customers. Without express written permission it may neither be copied nor passed on to third parties whether in whole or in part.

2. Legal information

2.1. Intended and proper use

The channel baling press is designed for compacting soft materials such as paper, carton board, foils and similar materials.

Only those materials can be compacted which can be deformed by the force of pressure specified and which can be compacted into the press chamber. Any other use or any use beyond this use is deemed to constitute improper use. PRESTO GmbH & Co. KG will not be liable for any damage whatsoever as a result of this. Any risk is borne solely by the operator of the machine.

2.2. Improper use

Explosive and equivalent substances or those which are highly flammable (according to §1 SprengG) must not be put into the machine.
Substances which are subject to special conditions under the waste disposal act when disposed must not be put into the press.

Neither may the following substances be put into the machine as they may cause the pressure ram to become blocked suddenly: building rubble, wood or form or rod frames made from metal or other hard materials. Incandescent or burning particles must not be put into the machine.

2.3 Changes made to the shipped machine by the operator

The stated conformity only applies to the structural condition in accordance with the agreed scope of supply at the time of shipping of the machine. Installations made and/or equipment added by the operator at a later date which has not been developed and/or approved by the manufacturer of the machine void the stated conformity and are inadmissible as the security of machine might be affected.

These include changes to the channel baling press by means of sheet metal, wood, carton or fabrics of any kind, which the operator may not carry out without proper authority.

	**Do not make any changes, additions or modifications to the machine without obtaining consent from PRESTO GmbH & Co. KG.**

2.4 Machine safety test

The operational safety of the machine **must** be inspected by an authorized specialist at **least 1x per year**. (Operational safety inspection according to the accident prevention guidelines) The seal of approval next to the nameplate shows when the last operational safety inspection was performed.

You can also get in touch with PRESTO, we would be happy to negotiate a maintenance and inspection contract with you.

2.5 Warranty and liability

The machine supplied was manufactured according to state-of-the-art technology and recognised safety standards. However, danger to life and limb and / or impairment of the machine or other property may nevertheless result if it is used improperly or contrary to its intended use. PRESTO GmbH & Co. KG will not be held liable for any damage resulting from such improper use. The risk is borne solely by the operator of the machine.

Only operate machine when it is technically in order and according to the intended use. This requires compliance with the compulsory safety rules and regulations applicable at the site of installation and with recognised technical rules for safe and proper working as well as the operating manual, inspection and maintenance instructions.

Only original **PRESTO** spare parts assure quality, changeability and the secure und condition of the machine. Safety-relevant components may not be repaired or manipulated. Otherwise there might be an increased accident risk. PRESTO will not be bound by the terms of the guarantee in cases of use of not original spare parts.

2.6 Product liability

Where non-compliance with and/or non-observance of the rules and instructions contained in this operating manual results in accidents involving injury to persons and/or damage to property, PRESTO GmbH & Co. KG shall be released from any liability for damages and any indemnification of consequential damage such as injury to persons, for damage to property which is not subject of the contract, for loss of profit and loss of production, which are made against PRESTO GmbH & Co. KG under the title "PRODUCT LIABILITY".

2.7 Guarantee

PRESTO only gives a guarantee for the system if the operating manual and maintenance instructions are complied with.
Unauthorised repair work by the operator is not allowed. In case of wrongful modifications to the machine, the warranty and liability claims against the manufacturer are nullified.

2.8 Residual risks at the channel baling press

- Risks through non-compliance with the operating instructions
- Risks due to unintended use
- Risks through lack of service and maintenance
- Risks through non-observance of security hints
- Risks through hydraulic pipes
- Risks from loss of oil
- Risks through dust
- Risk from sharp housing edges
- Danger to be expected from sharp edged materials or materials not compressed as specified (see chapter 7, Servicing and Inspection) when servicing and maintenance work is carried out.
- Risk of injury from parts possibly flying around.
- Danger of fire due to frictional heat
  ➔ Avoid unnecessary operation (empty strokes)

The residual risks are the responsibility of the operator.

3. Safety

3.1. General

The following notes and guidelines which ensure safety at work must be observed.

Thereto belong specially these operating and maintenance instructions as well as the relevant industrial safety directives concerning:

- qualification, instruction and commissioning of operational and maintenance personnel
- the use of fuel-driven machinery and electronic equipment
- handling with containers and changeable roll-off containers
- noise at the workplace
- first aid

The safety regulations of the country in which the equipment is used must be observed.

All recurring inspections and maintenance tasks, defined in the chapter on maintenance, must be performed at the specified intervals and documented in the records provided for this purpose.

The machine supplied was manufactured according to state-of-the-art technology and recognised safety standards**. (DIN EN ISO 16252:2012).**

Attention!
To avoid malfunctions it is necessary to have the specified maintenance, inspection and auditing actions performed regularly.

In addition to the regulations above the following guidelines are also deemed to be suitable for checking:

Safety of machines
DIN EN 12100: 2010

Electrical equipment
DIN EN 60204-1

EU machine standard
2006/42 EG

While operating the device, the laws and regulations of the place of installation must be observed. In the interest of safe operation the authorized operator, supervisory personnel and the machine operator are responsible for keeping within the regulations.

The laws and regulations applicable at the site of use must be observed when operating the system. In the interest of safe work processes, operators, supervisors and machine operators are responsible for observing the regulations.

Observe the validity (seal of approval) of the operational safety inspection for your machine. (See sub-chapter operational safety inspection).

3.2. Staff selection and training

Operating and maintaining of the machine may only be effected by persons in accordance with the national valuable regulations to prevent accidents.
Staffing the channel baling press with operators who have been instructed in operating the plant is done by the factory owner or the responsible supervisor in accordance with the appropriate regulations and guidelines of the relevant country.

Define the responsibility of the operator. Enable the operator to refuse to carry out instructions by third parties if they contravene safety!

	**ATTENTION!** Any work on/with the machine may only be carried out by suitably instructed reliable personnel and / or by skilled persons. (see chapter maintenance)

The persons ordered to work on / with the machine must have read and understood the operating manual and in particular the safety instructions before starting work and must be in a suitable mental and physical condition.
Failure to adhere to these notes may result in danger to life and limb and / or impairment of the machine or other property.
Non-qualified persons must be prohibited from working on or in the vicinity of the plant.

3.3. Electrical warning notices

During operation this production equipment has dangerous live parts which may cause very serious injury to health or damage to property for instance as a result of unauthorised removal of coverings, improper use, incorrect operation or lack of maintenance.

	**DANGER!** The electric machines and/or equipment are production equipment for use in industrial high voltage systems.

Those responsible for the safety of the plant must therefore ensure that only qualified persons are ordered to carry out work with the machine, - these persons, amongst other things, always have the operating manual delivered with the machine at their disposal, and they are obliged to always follow the instructions contained in these documents.

3.4. General regulations

For multiple-shift operation it is necessary to stipulate which operating staff should carry out the necessary maintenance work.

The machine must be checked for visible exterior and/or audible damage or defects at least once in every shift. Shut down and secure the machine immediately, if necessary.

Before starting work check that the EMERGENCY STOP switch, safety switch and, if applicable, light barriers work properly.

Operators must report any fault or irregularity which occurs to their superior immediately. This applies to both mechanical and electrical apparatus.

In case of malfunction or changes in the operating behaviour which are relevant to safety the machine must be shut down and secured immediately. Have faults remedied immediately.

3.5 Meaning of the signs on the machine

	**Entering the area is forbidden!**
	**Entering and reaching in forbidden!**
	**Danger of crushing!** Do not reach into the machine from the bottom!
	**Caution!** **Risk from electric current!**
	**Warning of falling parts!**
	**Warning of the danger of getting caught or crushed!**

3.6 Site of installation

The site of installation has to be selected according to the technical data in chapter 4. Weight, operational temperature and ambient conditions of the machine have to be respected.

If the machine is not installed on solid ground, the operator must ensure that any hydraulic oil escaping can be collected in a drip-tray.

☞ The ground must be able to support the load of machine permanently. It must be possible to screw the legs of the machine to the ground. Fixing the machine to the ground is only necessary if the bales are pushed for at least 5 m. Use heavy duty plugs and suitable screws for fixing the machine (see enclosed project documentation).

The installation location has to secure that no water or other liquids may reach neither the bearing nor the motor. This may lead to capital damages.
For installation and start-up of the plant the provisions of the water resources act and the environment protection act must be observed.

When operating the machine outdoors without special precautions, weather conditions can lead to malfunctions and corrosion. If there is any danger of ice formation or snow, when work finishes or it is stopped for longer periods (for instance, breaks during work) the open loading funnel is covered with a plastic sheet or panel.

Use of the equipment in spaces exposed to an explosion hazard and in explosive atmospheres is prohibited.

The plant may only be operated from a mains supply which meets the requirements stipulated in the chapter "Electric system".

A fault current protective circuit in accordance with VDE 0100 must be installed as a protection against being touched indirectly. The machine must not be used if the mains supply cable is faulty.

The use of electrical coupling devices and adapters for operating the channel baling press is prohibited. Only plug-in devices in accordance with VDE 0165, par. 7.1.4 may be used for connecting the machine.

Ensure that only staff ordered to do so work on the machine. Keep away persons not involved in the work process.

Take all precautions to ensure the safe operation of the plant. (Lighting, monitoring, access restriction, warning signs...).

3.7 During operation

Changes to the standard operation (higher power consumption, temperatures or vibrations, unusual noises or odours, triggering of the monitoring devices, etc.) indicate an impairment of the proper functioning of the machine. To avoid faults which, directly or indirectly, may cause serious injury or damage to property, the responsible maintenance staff must be notified immediately.

Staff must not wear open long hair or loose clothing or jewellery, including rings. There is serious risk of injury, e.g. through getting caught by or being pulled into the machine.

At the end of work, during longer idle times or if the machine cannot be supervised, the selection switch "Control 0-1" must be switched off and the key must be in the safe keeping of the system supervisor.

Before restarting work always check whether people are in the machine or in the danger zone of the machine.

It is imperative that the operator immediately stops the machine if faults develop which constitute a safety risk. These include:

* Failure of the light barriers
* Failure of the EMERGENCY STOP push-button switch and safety devices
* Damage to electrical equipment and cables as well as insulators

IF IN ANY DOUBT, SWITCH OFF THE MACHINE IMMEDIATELY!

At locations where

- solid bodies are flying around,
- work is carried out with dusts, caustic substances etc. or where such substances may be formed.

As far as necessary or if required by legal provisions use personnel protective equipment!

Wear protective gloves!

Wear eye protection!

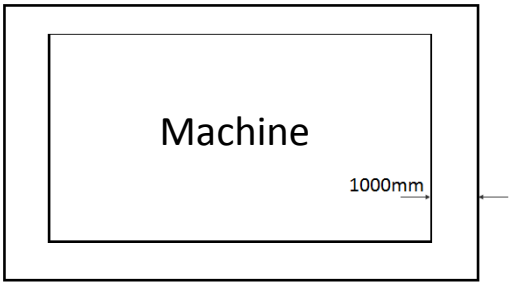
When using oils, greases and other substances observe the specific safety instructions and legal provisions for each product!

Always wear hearing protection for work where a high sound pressure is possible.

3.8 Specific hazards

Danger areas

The danger area of the machine is limited in the feeding area to the horizontal distance of 1 meter from the external dimensions of the channel baling press.



Electricity:

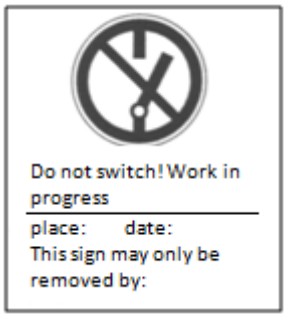
Five safety rules before commencing work:

* Switch off
* Secure against being switched on (master switch turned off and locked)
* Check that the system is voltage-less
* Earth
* Cover or fence off any adjacent parts which carry live voltage.

	**Work on the electrical system may only be carried out by an authorised skilled electrician.**

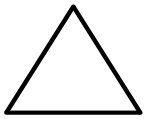
Before beginning work on electric plants and equipment, these have to be disconnected from the current supply.

Install this warning sign during the work!



Connection to the mains must be carried out by the civil engineering contractor in compliance with the electrical safety instructions, the regulations of the civil engineering contractor and the information given in the chapter "Electric system".

Only use fuses of the prescribed type and voltage have to be used.
It is strictly prohibited to repair fuses!

	**CAUTION!** **It is essential to maintain the direction of rotation of the electric motor. Running in the wrong direction even for short periods results in destruction of the hydraulic pump.**

The motor runs in the correct direction when the fan wheel of the electric motor turns in the direction of the arrow on the housing.

Mains supply with rotating field: **right**

Fig. 3: sense of rotation motor

If the motor has the wrong sense of rotation, switch the motor off immediately and have a skilled electrician reconnect two leads.
As no oil flows through the pump when the motor rotates with the wrong sense, the motor may be switched on only for a very short time (5sec maximum).

Notes for cleaning, maintaining and inspection works

Maintenance, cleaning and inspection work may only be carried out by authorised personnel and only when the machine is at a standstill and switched off. Cleaning flaps may only be opened for the aforementioned purposes. The master switch must be guarded by a padlock against unintentional starting and must be locked. Supervising staff or the appointed skilled persons must keep the key at a safe place.
Please find further necessary information in chapter 7. After completion of the work, all flaps have to be closed carefully.

Lead seals must not be broken nor pressures be changed as this invalidates any guarantee and may lead to prosecution.

Separating protective devices held in place by bolts which fit through keyhole-shaped slots are removed from the machine by loosening the bolts 3 or 4 turns. The bolts should remain in the drill holes. The cover can now be slid along the keyhole and removed by lifting over the bolt heads which fit through the round, upper keyhole aperture. The covers are replaced by reversing the sequence.

The use of highly inflammable substances (e.g. cleaning solvents) is prohibited.

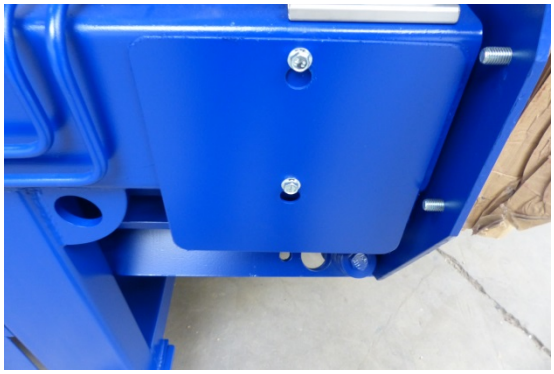


Fig. 4: separating protective devices

Instructions on maintenance and repair work

The instructions in the chapter "Maintenance and repair" must be observed.

3.9 Storing the machine

The machine and the switchgear box must be stored protected from the weather (frost, dampness, direct sunlight) in low-dust, ventilated rooms where there is no condensation and the air is not saturated with moisture. Furthermore the air must be free of acids alkaline and other aggressive materials.

3.10 Operating the machine

Sufficient clearance behind the channel baling press for the bales which are ejected must be available at the installation site. In-plant handling equipment must be able to approach without endangering any person. The pick-up and departure area for the in-plant handling equipment must be marked.

The machine can be charged in different ways. If the method of charging is changed, it is mandatory to verify that the applicable safety regulations are fulfilled. If the charging level is changed PRESTO can provide an appropriate funnel.

The installation site or, respectively, the charging level must be selected in such a way as to ensure that the safe minimum height to the funnel and to the charging door which may be installed at the side is respected.

When the machine is being **manually charged** the **minimum safety height** from the charging edge to the operator's standing area may not be less than **1200mm**.

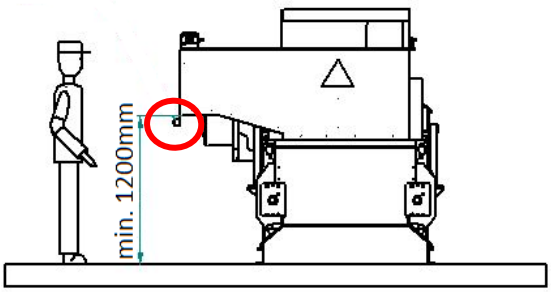


Fig. 5: funnel with safety bar

In addition a **safety bar** must be fitted for a charging height of **1200mm to 1400mm**.

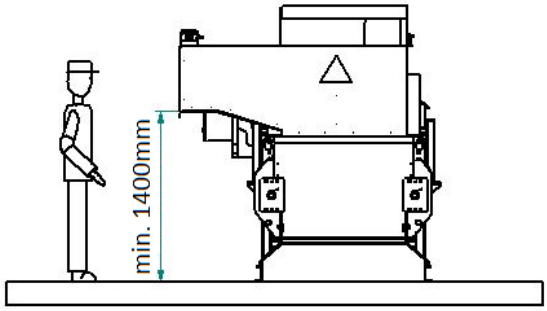


Fig. 6: funnel without safety bar

When using a lifting / tilting device for discharging containers care must be taken to ensure that people stay out of the swivelling range of the device. Discharging other containers constitutes improper use. The use of dumping devices or, respectively, suction equipment manufactured by others requires the consent of PRESTO.

When charging the machine using **conveyor belts, cranes, forklift trucks, mobile machines or tipping fixtures** the **minimum safety height** between the charging edge and the operator's standing area may not be less than 1400mm.

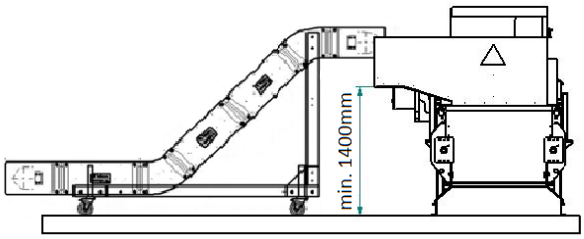


Fig. 7: min. height for funnel

If the machine is being charged by a system of conveyors then it may only be accessed when it has been cut off from the mains power supply.

	**It is prohibited to climb into the funnel of the channel baling press.**

The revision door at the funnel is secured electrically with a security switch against unintended opening.

Installing steps, platforms, ladders or similar climbing aids is strictly forbidden. Never climb into the machine during operation or grab into moving machine parts.

3.11 Safety devices

Shutting-down or changing the control, switching or safety devices is prohibited and may result in prosecution.

Devices designed to protect personnel:

- EMERGENCY STOP button (1)
  - switchgear box
  - channel adjustment
- Optional
  - Signalling lamp/ horn
- Safety switch
  - needle flap
  - knotting hood
- Master switch
- Separating safety devices
  - polyamides (laterally)
  - polyamides (in front)
  - rear wall

Optional for the funnel extension:

- safety switch inspection door

Optional for throw funnel:

- safety pull-cord
- if necessary safety bar

Fig. 8: emergency-stop switch, switchgear box

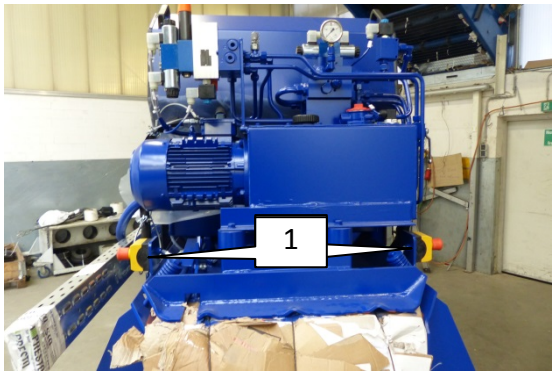


Fig. 9: emergency-stop switch, channel adjustment

As an option, additional EMERGENCY-STOP switches can be fitted. For this reason, before use, make yourself familiar with the machine.

If additional devices are installed, these are often supported by signal lights/signal horns. Always proceed with increased caution while the signal lights are lit and the warning signals sound.

Fig. 10: signalling horn

Fig. 11: safety switch, needle flap

Fig. 12: safety switch, knotting hood

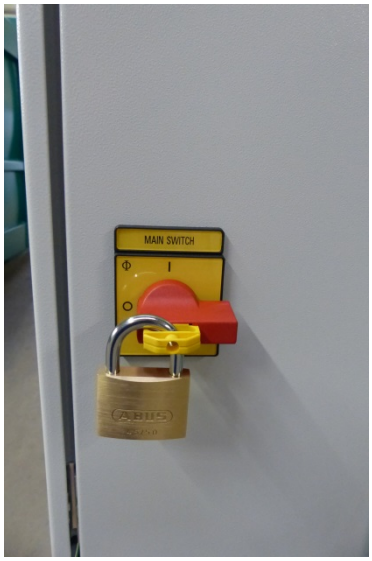


Fig. 13: master switch with locking device

Fig. 14: separating safety devices polyamides (laterally)

Fig. 15: separating safety devices polyamides (in front)

Fig. 16: rear wall

Fig. 17: safety switch inspection door

Fig. 18: safety pull-cord

Fig. 19: security bar

If the electrical safety devices are actuated or triggered during operation, the machine will, for your safety, stop immediately!

3.12 Transportation and loading

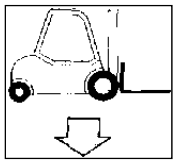
Use suitable lifting gear and fastening points (information concerning suitable total weight see machine plate or chapter „Technical data“). Empty the machine completely.

Transport and loading have to be executed according to relevant regulations on the prevention of accidents.
The transport may only be undertaken and/or supervised by a skilled person familiar with transport work.

Prior to transporting the machine release the electrical connection of the safety switches of the funnel and remove the funnel. Insulate the plant from the power supply and secure the power cable on top of the plant.

Lift the machine only at designated attachment points or when using a forklift, position the forks of a forklift only on structural parts! See schematic representation.

Position the forks only in the places marked with the following sign.



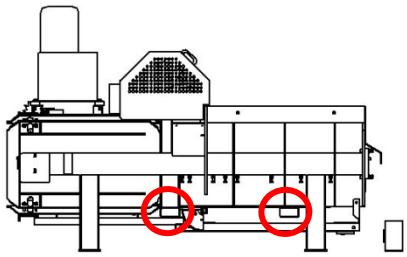


Fig. 20: CC20 fastening points forks

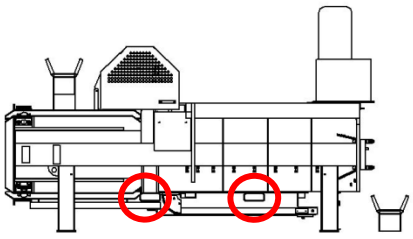


Fig. 21: CC 30 & CC 40 fastening points forks

Lift the machine only at the fastening points provided (1). Use four ropes of equal length and suitable dimensions and fastenings. See drawing below.

Remove all protruding parts or run the lashing material over those parts.

Secure load properly against accidental changes of position.

Lash the plant on a transport vehicle by means of cross-lashing or use existing eyes.

Before restarting the machine carefully install and fix any parts removed for transportation!
Remove transport locking devices and aids.

Insulate the machine from the external power supply even for minor changes of the machine's site!

Properly re-connect the machine to the mains supply before re-starting it!

4. Technical data

In the following chapter the data for the various types of channel baling presses is listed. The exact type description and first information can be found on the nameplate on the switchgear box. The term machine is used in this operating manual for reasons of simplicity.

This operating manual applies to the design versions

CC-20 V
CC-30 V
CC-40 V

of the channel baling press. Any design deviations are mentioned specially.

Admissible operation temperature:

- **10° C up to + 40° C**

Air humidity:

35% up to 85% (without condensation)

In varying temperatures, possible appropriate measures (such as the installation of switchgear box heating or an oil cooler/oil heating) to operate the machine must be coordinated with the manufacturer. In the event of a corresponding requirement, if not already fitted, please contact PRESTO.

4.1. Electrical and hydraulic data

Since the machines are fitted with additional equipment (see also Chapter 11) every machine is electrically and hydraulically unique.

	All the necessary connection values and operating data can always be found in the circuit diagram provided!

4.2. Technical data

Type		**CC-20 V**
Pressing power	kN	200
Spec. pressing power	N/cm^2	38,1
Channel cross section	mm	700 x 750
Charging opening	mm	1000 x 750
Filling volume max.	m^3	0,53
Power	kW	7,5
Volume in idle running	m^3/h	80
Volume under operating conditions	m^3/h	77
Weight related to the apparent density	t/h	
- 35 kg/m^3 (department store)	t/h	2,7
- 60 kg/m^3 (mixed products)	t/h	3,4
- 100 kg/m^3 (collected products)	t/h	4,8
Bale weight	Depends on material and bale length	
Machine weight approx.	t	2,7
Tie off – threefold vertically		wire ∅ 2,8
Electric connection – standard plug CEE form, 5 pole, fuse protection	A	K32A
Lifting time	s	24

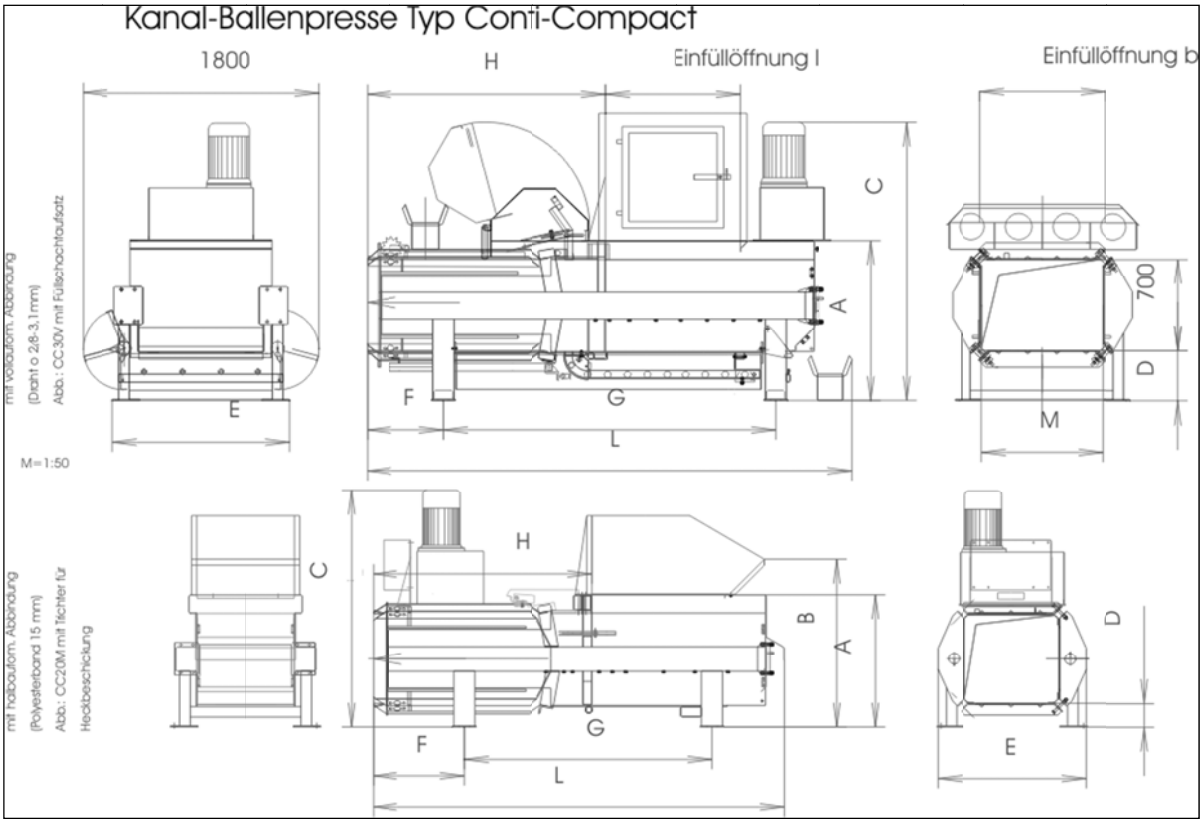
Type		**CC-30 V**
Pressing power	kN	300
Spec. pressing power	N/cm^2	45,0
Channel cross section	mm	700 x 950
Charging opening	mm	1030 x 950
Filling volume max.	m^3	0,68
Power	kW	11,0
Volume in idle running	m^3/h	72
Volume under operating conditions	m^3/h	58
Weight related to the apparent density	t/h	
- 35 kg/m^3 (department store)	t/h	2,0
- 60 kg/m^3 (mixed products)	t/h	3,2
- 100 kg/m^3 (collected products)	t/h	4,8
Bale weight	Depends on material and bale length	
Machine weight approx.	t	3,7
Tie off – threefold vertically		wire ∅ 3,1
Electric connection – standard plug CEE form, 5 pole, fuse protection	A	35 gG
Lifting time	s	34

Type		**CC-40 V**
Pressing power	kN	400
Spec. pressing power	N/cm^2	48,5
Channel cross section	mm	750 x 1100
Charging opening	mm	1030 x 1100
Filling volume max.	m^3	0,85
Power	kW	15
Volume in idle running	m^3/h	90
Volume under operating conditions	m^3/h	72
Weight related to the apparent density	t/h	
- 35 kg/m^3 (department store)	t/h	2,5
- 60 kg/m^3 (mixed products)	t/h	4
- 100 kg/m^3 (collected products)	t/h	5,9
Bale weight	Depends on material and bale lenght	
Machine weight approx.	t	4,2
Tie off – threefold vertically		wire ∅ 2,8-3,1
Electric connection – standard plug CEE form, 5 pole, fuse protection	A	35 gG
Lifting time	s	34

4.3. Dimension

Type	A	B	C	D	E	F	G	H	L	M
CC-20 V	1225	1475	2030	380	1135	700	1900	1650	3300	750
CC-30 V	1225	1475	2130	380	1350	700	2540	1800	3700	950
CC-40 V	1275	1575	2200	380	1640	750	2540	1800	4200	1100

specifications in mm



4.4. Noise emission

The sound pressure level was measured in accordance with EN ISO 11200:2009 // EN ISO 11202:2010.

The sound pressure level is shown at the maximum reading which is taken in the open at a distance of 1 m from the machine and at a height of 1.6 m in accordance with the Machine Standard, Appendix I, Item 1.7.5 f. Shop cardboard was used for measurement purposes.
Following values:

	CC-20 V	CC-30V	CC-40V
mean sound pressure level	(in dB)	(in dB)	(in dB)
in idling speed (LpA)	63,20	61,94	62,64
under operating conditions (LpA)	65,10	63,80	64,92
surface sound pressure level			
in idling speed (LpA)	62,20	60,94	61,64
under operating conditions (LpA)	64,10	62,80	63,92

If other materials are being compressed new measurements may be necessary to ensure that national standards are complied with.

5. Constructive description

In the following chapter the machine is described constructively. The basic design consists of a steel structure. For reasons of clarity protective covers are not shown in all cases.

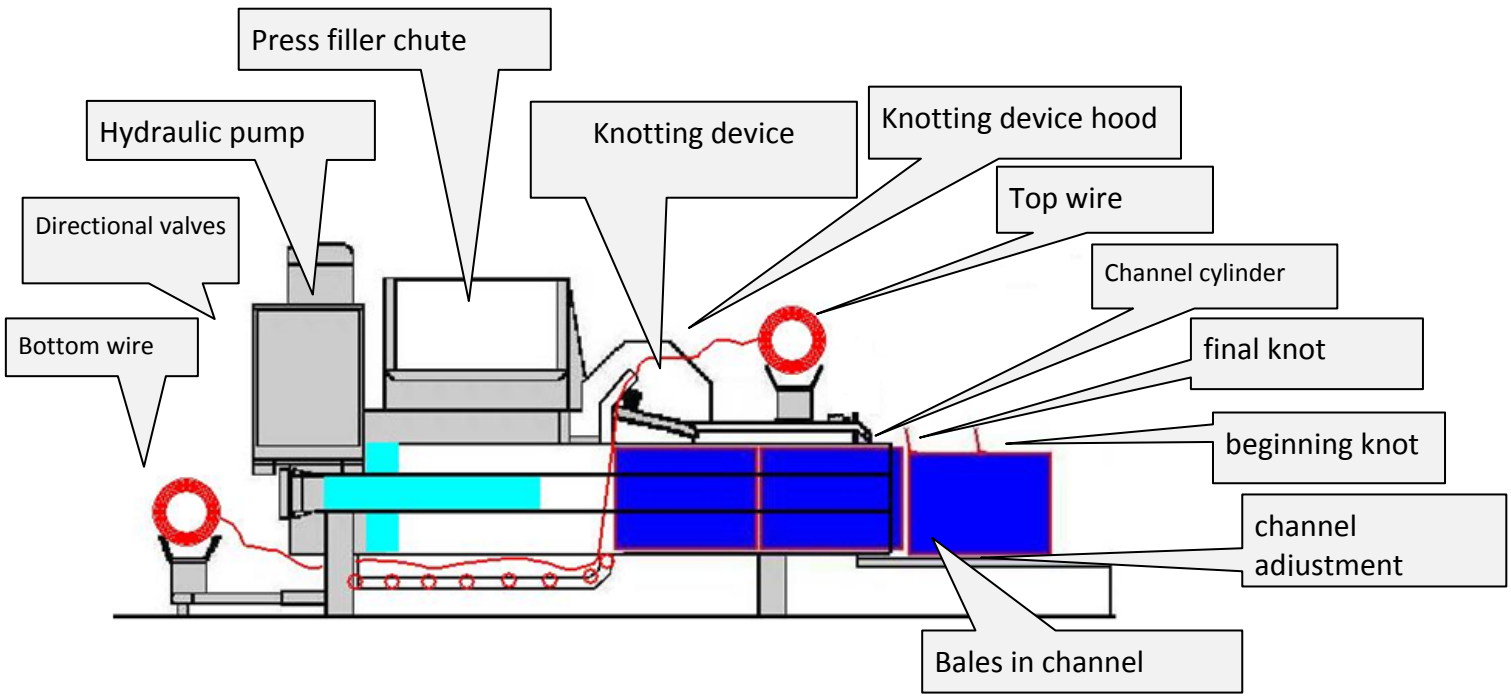
5.1. General

The machine is designed to compress large volumes of material, which is fed via the feed chute, and then bound into bales. The machine is controlled by a programmable logic controller (PLC). The materials are compacted by a press body which is moved inside the press channel by means of two hydraulic cylinders. A hydraulic channel adjustment at the end of the press channel (manually or hydraulically) ensures a counter pressure. Finally, the compacted material is automatically tied into a bale.

The bales are held together by 3 or 4 wires.

5.1.1. Press unit:

The machine works on the material cutting off system. When the press body moves forwards the material above the cutting level is pressed into the press chamber by the knife [1] and the counter knife [2] (see fig. 21) and the press body. As a result of the shearing a pressure build up on the upper side of the press body is prevented, whereby excessive wear on the polyamide guides can be avoided.



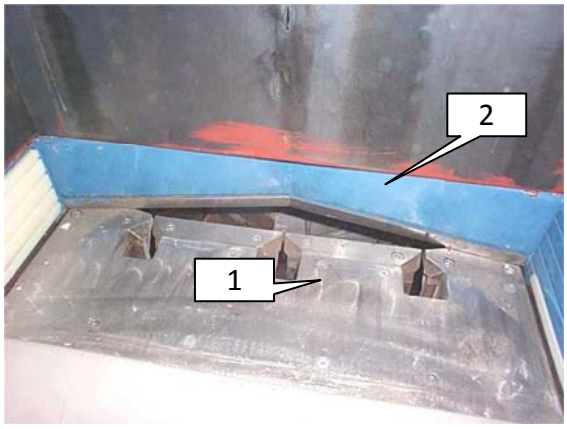


Fig. 22: knife [1] and counter knife [2]

The functional safety of the shearing system depends on the exactness of the cutting gap, which should be kept as small as possible and be correspondingly easy to adjust. The press body is guided by polyamide guiding blocks. Explanations on the setting of the cutting gap and the channel guides can be found in the maintenance chapter.

To ensure that no material ends up behind the pressing plate, telescopic plates (3) are mounted on the press body. They are guided by polyamide rails (4) mounted on the sides. (see Fig. 22)

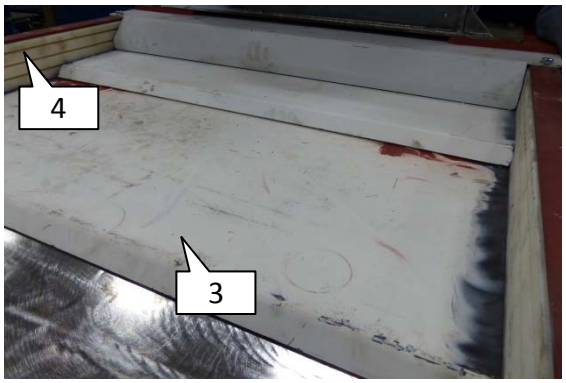


Fig. 23: pressing chamber with telescopic metal sheets

5.1.2. Channel pressure:

The counter pressure, built up as reaction to the press force, is achieved by the adjustable hydraulic channel exit. According to the equipment of the machine this can be done manually (see fig. 23) or hydraulically (see fig. 24).

The increasing counter pressure depends on several factors which are described in more detail in Chapter 6 "Operation".

Fig. 24: manuel channel adjustment

Fig. 25: hydraulic channel adjustment

5.1.3. Retaining device:

The channel constriction has the effect of building up a counter pressure. Two spring-mounted retainers ensure that the compressed material is not pressed back into the press chamber.

Fig. 26: retaining device

5.1.4. Tying material

As the press process starts, tying material (wire) from several reels is fed on the front side of the bale that is forming. As the bale grows both in volume and in length tying material is pulled over and underneath the bale.

Fig. 27: tying material, top wire

Later, once the desired bale length is reached, the tying material is used for tying (knotting) the bale.
Wire cabinets for feeding in the tying material are foreseen for the machine.

Optionally to the standard equipment with 20kg respectively 40kg reels a wire station is also available.
Please find further information for wire station in the annex.

Fig. 28: wire station

5.1.5. Bale length measuring device:

If the bale in the channel accumulates and is pressed out of the channel the bale length measuring device registers its length. The length of the bales is adjustable and is explained in chapter Operation. If the set length has been reached the tying operation starts and the bale is counted.

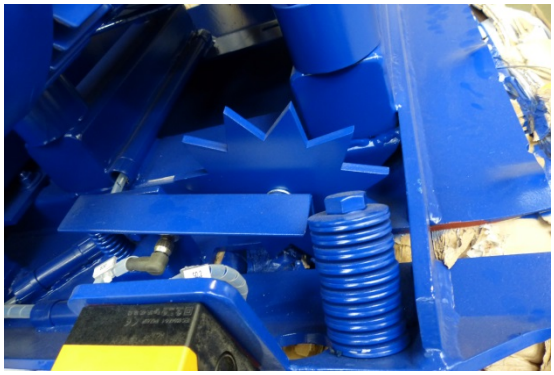


Fig. 29: bale length measuring wheel

5.1.6. Tying device

☞ After pressing is complete the tying device ensures that the bale is tied securely and can be transported. When the desired bale length is reached the press body stops in the front end position. The knotting machine is by now automatically swivelled in the tying range. The upper wire is already in the slot on the twist wheel.

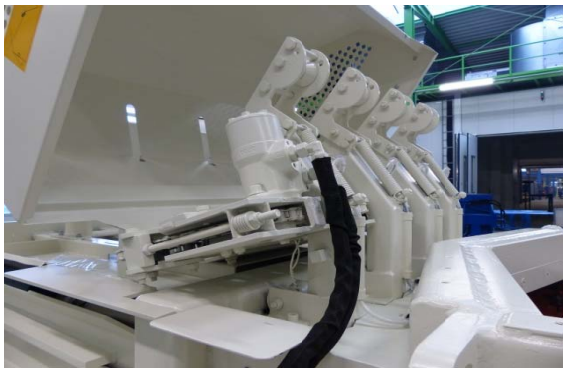


Fig. 30: knotting device with twist wheel

The twist wheels turn perform half a turn and, in an opening, takes up the top wire. The bottom wire is routed to the top by the needle in the form of a loop and placed in the vacant opening of the twist disk.

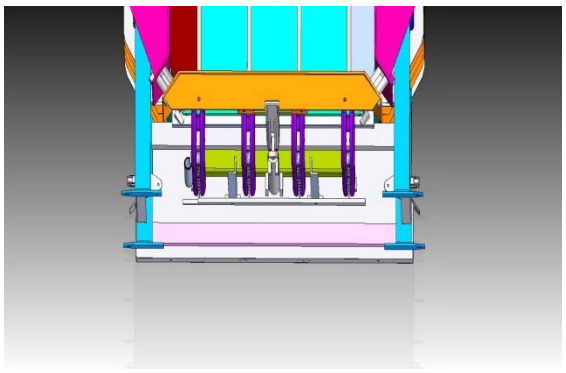


Fig. 31: needle carriage

If the upper and lower wires are in the slots the twist wheel starts to twist the wires so that knots are formed above and below the wheel.

Fig. 32: twisted wire = knot

After the twist disk has performed a PLC-specified number of turns, (2 pulses= 1 turn of twist wheel) the twist process is completed by the wheel making a reverse turn and the subsequent cutting.

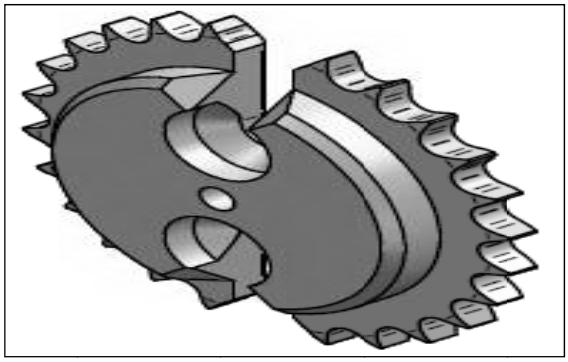


Fig. 33: twist wheel

The needle is lowered until it is in the "operational position". After tying, the knotting device is swung out of the knotting zone. The material can be pushed back into the channel and compressed. The knot created above the twist wheel connects the upper and lower wire of the new bale which still has to be compressed. For setting up purposes the functions of the press body, the needle and the twist wheel and the swinging movement of the knotting device can also be performed manually.

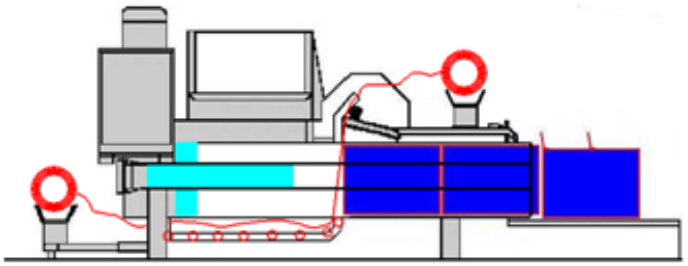
The detailed description of the operation and process can be found in the chapter "Operation". Further data on dimensions, press force etc. can be found in the chapter "Technical data".

5.1.7. Bale slide

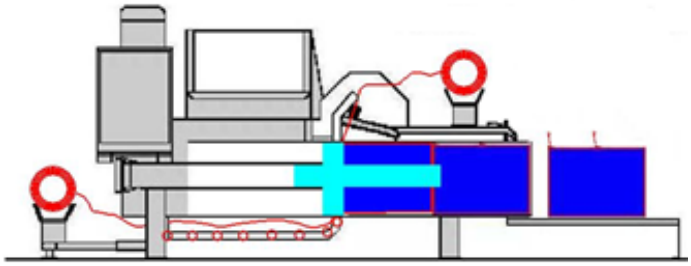
So that the bales can leave the machine without being damaged a bale slide on which the bale is placed is fitted as standard.

Fig. 34: bale slide

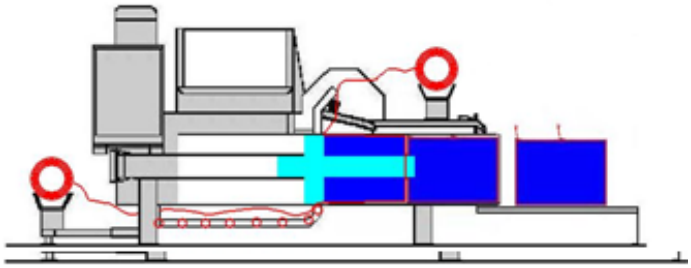
5.2. Funktional principle of the CCV



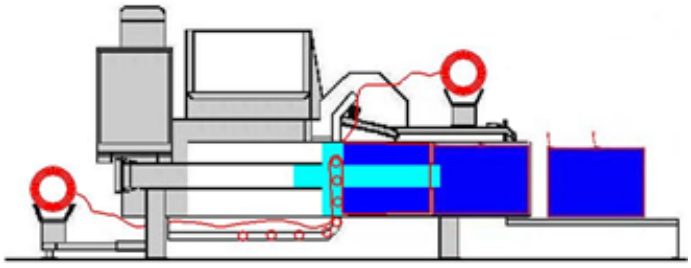
Bale at the beginning



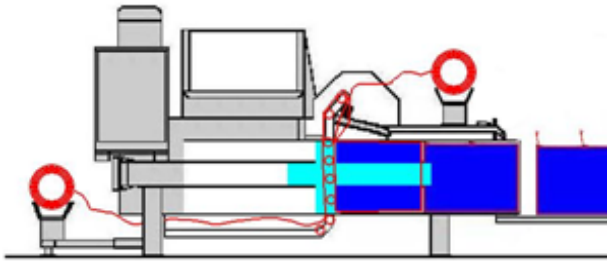
Bale length reached



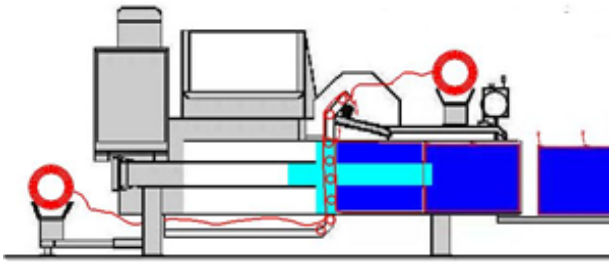
½ turn of the twisting disc



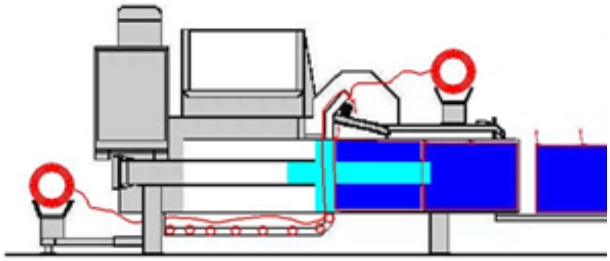
Needle moves up



Needle is up, twisting process starts



Twisting process finished, twisting discs turn backwards and cut



Needle is lowered

5.2.1. Charging the machine

The charging of the machine can be done in different ways. Depending on the product and the customer requirements the most suitable method must be clarified in the preliminary phase. One distinguishes, for example, between the

- manual-
- ramp-
- conveying belt-
- extraction-
- lifting-tilting device-
- mobile devices
- forklift truck
- crane-feeding.

Funnel extensions are required for all the charging methods mentioned above. Depending on the charging method different funnels with individual dimensions are manufactured.
PRESTO will adapt the funnel to local requirements. The machine and the funnel must be installed on site at the customer's in accordance with the enclosed project plans.

Due to the many possible funnel forms not all variants are listed.

In addition following extras are available for a trouble-free material flow:

- PET perforator
- Cardboard shredder

	**Caution, danger of crushing! Do not climb or reach into the funnel! Danger to life and limb!**

Further information, see chapter 11. "Appendix, optional extras".

5.2.2. Ramp funnel

All openly accessible funnels must be fitted with a ripcord. Thereby it must be ensured that the minimum safety heights specified in chapter 3 are complied with and that, if necessary, a safety bar is fitted. The ripcord is attached to 3 sides surrounding the machine. Upon contact the safety switch is triggered and the machine is stopped.

Fig. 35: ramp funnel with ripcord

5.2.3. Funnel extension:

If the machine is used in a complete system it is often fitted with a funnel extension for height regulation.

Fig. 36: standard funnel

⚠	Installation of the funnel may only be undertaken by skilled staff.

The funnel contains

- light barrier level control (1)
- inspection flap (optional)
  - o safety switch (2)
  - o & inspection window (3)

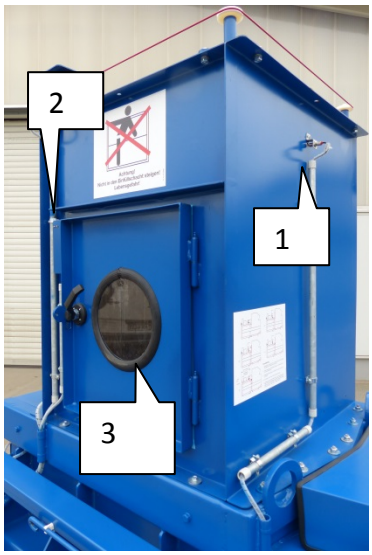


Fig. 37: standard funnel

5.3. Hydraulic system

The hydraulic system provides the hydraulic pressure required for compacting the material by means of the press body.

The electrically driven hydraulic pump, a gear pump, provides the necessary operating pressure to the hydraulic system. The hydraulic system is operated at a pressure of max. 200 to 265 bar, depending on the type machine. A valve is fitted as an overload protection which protects the hydraulic system from excessive pressure.

- Unit consisting of
  - hydraulic pump (1),
  - hydraulic tank (2),
  - filter unit (3),
  - valve block (4),
  - Tank cap with venting valve (5),
  - pressure gauge (6)
  - Oil sensor / temperature
  - hydraulic pipes & hydraulic hoses
  - hydraulic cylinder, press body
  - hydraulic cylinder, needle.
- Optional
  - oil cooler
  - oil heater

Details on care and maintenance can be found in chapter Maintenance.

Fig. 38: hydraulic unit

Fig. 39: hydraulic tank

Fig. 40: valve block

Fig. 41: pressure gauge

Fig. 42: filter unit & low oil switch

Fig. 43: hydraulic hoses

Fig. 44: hydraulic cylinder press body

Fig. 45: hydraulic cylinder needle

☞ The hydraulic unit of the channel baling press generates heat which must be dissipate by means of appropriate air inlet and/or exhaust openings. If the machine is sited in rooms with a constant temperature of more than

30 °C, an oil cooler may have to be installed. (see fig. 45).

Fig. 46: oil cooler

Machines which are sited in rooms with a constant temperature of less than 10 °C must be provided with an add-on heater. The heating element with 1000W and an integrated thermostat keeps the oil at an operational temperature of at least 17°C. For this, however, the main switch must be on. Thus, if the machine is cut off from the mains over a longer period.

Fig. 47: oil cooler

If necessary, and if not already fitted, get in touch with our sales department or our customer service.

5.4. Electrical system

A three-phase power supply (400 V, 50 Hz) is required on site for installing the machine. The specific connection values can be found in the chapter "Technical data".

The "Electric System" module controls the machine and supplies it with electric energy. The processing time of the plant and/or the bale length may be selected freely within pre-set limits. Further information can be found in chapter 6 "Operation".

Fig. 48: switchgear box

The module "Electric" essentially consists of the following components:

Switchgear box (1)
with relay (2)
motor circuit breaker (3), fuses (4)
programmable logic controller (5)
and wiring,

- emergency push-button
- electrical motor at the unit
- light barrier
- safety switch
  knotting hood
- inductive limit switches
  press in front
  press rear
  needle bottom (right)
  needle bottom (left)
  needle at top (right)
  twister
  bale length
- signaller oil temperature /lack of oil
- On funnel extensions:
  Light barrier level control
  safety switch revision door at the funnel
- For ramp funnels
  Ripcord
  Safety bar as the case may be
- heating for switch gear box optional

Optionally switch gear boxes can be fitted with an automatic heating which also ensures trouble-free operation in winter.

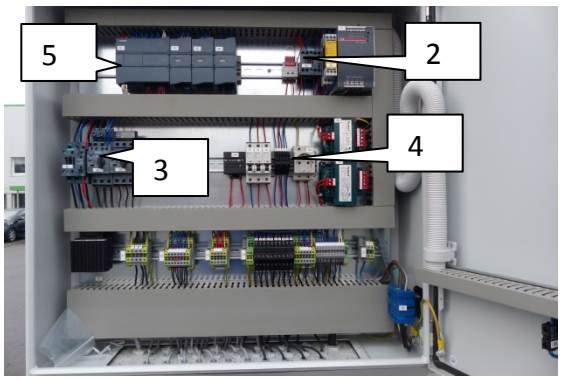


Fig. 49: switchgear box (inside)

The built-in motor circuit breaker protects the electrical system and switches off when overloaded. The setting (H=Manual) of the motor circuit breaker must not be changed. If the motor circuit breaker has tripped, it can be reset after a short time using the "RESET" key (20). The machine is then ready to operate again.

Fig. 50: emergency-stop push-button

⚠	**Caution!** **The operator or their staff is prohibited from interfering with the program control.**

Fig. 51: : emergency-stop-button at the end of the press channel

Due to local circumstances or design features further Emergency-Stop switches can be fitted to the machine.

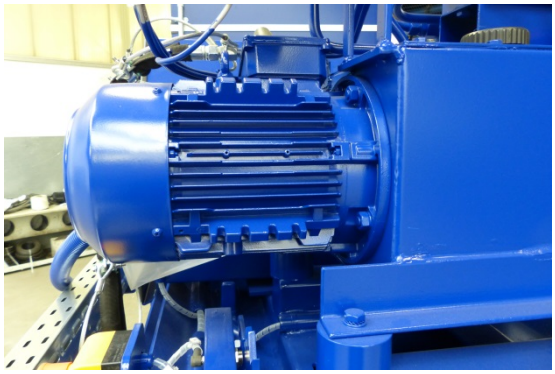


Fig. 52: electrical motor

Fig. 53: light barrier press

Fig. 54: safety switch knotting hood

Fig. 55: proximity switch end position press (in front)

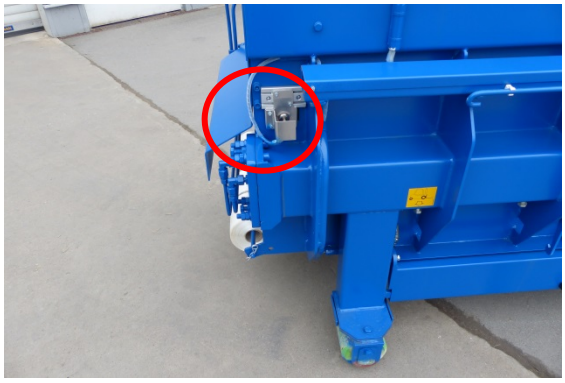


Fig. 56: proximity switch press rear

Fig. 57: proximity switch end position needle bottom (right)

Fig. 58: proximity switch end position needle bottom (left)

Fig. 59: proximity switch end position needle at top (right)

Fig. 60: proximity switch pulse generator twist

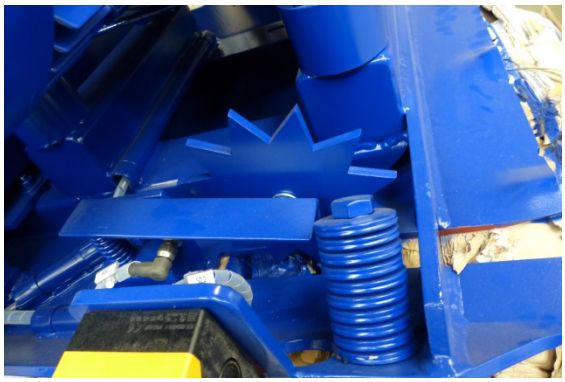


Fig. 61: proximity switch pulse generator bale length

Fig. 62: signaller oil temperature/lack of oil

Fig. 65: safety ripcord

Fig. 63: light barrier level control

Fig. 66: safety bar

Fig. 64: safety switch revision door funnel

6. Operating controls and operation

6.1 Work prior to first start-up

The installation site must meet the specifications in chapter 3 and 4.

Manufacturer's project documentation and connection diagrams are enclosed with this plant. The machine must be set up and connected in accordance with this documentation.

Level the machine horizontally using a spirit level.

Leave sufficient clearance around the machine for industrial trucks to be able to move easily.
Label the manoeuvring areas and hazard areas to ensure the smooth running of the machine.

Screw the panel which is part of the scope of delivery, the "bale slide" (1), to the under-side of the channel.

	The correct electrical connection must be made or, respectively, checked by an electrician.

The applicable VDE regulations and/or the regulations of the country in which the machine is operated must be observed. The enclosed wiring diagrams of PRESTO must also be observed.

Now carry out the following checks:

- Ensure that it is not possible to damage the electric power supply cable by running over it, crushing or pulling it.
- Check all hydraulic pipes and screws for snug seat and obvious damage
- Check that all screw connections are tightened.
- Check the electrical installation.
- Check that all safety devices are working properly (see chapter Maintenance). Do not start up the plant if a safety device does not work properly.

	**The operating personal (plant manager) must have read and understood the operating manual before the fist start-up.**

6.2 Initial start-up

The trial run is conducted by the manufacturer's specialist staff. At the same time the instruction of the operating personnel takes place

	**In an emergency the machine can be stopped and shut down immediately by pressing the Emergency Stop push-button key.**

6.3 Daily inspection tasks

Carry out the following work every day before starting up the plant:

- Visual check for obvious damage to mechanical and electrical parts. It is prohibited to start the machine if a protection device malfunctions.
- Check protection devices for proper functioning (see chapter Maintenance)
- If it is heavily soiled the plant must be cleaned before start-up. Set the master switch to the "**0**" position before cleaning and guard it with a padlock against unauthorised access. On completion of the cleaning close and lock all protective flaps and/or doors or inspection flaps.
- All other work must be carried out in accordance with the **maintenance schedule**.

For instructions on transport, loading and storage please observe the instructions in the chapter "Safety".

Functions and operation of the various different types of channel baling press are similar. The differences mainly relate to press performance, dimensions and weight.

6.4 Operating tools

The essential operating controls which are required for operating the machine are housed centrally in the switchgear box with all the various types. An integrated touch panel is also above the operating controls.

Fig. 67: switchgear box with operating controls

Operating controls:

- main switch
- buttons:
  - operation (1)
  - start (2)
- selector switch:
  - automatic 0-1 (3)
  - control 0-1 (4)
- emergency-stop (5)
- touch panel (6)

The machine can, as an option, also be fitted with further operating controls. Switches that are not designated in the switchgear box figure are not part of standard equipment.

Special features are listed and explained in the program description.

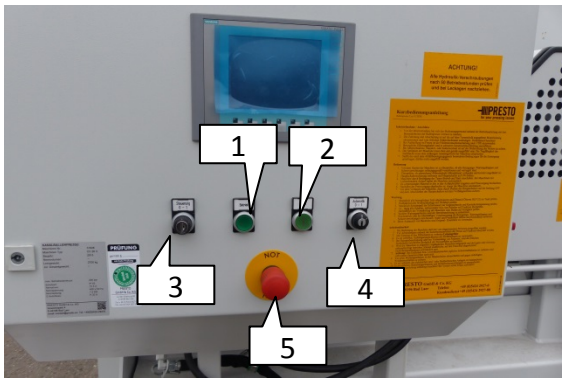


Fig. 68: operating controls

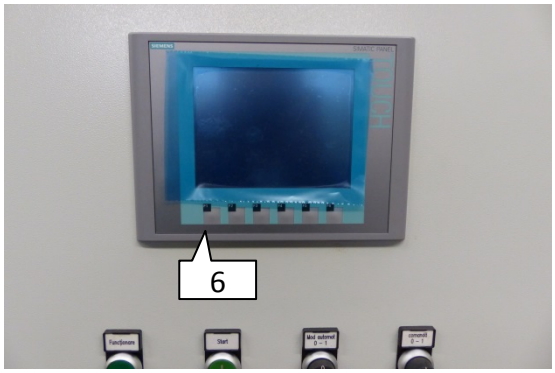


Fig. 69: touch panel

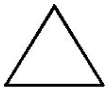
The touch panel only works in conjunction with the PLC control and refers to the PLC programme. It is the interface between man and machine. The programme description in the annex gives detailed description and an overview.

6.5 Operating the machine

The plant may be operated in two operating modes:

Manual "Manual"
Operating mode for work in connection with adjusting, maintenance and repairs, fault clearances.

Automatic "Auto"
Operating mode for standard compacting operation. Adjustable values make sure that the bales are compacted according to your requirements.

	**Working with / at the machine may only be carried out by instructed persons and / or skilled stuff.**

	**Caution!** **Danger of crushing! Never climb into the funnel whilst the channel baling press is operating.**

6.5.1 Works before start pressing:

- Check that the reels contain sufficient tie wire.

☞ *These machine types are equipped with threefold or quadruple tying-up devices. Six or eight coils of tying wire are required for each of them.*

- Check if all Emergency stop push-button switches are pulled out.
- Check if any pull cord switches that exist are released.
- Check that all safety devices are released and inspection flaps are closed correctly.
- Set master switch to position "I".
- Wahlschalter Steuerung 0-1 auf Position „1“ setzen.
- Set operating mode selector 0-1 to position "1".
- Press button "operation". Lighting-up of the integrated control lamp indicates ready for operation of the machine.
- Throw material into the funnel. Fill the funnel until just above the counter knife. The machine will start automatically as they are all equipped with a light barrier.

☞ *If the control lamp does not light up, go through the points again starting at "Check, that Emergency Stop...".*

<u>Further operation steps:</u>

	An individual program description of your machine could be find in the **annex.**

6.6 Replacing wire rolls

Use tie wire on reels for the fully automatic tying device (knotting machine). To ensure trouble-free operation use the tie wire available through our customer service.
Properties:

Tie wire: 20kg, 40kg -resp. 250kg reels patent wound, and diameter, 2,8 up to 3,4 mm soft-annealed and oiled (see operating supplies).

Note:
Always use tie wire which has the above properties. Tie wire which does not match the specifications leads to operating trouble. Article numbers can be found in chapter Spare parts.

⚠	**When inserting new wire coils, do not climb onto the machine !**

If you want to begin the replacement, switch the machine to "manual" operation using the operational switch.

For the wire station:
If a wire station is used the wire must initially be laid over the diversion rollers to the eyes (lower wire) or to the knotting device cover.

6.6.1 Replacing lower tie reels:

- Check if the press body is in the back end position.
- Change respectively lay new reels in the wire stations.

Fig. 70: station lower wire

- Press the key button "Needle down" and hold until the needle has reached the lowest position after approx. 2 seconds (threading position).

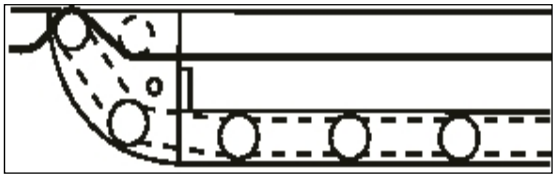


Fig. 71: operating position

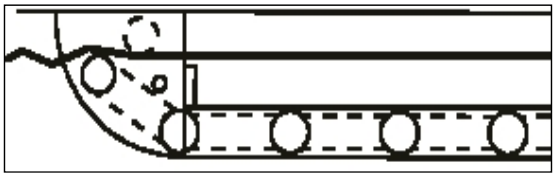


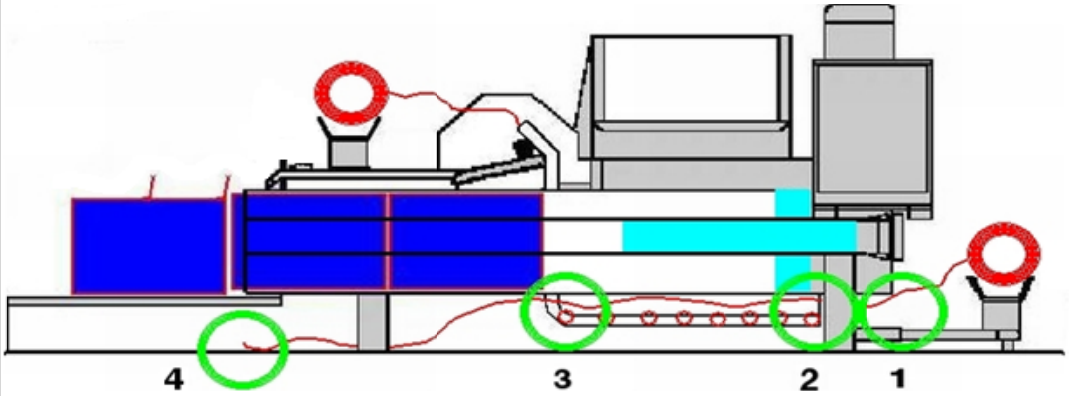
Fig. 72: threading position

- Swing up the needle flap on the side
- Pull the wire end out to the front from the centre of the lower wire reel and carefully straighten the first 30 cm.

- Thread the lower wire according to Fig. 73.
- Press the key button "Needle up" and hold. The needle moves back to the operating position. (see Fig. 71)

Fig. 73: Path of the wire under the press channel

Threading the lower wire at the CCV



Pull the wire through

(1) the spring coils at the end of the press
(2) the drilling bushes on the rear feet
(3) through the needle profile above the needle
(4) as far as the end of the channel

Fig. 74: threading the lower wire

6.6.2 Replacing upper wire reels

To insert wire coils in the machine, suitable steps/ladders and hoisting equipment must be used.
On this, please observe the applicable accident prevention regulations and the user's instruction manual of the manufacturer.

⚠	**If you need suitable aids get in touch with PRESTO**

- Open the knotting hood (Fig. 75) to access the knotting machine.

Fig. 75: knotting hood

- Pull the wire end from the centre of the upper wire reel through the diverting rollers to the knotting machine.
- Fig. 76 shows how the upper wire is correctly laid between the diverting rollers.
- Then the wire end has to be routed through the slit of the twist disk. Push the wire up to the upper side of the channel.

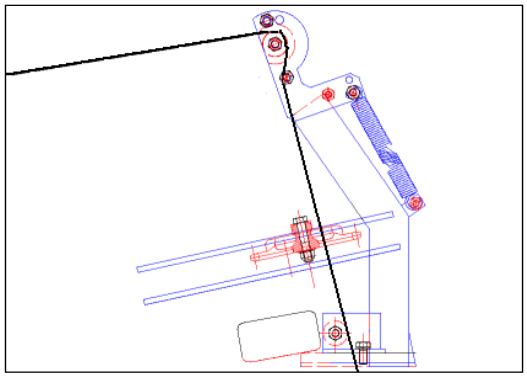


Fig. 76: guiding upper wire

Fig. 77: wire station upper wire

- Close all doors and hoods still open.
- Set operating mode selector to position "Auto" and press push-button switch "Operation" and „Start“
- Pull the bale length measuring wheel out of its position until the "set" message lights up on the touch panel. Afterwards the bale length measuring wheel can be placed back in its position. The bale length measuring wheel only counts when the press body moves.

☞ *The plant moves the press body into the front end position. The automatic tying process runs. During the tying process the control lamp "Tying" flashes.*

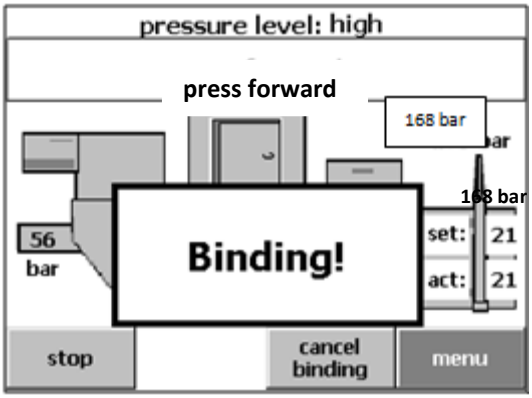


Fig. 78: indicated at display "Binding"

After twisting and cutting the tie wire, the needle carriage moves back to the lower end position and the press body moves to the back end position. The threading process is now complete. The message "Tying" goes off. (Fig. 77).

Turn the selector switch "Control 0-1" to "1" and open the hood Check the twisting between upper and lower wire and remedy if necessary. Close the hood and set back the selector switch in position ON "1".

- Fill material into the funnel once again or, respectively, automatic feeding takes place.
- Press the push-button switch "Operation" and start the next pressing process by pressing the push-button switch "Start" or, respectively, the light barrier starts the pressing process.

☞ Pressing and tying now take place automatically.

6.7 Setting the counter pressure

Type CC20V is delivered with a manual channel adjustment. Optionally the machine can be delivered with a hydraulic channel adjustment.
The operation pressure depends on the counter pressure of the material in the channel. In order to achieve this counter pressure the cross-section is smaller in the direction of the channel exit.

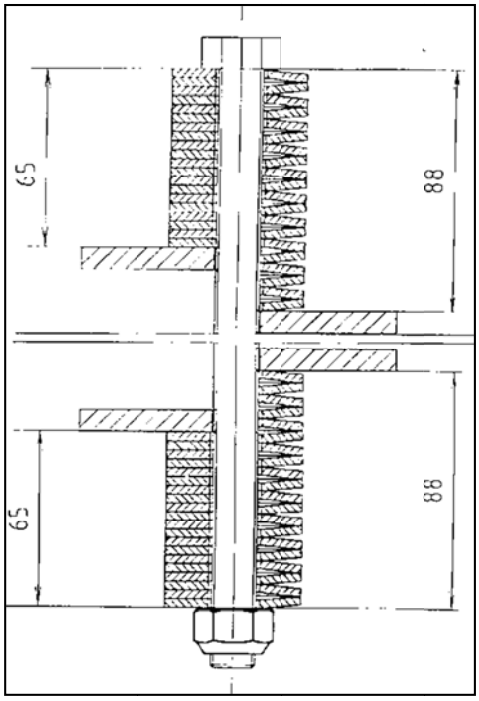
In addition the counter pressure of the material depends on the following factors:

- Coefficient of friction for the channel walls, which drops during the running period of the system,
- Coefficient of friction of the material to be compressed, which can fluctuate strongly (e.g. relatively high for cardboard and relatively low for foils),
- Fill height in the funnel at the start of the press process. The funnel must be at least filled with material to the upper edge of the press body.
- Adjusting the clamping elements on the baling channel, which must be adjusted, especially during the run-in period and when material is changed.

Adjust pressing pressure,
manual channel adjustment

The adjustment is correct when the pressure gauge displays approximately 140 - 160 bar during the feed stage of the material strand along the baling channel. For this reason, the pressure gauge has to be checked after the material has been changed.

Never allow the measurement to drop below 65 mm (the spring assembly is approximately compressed).



Adjust pressing pressure,
hydraulic channel adjustment

If a hydraulic channel adjustment is installed on the machine, it can also be adjusted.

	Further information (operation pressure and instructions) please find in the program description in the appendix.

6.8 Shut down

When work finishes or if the machine is to be unused for longer periods, switch the machine off as per specified shut-down procedure and secure against unauthorized switching on again.

- Set operating selector „Control 0-1“ to „0“
- Remove the key and place it in a safe place

Alternatively, of course, the main switch can always be switched off and secured with a padlock.

Please observe the details mentioned in chapter "Safety"!

In emergencies, if unusual sounds are heard and if any other unforeseen events occur always

- press the Emergency Stop button
- Report malfunctions and have them fixed.

6.9 Predictable misuse

In order to prevent mistakes it is important that all employees who work with the machine are adequately trained and are familiar with the machine.
Please fix the misuse listed below as follows:

Material not as intended:
Using the machine to compress material which does not conform to the definition of "Intended use" in chapter 2 can cause extensive damage. Thus, every deviating material must, first of all, be clarified with PRESTO.

Foreign objects (e.g. tools) entering the machine:
Due to various circumstances it is possible that foreign objects, not to be compressed, can enter the machine. In such cases operating the system can cause extensive damage. Stop the machine immediately and remove the foreign object in accordance with the safety regulations. (see also chapter "Safety").

Bale bound without lashing material:
If a bale has not been bound with lashing material it cannot be knotted in the machine. Continue in automatic mode and first of all let the bale leave the machine. Once the bale can be freely accessed the machine must be stopped and the compressed material correctly reintroduced into the machine (i.e. the bale must be broken up).

Person trapped in the machine:
Should it happen that someone is trapped in the machine in spite of all precautions, the machine must be shut down immediately and the person concerned must be freed as soon as possible. If it is not possible to free the person when the machine has been stopped, an authorised expert must be consulted. Always contact the manufacturer in case of doubt.

Please observe the instructions in the chapter "Avoiding malfunctions".

6.10 Disassembly and disposal of the machine

If the machine is to be taken completely out of operation it must be correctly dismantled and the components properly disposed of. PRESTO would be glad to make you an offer.

Please help to protect the environment by giving reusable materials back for recycling.
Otherwise, please refer to the applicable disposal guidelines for the relevant nation.

What has to be disposed of?	Materials	How has the material be disposed of?
Transportation material	Pallets	Return to the manufacturer or shipper
Packaging	Paper and cardboard	Old paper
	Plastics	Recycling plastics
Cloths for cleaning Oil and grease	Cloths Oil Grease	Oily and greasy waste
Components	Controls	Disposal of electronic waste
	Electronic equipment and components	Disposal of electronic waste
	Metal	Reusable metals
	Plastics	Disposal of plastic waste for recycling

6.11 Behaviour in the event of an emergency

	**The machine must immediately be taken out of operation using the emergency stop button.**

In order to react quickly in the event of an emergency the operator of the machine must take all possible safety precautions based on the applicable accident prevention regulations.

Behaviour in the event of an emergency

1. Report alarm
   - Who is reporting?
   - What has happened?
   - Where did it happen?
   - Are persons in danger?
2. Immediate actions
   - Follow instructions
   - Secure the danger area
   - Give first aid
   - Combat the danger
3. Bringing into safety
   - Evacuate endangered persons
   - Use marked escape route
   - Do not use a lift

	**In the event of a fire in the switchgear box only use approved fire extinguishers.** **See also DIN VDE 0132!**

7. Maintenance

7.1. General

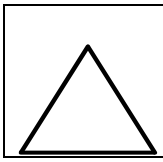
It is recommended on principle to conclude a maintenance agreement with PRESTO. Maintenance is then carried out once a year by our customer services. If necessary maintenance can be effected more often. Due to the specialist knowledge of our customer service engineers causes of any potential faults are identified and remedied early on.

One distinguishes between maintenance tasks that can be performed by the user / operator and activities that may only be performed by authorised technical specialists.

For recurring maintenance activities that are to be performed by the user / operator the responsibilities must be clearly defined. All maintenance activities must be documented.

Skilled persons are persons who, because of their specialist training and experience, have sufficient knowledge in the field of the machine used.

The qualified person must furthermore be sufficiently familiar with the relevant health and safety regulations, accident prevention regulations, standards and guidelines and the general state of the art to be able to assess the condition of the machine used as regards industrial safety. The security notes in chapter "Security" have to be adhered to.



Check all screw connections at hydraulic pipes for snug seat after approx.

Inform operating personnel about special and maintenance work before starting such work!
Designate a supervisor!
Secure the danger area!

Observe all prescribed adjustment and maintenance works in the operational manual including details for exchange of parts!
These activities may only be performed by technical personnel with sufficient knowledge and the correct tools.

Keys and tools, by means of which the machine can be started or, respectively, by which protection devices can be removed, must be in the possession of the person instructed in the use and ordered to do so or must be kept under lock and key.

Before carrying out any cleaning and maintenance work, always check the area for foreign matter such as sharp-edged material, one-way injection needles etc. Also check whether contaminated materials have been compacted**.**
Contact the operators before if required.
Wear security gloves in any case.
Non-compliance may cause severe health problems!

Maintenance, cleaning and inspection work may only be carried out by authorised and skilled personnel and only when the machine is at a standstill and switched off. Please observe the responsibilities for maintenance work (see

table Maintenance). The master switch must be guarded by a padlock against unintentional starting and must be locked. Supervising staff or the appointed skilled persons must keep the key at a safe place.

7.2. Cleaning

The machine should be cleaned every week or when it has become excessively soiled.

- Move the press body to the open end position.
- Set master switch to position "0" and guard it by a padlock.
- Before cleaning open the hood of the knotting machine.
- Use compressed air for cleaning.

If you should use water for cleaning, make sure that electrical and other sensitive components are adequately protected and that water cannot penetrate. Water jets should never be aimed directly at the relevant components.

	**Danger! Risk of eye injury! There is a chance that small particles are blown about when compressed air is used for cleaning. Wear eye protection .**

- Upon completion of the cleaning the cleaning, doors and the knotting machine hood of the tying device must be closed properly.

7.3. Maintenance overview

The following page lists all the maintenance work with details of maintenance intervals and references to the description of the task.

Maintenance on electrical equipment may only be carried out by skilled or instructed persons.

Abbreviations used:
A = Work which may be carried out by the Operator.
F = Work which must be carried out by a Skilled Person (e.g. a PRESTO customer service engineer).

Abbreviations for intervals:

T	Daily
W	Weekly
M	Monthly
H	1/2-yearly
J	Annually
R	Regularly
B	If required

The maintenance intervals specified are to be understood as guidelines that are valid for a normal mode of operation. Under extreme operating conditions, such as high humidity, aggressive environment, high temperature fluctuation a reduction of the maintenance may, as applicable, become necessary. Please contact PRESTO customer service with respect to this.

Information:
Maintenance tasks, as far as they concern special features, are described in chapter 11 "Attachment, special features.
Maintenance activities to be conducted daily are marked with a (T) and highlighted in colour.

Elektrical system	Interval	Chapter	resp. Pers.
Controls on the switch cabinet and control bar: function check	T	7.4.1	A
Main switch and Emergency OFF switch: function check	T	7.4.2	A
Motor protection relay: function check	J		F
Wiring in the switch cabinet and on machine housing: visual check	J		F
Power cable: visual check	W	7.4.3	A
Safety switch on side service doors, needle hatches: function check	T	7.4.4	A
Safety switch on knotting hood: function check	T	7.4.5	A
Inductive proximity switch: check firm seating and cleanliness	W	7.4.6	A
Ventilation cover on the E-motor: check cleanliness	W	7.4.7	A
Automatic switching on: Check function and cleanliness (optional)	W	7.4.8	A
Safety switch inspection door funnel: Visual and functional inspection (optional)	T	7.4.9	A
Ripcord: Visual and functional inspection (optional)	T	7.4.10	A
Safety bar: Visual and functional inspection (optional)	T	7.4.11	A
Hydraulic system			
Hydraulic oil: check condition and oil level and refill if necessary	M	7.4.12	A
Filter insert and ventilation filter: replace	J		F
Hydraulic hoses and fittings: check condition and tightness	H	7.4.13	A
Hydraulic aggregate and fittings: check condition and tightness	H	7.4.14	A
Hydraulic lines and fittings: check condition and tightness	H	7.4.14	A
Hydraulic valves: check tightness	H	7.4.14	A
Hydraulic cylinder (main, needle, twister, channel): check tightness and condition	H	7.4.14	A
Compaction pressure: check setting acc. to specification	J		F
Other hydraulic accessories: check function and tightness	H	7.4.14	A
Hydrauliv oil cooler &-heater: check condition and tightness (optional)	H	7.4.15	A
Oil change	J		F
Mechanical system			
Press body: check condition and wear	J		F
Press body setting in channel: check and adjust if necessary	M	7.4.16	A
Polyamide guides on press body: check for wear	M	7.4.16	A
Cutting gap on the press body: check and adjust if necessary	M	7.4.16	A
Counter-blade and blade on the plunger: check condition and wear	W	7.4.17	A
Telescopic sheets: check for condition	J		F
Polyamides of telescopic sheets check condition and wear, clean if necessary	M	7.4.18	A
Compaction channel floor: check condition and wear	W	7.4.19	A
Needle guide rollers: check cleanliness and wear	J		F
Needle head: check condition and wear	W	7.4.20	A
Binding system: check function and cleanliness	M	7.4.21	A
Twister disks: check the setting	T	7.4.22	A
Twister chain: check the condition, lubricate, adjust and re-tension if necessary	T	7.4.23	A
Twister blade: check wear and movability	M	7.4.24	A
Polyamides in the twister: check for wear	W	7.4.25	A
Retainer: check function	J		F
Screws at channel cylinder: check for security	J		F
Guides for binding wire and binding strap: check free run	W	7.4.26	A
PVC cover on channel outlet: check the condition	W	7.4.27	A
Movable parts on the press: Visual inspection & functional check and grease	W	7.4.28	A
Ground anchors of the compactor: check firm seat	J		F
Inspection, protective hoods and separating protective devices: check condition	J		F
Service doors, twister hood, service and cleaning hatches: lubricate	T	7.4.29	A
Funnel: check the condition (optional)	H	7.4.30	A
Labels: check condition and legibility	M	7.4.31	A
PVC cover on channel outlet: check the condition	J		F
Movable parts on the press: Visual inspection & functional check and grease	T	7.4.32	A
Overall condition of the machine's welded construction: visual check	T	7.4.33	A
Other accessories (optional): check condition and function	H	7.4.34	A

7.4. Description of maintenance work

For reasons of clarity protective covers are not shown in some illustrations. The channel baling press may only be operated with properly installed or, respectively, closed protective covers.

7.4.1. Control buttons/touch panel: visual-& functional inspection

Check that all selective switches and buttons all function. The reaction of the buttons on the touch panel must also be verified.

7.4.2 Master switch and Emergency-stop button: visual-& functional inspection

Master switch: Check that the master switch (1) can be set to positions "**0**" and/or "**I**" without difficulties. In the "0" position the complete machine must be without power. (Exception special equipment such as switchgear box lighting, etc.)

Emergency-stop button:

- First of all check the mechanical function of the emergency stop button.
- Set the machine in the operational mode (see operation)
- Press the emergency stop button. The button must latch into this position and the green light must go out.

⚠	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.3 Connecting cable: visual check

Check connecting cable to the switchgear box for possible damage. In the event of damage such as, e.g. crushing, porosity, damaged insulations etc. the machine must be immediately taken from the mains.

If any damage is found the cable must be immediately replaced by a qualified electrician.

7.4.4 Safety switch needle flap: visual-& functional inspection

First of all check if optical defects can be recognized and if the flaps open and close easily.

- Set the machine in the operational mode (see chapter "Operation")
- Open the left needle flap
- The functional test is positive if the green light goes out.
- Repeat the procedure with the right needle flap

Fig. 79: safety switch needle flap

7.4.5 Safety switch knotting hood: visual-& functional inspection

First of all check whether visual defects are recognisable and that the knotting hood can be opened and closed without any problems.

- Set the machine in operation mode (see chapter Operation).
- Open the knotting hood.
- The function test is positive if the green lamp goes out.

After that press button „Start“ to continue the binding procedure.

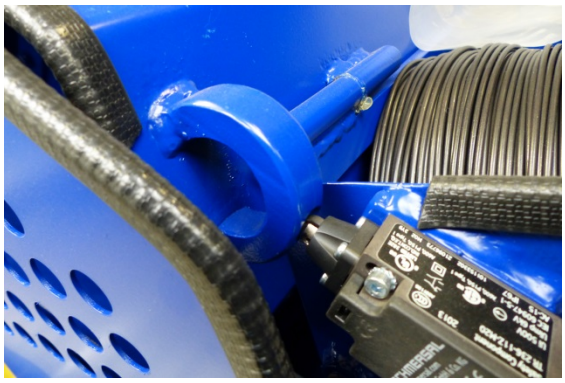


Fig. 80: Safety switch knotting hood

7.4.6 Inductive proximity switch: check for firm seat and cleanliness

First of all check whether visual defects are recognisable. Furthermore all proximity switches must be firmly mounted in their exact positions. If necessary tighten the nuts.

7.4.7 Ventilation hood on the E-motor: Check for cleanliness

Check the ventilation hood for dirt. If necessary clean the hood.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.8 Automatic switching: Functional check and cleanliness

Filling funnel press:

If there is enough material in the funnel and the machine is set to automatic mode the press process should begin automatically.

- If press strokes take place although no material has been introduced then the light barrier is probably dirty or defect.
- Clean the light barrier with a clean cloth.
- If the problem continues to occur, then it has to be fixed immediately by a qualified specialist.

Level control (optional):

If a funnel is fitted then the machine is usually filled by an upstream system. In order that this starts and doesn't overfill the machine a light barrier to automatically switch it off is also installed in the funnel. (Level control).

Fig. 81: Light barrier press

The function and procedure for cleaning is the same as for the light barrier in the press filling funnel.

Fig. 82: light barrier level control

⚠	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.9 Safety switch inspection door funnel: visual- & functional inspection

First of all check if visual defects are recognisable and if the inspection door can be opened and closed without problems.

- Set the machine in operation mode (see chapter Operation).
- Open the inspection door at the funnel.
- The function test is positive if the green lamp goes out.

Fig. 83: safety switch inspection door funnel

7.4.10 Ripcord: visual- & functional inspection

First of all check if visual defects are recognisable and if the ripcord switch works.

- Set the machine in operation mode (see chapter Operation).
- Now pull the ripcord until the ripcord switch audibly unlatches.
- The function test is positive if the green lamp goes out.

Finally press the reset button on the ripcord switch. Record the event.

Fig. 84: ripcord switch

7.4.11 Safety bar: visual- & functional inspection

First of all check if visual defects are recognisable.

- Set the machine in operation mode (see chapter Operation).
- Exert a light pressure on the switch bar
- The function test is positive if the green lamp goes out.

⚠	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.12 Hydraulic oil: check for condition and oil level, refill if necessary

For checking the press body has to move in the open end position (see Fig. 83).

- Set the machine in operation mode (see chapter Operation).
- Selective switch has to be put in position "hand".
- Press button "press backwards"; the press body moves now in the open end position. When reaching the end position the press body will be stopped.

With the hydraulic cylinders retracted check if the fluid level is in the upper range of the sight glass (see fig. 84). Fill in hydraulic oil if necessary. Details of the hydraulic oil used can be found in the section "Operating supplies, specifications". Ensure that the area around the tank vent is clean**.**

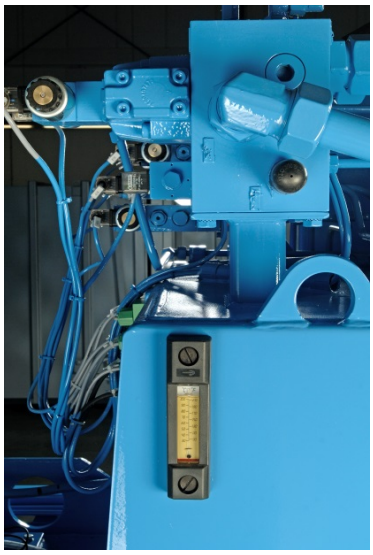


Fig. 85: sight glass hydraulic tank

7.4.13 Hydraulic hosed and screwing: Check for condition and leaks

Check the hydraulic pipes for visual defects (porosity, damage, crushing, etc. ...) and leaks. If any defects are found they must be fixed immediately by a qualified specialist.

Damaged hydraulic pipes may not be repaired or assembled from parts that have already been used.

⚠	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

⚠	**Hydraulic maintenance work may only be performed by authorised specialists. The parts to be replaced must be free of pressure.**

Openly accessible pipes must be equipped with a pipe protection and a detachment protection according to DIN ISO 16252. For this reason if hydraulic pipes are replaced only original PRESTO spare parts may be used, or products that fulfil these requirements.

Fig. 86: hydraulic hose with hose protection / detachment protection

Hydraulic pipes must be replaced 6 years after being manufactured at the latest (see stamping on the screw connection.

7.4.14 Hydraulic unit, -lines, -valves, -cylinder and other hydraulic parts (incl. screwing): check for condition and leaks

Check the whole machine for contamination from hydraulic oil. If leaks are found these must be localised immediately and repaired by an authorised specialist. The machine may only be operated if the leak has been fixed.

Hydraulic lines and pipes must be inspected by an authorised specialist at least 1x per year.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.15 Hydraulic oil cooler and hydraulic heater: Checking for condition and leaks (optional)

Clean the blower wheel on the cooler. If you notice that the motor is not running when the hydraulic oil is at a higher temperature, inform an authorised specialist to have the problem repaired.

The machine must be switched on for the oil heater to operate. If the machine is being operated at minus temperatures, it must be switched on for a warm-up period before starting to press (see notes chapter Security). If everything is working correctly a rise in the temperature of the hydraulic unit should be evident before starting the compacting procedure.

Fig. 87: hydraulic oil cooler/ blower wheel

Fig. 88: oil heater

Check and, if necessary, adjust the cutting gap/clearance of the channel guide

The press body (see fig. 88) is guided by sliding bearings horizontally and vertically in the press channel. The height of the press body can be adjusted by means of different adjusting screws..

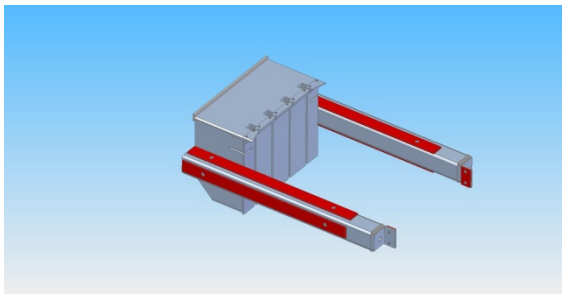


Fig. 89: press body

Fig. 90: adjusting screws

Experience shows that wear and tear of the bearing is very low and there is thus little need to adjust them. During the 2-month's running-in time the cutting gap should be checked once a week. After the running-in time proceed according to the appropriate interval in the maintenance schedule.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

Failure to observe this notice may result in the side edges of the press body and those of the channel coming into contact. This results in score groves on the parts which touch. The functioning and service life of machine are not normally affected by these. However, the resulting roughness means that material will enter this gap.

7.4.16 Adjustment press body, press channel and cutting gap: check and adjust if necessary

A correct side guide is very important otherwise jams will occur. The cutting gap as well has to be correctly adjusted otherwise severe damages may occur. A cutting gap of less than 1 mm is set at the factory. Ensure that, if at all possible, this value is not exceeded. A cutting gap which is too large or, respectively, blunt knives may in the worst possible case result in the press face becoming blocked.
A too big cutting clearance (>2mm) in connection with blunt cutting edges (edge radius >0,5mm) and appropriate material behaviour (e.g. foils, PET o.s.) results in vertical force introductions into the housing structure which could add a multiple of the thrust of the pressing ram. Thus severe damages (cracks, permanent deformations) can be caused.

Height adjustment:
The height of the press body can be adjusted using two adjusting wedges. The adjusting wedges can be set using two fixed threaded rods (see fig. 89).

- Move the press body into the channel until the outer knives of the press body are half covered by the counter blades.

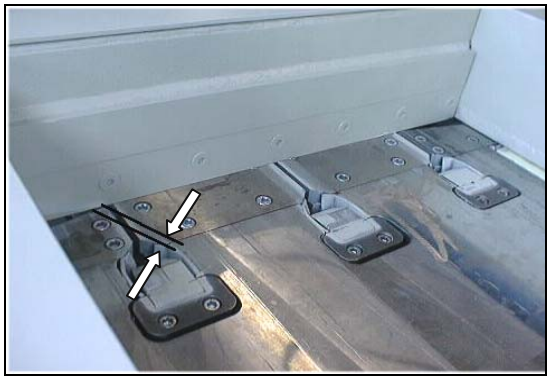


Fig. 91: control cutting gap

- Master switch to position "0" and secured against switching on by a padlock.
- Measure the gap (max.1,0mm) between the knife and the counter knife with a feeler gauge.
- If the value of 1,0 mm is reached resp. exceeded, the cutting gap has to be adjusted as follows.
- Loosen the locknuts on both sides (see fig. 91).

Caution! Risk of crushing!

Prior to the following works set master switch to position "0" and secured against switching on by a padlock.

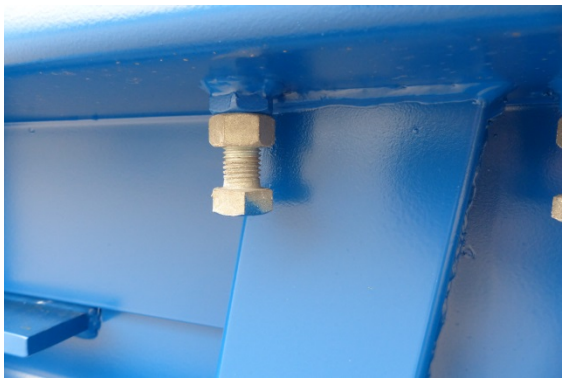


Fig. 92: adjusting screw

- By turning to the right the press block is raised and lowered by turning to the left.
- First carefully turn in only one adjusting screw on each side. Preferably it should be the middle adjusting screw.
- Measure the cutting gap once again. Repeat the procedure as the cutting gap is about 0,3 mm +/- 0,1 mm.
- Take care that the measuring values are the same over the entire length. Otherwise the press body may jam.
- Tighten all other adjustment screws by hand without using tools. The adjustment screws must then be felt to make contact.
- Now use a spanner and turn all adjustment screws approximately a 1/6 turn deeper.
- Re-tighten all locknuts.
- Repeat the measuring of the cutting gap.

- Remove possibly existing foreign substances (e.g. tools or similar) from the pressing chamber.
- Check by the help of an afore trained person the faultlessly function of the machine. Agree on a clear hand signal for the immediate stop if the machine.
- Let the press body drive several times back and forth in operation mode "Hand".
- Pay attention that neither considerable pressure fluctuations at the pressure control nor scorings on the upper side of the press body appear.
- Stop the machine if any of the indications described above appear.
- Repeat if necessary the adjusting works. Always begin the maintenance work with taking the necessary safety measures, see 1st paragraph of this maintenance item.

When pressing plastic foils a minimal cutting gap is particularly important. Initial pressures of approx. 100 bar during the return stroke indicate jamming through foil which is taken up as a result of a cutting gap which is too large. Blunt knives / counter blades can contribute to this fault.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.17 Counter knives and knives on the press body: inspecting the condition for wear, if necessary replace

Knives and counter knives should be replaced if the cutting edges are damaged and / or have a radius of >0.5 mm. Knives (1) and counter (2) knives must be completely changed.

- First move the press body far enough in the direction open end position until knife and counter blade are readily accessible.

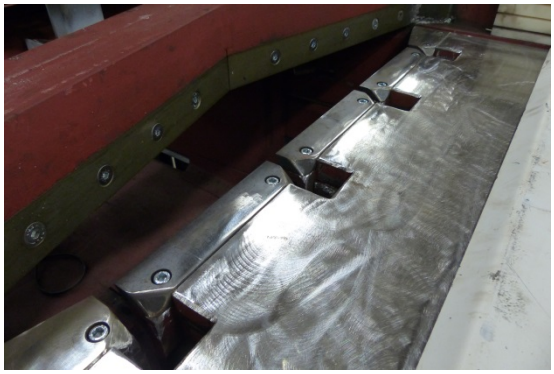


Fig. 93: knives and counter knives

- Replace the knives completely (tightening torque = 100 Nm).
- Replace the counter blades completely (tightening torque = 100 Nm).
- Set the cutting gap.

Continue as for "Adjusting the cutting gap". (see 0)

7.4.18 Polyamide of telescopic plates: Inspecting the condition for wear, if necessary replace

Check the polyamides above the pressing chamber for wear. If the guide rails are clogged, clean them thoroughly.

7.4.19 Floor in the press channel: Inspecting condition for wear.

Check the condition of the floor of the press channel.
Maintenance work may only be performed by authorised specialists and must be reported immediately.

7.4.20 Needle head: inspecting condition for wear

Check the condition of the needle head. If the needle head is damaged or no longer works it must be replaced by an authorised specialist.

7.4.21 Binding tool: checking function and cleanliness

Check the knotting machine for cleanliness. If the knotting machine is dirty clean it thoroughly. The quality of the knotting results should also be inspected. If all knots are not correctly twisted the cause must be detected. If problems occur that cannot be solved contact an authorised specialist.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.22 Twist disc: checking and setting

The slots on all the twist wheels must be aligned with the respective openings in the knotting machine cover. If all the twist wheels are offset check the chain tension and, if necessary, tighten it. If only one twist wheel is offset get in touch with an authorised specialist.

7.4.23 Knotting machine chain: Inspect condition, greasing, setting (if necessary tighten)

To ensure the knotting machine's problem free operation it must be ensured that the knotting machine chain is sufficiently tensioned.
The gap between the disc spring packages may only be a maximum of 1mm. If necessary adjust the chain tensioner (see fig. 93).
Turn the nut clockwise or anticlockwise until the value measured is less than 1 mm.
Spray the chain with commercially available chain lubricant spray.

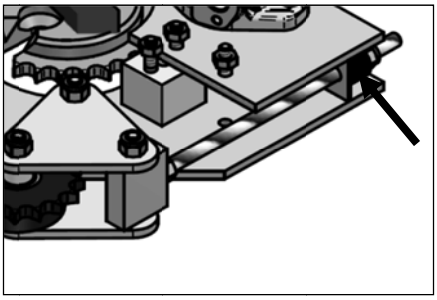


Fig. 94: chain tensioner

7.4.24 Knotting machine knife: Inspect for wear and ease of movement

Check the condition of the knives. If they are defect they must be replaced. Also test the function of the knives. An ideal play is set when the knives can be moved sluggishly by hand.

7.4.25 Polyamide in the knotting device: inspection for wear

Check the polyamides in the knotting device for wear. If they are too worn or even broken out, they have to be replaced. For replacement please inform a service technician.

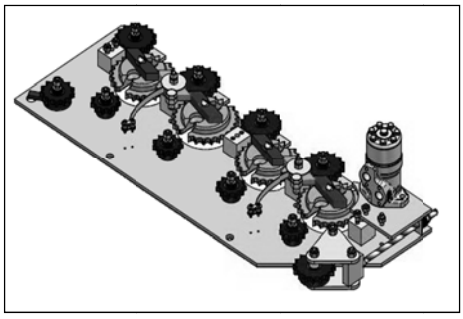


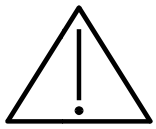
Fig. 95: knotting device (inside)

7.4.26 Guides of tying wire: inspection for free run

Check all guides of the tying wire for ease of movement. Missing guides have to be replaced.

7.4.27 PVC cover on the channel exit, visual inspection (optional)

Inspect the PVC cover on the channel exit. If there is any damage it must repaired or replaced.

	**Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)**

7.4.28 Pins for the hydraulic cylinders: Check for wear and lubricants

Check all the pins for the hydraulic cylinders for wear. At the same time grease the nipples for the cylinder mountings (eyes). For this use a grease press and commercially available grease.

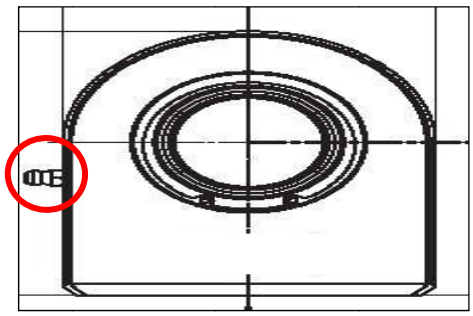


Fig. 96: cylinder mounting

Cylinder needle slides:

In order to access the cylinder mountings the protective flaps on the side must be opened. (Only possible by opening the inspection door of the press.)

Fig. 97: cylinder needle slides

7.4.29 Inspection doors, protective covers and separating safety devices: Inspecting the condition

Check the condition of all inspection doors, protective covers and separating safety devices.

7.4.30 Inspection doors & knotting hood Grease

Grease the grease nipples for all hinges on the inspection doors, the knotting machine hood and the swivel device knotting machine.

7.4.31 Funnel: visual inspection

Check the condition of the funnel.
Safety devices must be available and may not be manipulated.

7.4.32 Safety signs: check if undamaged and legible

Check if the safety signs and identification plates are undamaged and legible.
Replace the safety signs if they are damaged or illegible.

7.4.33 General condition/ welded construction of the machine: visual check

Check the complete machine. Any damage to the welded construction must be repaired by an authorised specialist.

Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)

7.4.34 Other components: Inspecting condition and function, if necessary maintenance

Check all components for condition and function. Any maintenance work must be performed correctly.
Observe the separate manufacturer's maintenance instructions (for special PRESTO features in the annex).

7.5. Operating supplies, specifications

Observe safety conditions! SWITCHING OFF & SECURE (see 7.1)

Factory filling:

Esso HLP 32

Comparable grades of oil:

ARAL GF 32

Spray grease for other lubricating points
Use commercial chain spray grease.

Tie wire for all CCs:
auf 20 kg, 40 kg-bzw. 250 kg Rolle patentgespult,

on 40 kg- respectively 250 kg reels, patent wound, and diameter 2,8 to 3,4 mm soft-annealed and oiled, quality 9-1, according DIN EN 10218-2.

Basically, the wire gauge must be adapted to the material properties.

Do not use old, corroded wires!

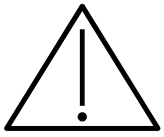
7.5.1. Quantities of operating supplies

See hydraulic circuit plan

8. Repair

Repair work may be carried out by

- authorised experts of service staff of the manufacturer or
- staff trained by the manufacturer.



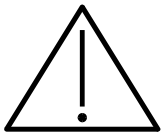
Disconnect the machine from the mains before performing any maintenance and repair work.

- Place main switch in pos. “0“.
- Secure the main switch with a padlock against unauthorized switching-on.

Unauthorised repair work by the user is not allowed. In case of unauthorised intervening with the machine, the warranty and liability claim against the manufacturer will be terminated.

Welding work on any structural members is prohibited.

Only skilled workers may carry out the repair of electrical equipment.



Observe the instructions in Chapter 3 "Safety"

Remember that after any extensive repair work an equipment safety inspection must take place.

After any safety relevant repairs or modifications the parts affected and/ or the machine must be inspected. The scope of the inspection is dictated by the scope of the repairs or modification carried out.

To prevent repair work the maintenance work must be performed according to the instructions.

Safety relevant faults or damage must be fixed immediately or reported for repair. In the event of obvious danger to the operating personnel or to the system the machine must be stopped immediately and secured against being switched back on.

9. What to do in case of faults

The following check list is designed to assist the plant operator in trying to identify causes of faults. Please contact the service department at PRESTO if a fault occurs which is not listed in the table. Please have the type and machine number stated on the nameplate to hand when making the call.

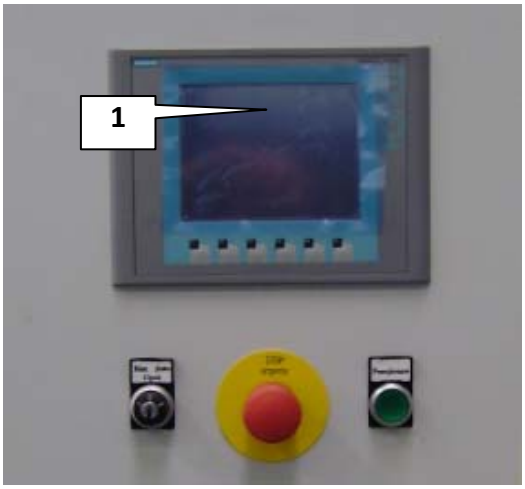


Fig. 98: faults indicated at the touch panel

Abbreviations used:

F = Skilled personnel
A = Operator *

*** As far as the person has been authorised according to Chapter 3 "Safety"**

⚠	**Do not carry out any work on the machine which you are not authorised to do!**

⚡	Repairs to electrical equipment may only be carried out by our own customer service engineers or by skilled electricians. Ensure that the machine is insulated from the mains supply before starting repairs.

By means of the display (1) built into the operating desk, fault messages can be displayed in plain language. If a fault occurs the message "Error" appears“. Troubleshooting may only start after the machine has been safely switched off.

9.1 List of error messages on the touch panel

No.:	Message:	Cause:	Remedy:	Resp. person
8000	**Proximity switch fault, ram at rear (B31)**	This error message appears if: the "compactor retracted" proximity switch (B31) trips **and** the "compactor extended needle" proximity switch (B33) trips or the "compactor extended direction change" proximity switch (B32) does not trip.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8001	**Proximity switch fault, compactor extended (B32)**	This error message appears if: The "ram forward" valve **and** the bypass valve are switched on and the "compactor extended direction change" proximity switch (B32) trips.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8002	**Proximity switch fault, compactor extended (B33)**	This error message appears if: The "ram forward" valve and the bypass valve are switched on, "compactor extended direction change" proximity switch (B32) is switched on and the "compactor extended needle" proximity switch (B33) trips.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8003	**Proximity switch fault, needle down (B34)**	This error message appears if: the "needle down operating position" proximity switch (B35) trips and the "thread needle down" proximity switch (B34) does not trip.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8004	**Proximity switch fault, needle down (B35)**	This error message appears if: the "needle down operating position" proximity switch (B35) and the "needle up" proximity switch (B36) trip at the same time and the "thread needle at bottom" proximity switch (B34) does not trip.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8005	**Proximity switch fault, needle up (B36)**	This error message appears if: the "needle down operating position" proximity switch (B35) and the "thread needle at bottom" proximity switch (B34) and the "needle up" proximity switch (B36) trip at the same time.	clean proximity switch change if necessary	**Operator*** **Skilled personnel**
8006	**Error valve channel pressure relief**	This error message appears if: the maximum overpressure in the channel is reached and the "channel relief" valve does not relieve pressure.	Check channel relief valve (actuate relief button) Check channel pressure sensor.	**Operator*** **Skilled personnel**
8011	**Error lack of oil/oil temperature (B1)**	This error message appears if: - the lack of oil or oil temperature monitoring switch (B1) has tripped. - Oil loss in the system or machine is too hot (>90°C)!	Check whether oil temperature is above 90°C (Temperature measuring device) Search for, if necessary install an oil cooler Check if oil level is low, top up if necessary	**Skilled personnel** **Operator***

No.:	Message:	Cause:	Remedy:	Resp. person
8012	**Error valve channel pressure build-up**	This error message appears if: The "channel pressure build-up" valve in automated operation has been energised longer than 5 seconds without interruption.	Check system pressure (manual mode - press forward). Check channel pressure sensor. Check valve channel relief.	**Operator *** **Skilled personnel**
8013	**Needle not in operating position**	This message appears if: The machine is in automated operation, no "Bind" signal" has been received and either the "needle down operating position" proximity switch (B35) or the "thread needle at bottom" proximity switch (B34) does not trip.	Move needle in manual mode in operating position.	**Skilled personnel**
8014	**Twist not in operating position**	This error message appears if: The machine is in automated operation , no "Bind" signal" has been received and the "twist" proximity switch (B37) does not trip.	Move twist in manual mode in operating position.	**Skilled personnel**
8015	**Error in motor protection (Q2)**	This error message appears if: Motor protection relay on pump or, if in use, conveyor belt, turbulator, etc. has tripped. Reset circuit breaker. Actuate "reset" button !	Actuate reset-button resp. reconnect circuit breaker	**Skilled personnel**
8016	**Error on pressure sensor for compactor pressure (B2)**	This error message appears if: The "compactor pressure" pressure sensor (B2) is faulty. ! Check plug on pressure sensor !	Check plug at pressure sensor!	**Skilled personnel**
8017	**Error on pressure sensor for channel pressure (B3)**	This error message appears if: The "channel pressure" pressure sensor (B3) is faulty. ! Check plug on pressure sensor !	Check plug at pressure sensor !	**Skilled personnel**
8022	**Error in Emergency Stop circuit:**	This error message appears if: There is a fault on the Emergency Stop circuit or the Emergency Stop relay is faulty.	Check if Emergency Stop is engaged, safety device open, Emergency Stop relay	**Operator** **Skilled personnel**
8024	**Binding wire on left broken**	This message appears if: The binding wire on the left is broken or the "binding wire left" proximity switch is faulty.	Attention payable option!!!! Change wire or thread wire new. Clean proximity switch, change if necessary	 **Operator *** **Skilled personnel**
8025	**Binding wire in middle broken on left**	This message appears if: the Binding wire middle left is broken, or the "binding wire middle left" proximity switch is faulty.	Attention special feature !!!! Replace wire or thread in anew. Clean proximity switch Change if necessary	 **Operator *** **Operator *** **Skilled personnel**

No.:	Message:	Cause:	Remedy:	Resp. person
8026	**Binding wire in middle broken on right**	This message appears if: the binding wire middle right is broken, or the "binding wire middle right" proximity switch is faulty.	Attention special feature !!!! Replace wire or thread in anew. Clean proximity switch Change if necessary	 **Operator *** **Operator *** **Skilled personnel**
8027	**Binding wire on right broken**	This message appears if: the binding wire on the right is broken, or the "binding wire right" proximity switch is faulty.	Attention special feature !!!! Replace wire or thread in anew. Clean proximity switch Change if necessary	 **Operator *** **Operator *** **Skilled personnel**
8031	**Error in the "compactor forward" function**	This error message appears if: The "ram forward" valve is switched on for longer than 40 seconds without interruption in automated operation . Possible cause: Material jam Channel cylinder not relieving Pressure sensor defect	Press "Confirm" button, selection switch on manual, withdraw press shield and remove the material jam using appropriate mechanical aids (rods, pliers, hooks) Valve control defect Change pressure sensor	**Operator *** **Skilled personnel** **Skilled personnel**
8032	**Error in the "compactor backwards" function**	This error message appears if: The "ram backward" valve is switched on for longer than 40 seconds without interruption in automated operation . Possible cause:: Pressing plate fastened	Check cutting gap and adjust In case of no remedy	**Operator *** **Inform customer service**
8033	**Error in the needle up function**	This error message appears if: The "needle up" valve is switched on for longer than 8 seconds without interruption in automated operation. The PLC attempts to remove the blockages by briefly moving back automatically and then forward again. If this is not successful even at the 4th attempt, this message appears. Cause: - Needle channel clogged - Lower wire jammed - Proximity switch defect/ wrongly set - Joint thrust needle defect	Clean needle channel Release lower wire Clean proximity switch Change if necessary Change joint thrust needle	**Operator *** **Operator *** **Operator *** **Skilled personnel** **Skilled personnel**

No.:	Message:	Cause:	Remedy:	Resp. person
8034	**Error in the needle down function**	This error message appears if: The "needle down" valve is switched on for longer than 8 seconds without interruption in automated operation. The PLC attempts to remove the blockages by briefly moving back automatically and then forward again. If this is not successful even at the 4th attempt, this message appears . Causes: - Needle channel clogged - Lower wire jammed - Proximity switch defect/ wrongly set - Joint thrust needle defect	Clean needle channel Release lower wire Clean proximity switch Change if necessary Change joint thrust needle	**Operator *** **Operator*** **Operator *** **Skilled personnel** **Skilled personnel**
8035	**Error in the threading function**	This error message appears if: During the binding operation the threading position is not reached within 10 seconds . Causes: - Contamination (old knots) in the twist wheel area - Twist wheel slots not aligned with the needle guide, wires jam between chain and wheel - Twist wheels in different positions - Twist impulse giver defect	Release jammed wired and clean chaindrive & twist wheel Check twist wheel setting. Correct by adjusting the switching tongue at the twist impulse giver Renew chain Change proximity switch and signaller	**Operator *** **Skilled personnel** **Skilled personnel** **Skilled personnel**
8036	**Error in the wire twisting function**	This error message appears if: During the binding operation twisting the wire is not finished within 30 seconds. Causes: - Twist wheel slots not aligned with the needle guide, wires jam between chain and wheel - Twist wheels in different positions - Twist impulse giver defect	Check twist wheel setting. Correct by adjusting the switching tongue at the twist impulse giver Renew chain Change proximity switch and signaller	**Skilled personnel** **Skilled personnel** **Skilled personnel**
8037	**Error in twisting, cutting the wire:**	This error message appears if: During the binding operation cutting the wire is not finished within 15 seconds. Causes: - Cutting edges on the twist wheel worn out - Twist impulse giver defect - Pressure too low	Change knotting machine Change signaller Check hydraulic	**Skilled personnel** **Skilled personnel** **Skilled personnel**

9.2 General error messages

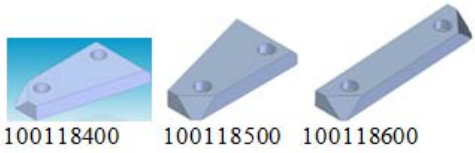
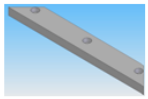
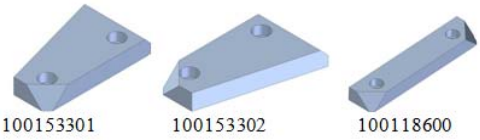
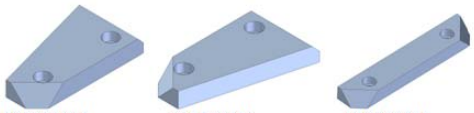
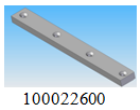
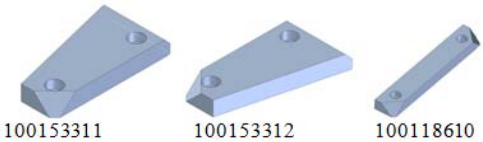
No.:	Message:	Cause:	Remedy:
Wire breaks or knot does not tighten	Bale too long	Correct length of bale	**Operator***
	Bale compressed too tightly	Correct channel control, select a lower compression	**Operator ***
	Wire too thin Wire too brittle	Observe the wire specification	**Operator ***
	Unfavourable bale exit from the channel exit	Guide at least 1 bale length horizontally	**Operator ***
	Bale not cubic	Level for automatic switching too low or resistance in the channel is too low	**Operator ***
Machine doesn't switch off in automatic mode although the press room is empty	Automatic switching dirty or defect	Clean light barrier Change if necessary	**Operator* Skilled personnel**

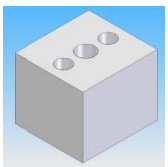
9.3 Problem avoidance

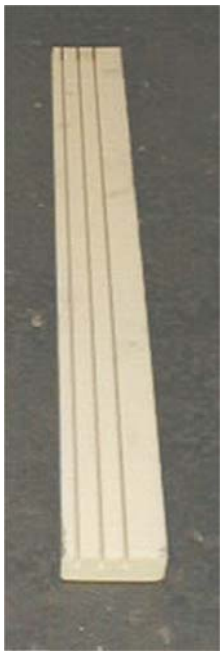
Material jam	Material is jamming in the press or the funnel	Ensure that the type and volume of material to be processed conforms to the capacity of the machine	**Operator***
		Prepare the material before charging the machine by sorting out parts that could probably cause a material jam	**Operator***
		If necessary have extra machines available (e.g. shredder, turbulator)	**Contact customer service**
		Break down wrongly bound or poorly formed bales before reprocessing	**Operator***
		When charging the conveyor belt: Set the speed of the feeding device higher than that of the in-feed conveyor to ensure that the material on the feeding device is distributed evenly in a thin layer	**Operator***
		Use material levelling devices (e.g. horizontal bars) that limit the height of the material being transported.	**Skilled personnel**

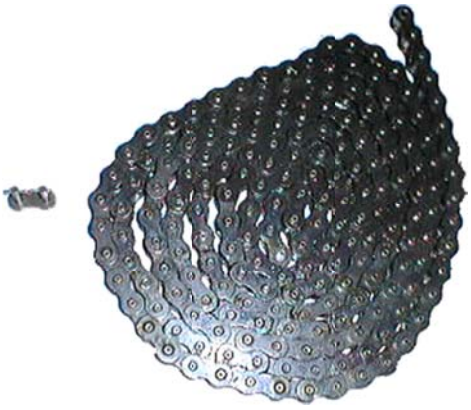
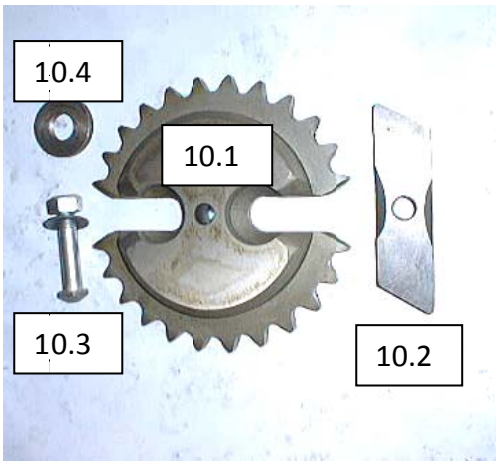
10. Spare parts

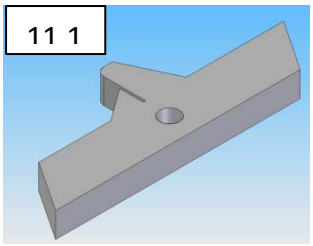
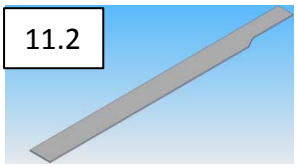
for channel baling press type Conti-Compact CC-20, CC-30 & CC-40V

Item	Description / type	Illustration	Article no.
1	Knives for press body CC20V: short (143 mm), outer right 1x short (143 mm), outer left 1x short (200 mm), inside 2x		 100118400 100118500 100118600
	Specials: Long (151 mm), outer right 1x Long (151 mm), outer left 1x Long (215 mm), inside 2x		 100049502 100049503 100049601
	Counter knife CC20 2x		100050300
	CC30V short (134 mm), outer right 1x short (134 mm), outer left 1x short (200 mm), inside 3x		 100153301 100153302 100118600
	Specials: Long (142 mm), outer right 1x Long (142 mm), outer left 1x Long (215 mm), inside 3x		 100153304 100153303 100049601
	Counter knife CC30 2x		100022600
	CC40V short (134 mm), outer right 1x short (134 mm), outer left 1x short (240 mm), inside 3x		 100153311 100153312 100118610
	Specials Long (152 mm) outer right Long (152 mm) outer left Long (250 mm) inside		 101081214 101081215 101081213
	Counter knife CC40 2x		100079000

Item	Description / type	Illustration	Article no.
2	**Screws for knives:** **CC20**: 8 x M10x20 Casing: 6 x M10x150 **CC30:** 10 x M1 Casing: 8 x M12 x35 **CC40**: 10 x M10x20 Casing: 10 x M12x35	o. Abb.	 250510013 250510010 250510013 250512067 250510013 250512067
3a	Sliding rail, press body guide CC-20, CC-30, CC-40 (6x)	 3a	 171201091
		 171201091	
	Guide inside CC-30, CC-40 (2x) Screws 2 x M 12 x 35 each	 3b	 100174800 250512019
3b	Chain guide CC20: (4x) Chain guide CC30: (5x) Screws: je 2 x M 10 x 80 je 2 x M 10 x 70 je 1 x M12 x 100 + 2 x clamping sleeve 10 x 50 each Chain guide (2x) (3x)	 100088300	 100088300 100088300 250510001 250510050 250512034 250710005 100088300 100120600

Item	Description / type	Illustration	Article no.
4	Telescopic guide CC-20, CC-30, and CC-40 Screws: je 2 x M 12 x 40		 171201090 250510026
5	Spring for retainer	without fig.	100088201
6	Knotting machine CC-20V CC-30V CC-40V		 50008700 50503600 50503500
7	Oil motor, knotting machine		401500002

Item	Description / type	Illustration	Article no.
8	Counting device, knotting machine		100100300
9	Chain with chain lock, knotting machine CC-20V CC-30V CC-40V		 101041200 101040900 101082500
10.1 10.1 10.2 10.3 10.4	Twist disk with knife and installation material Twist discs complete Twist disc bolt Knife Nut M12 (2x)		 50027800 100224100 100056701 251012003

Item	Description / type	Illustration	Article no.
11.1	Pawl CC20, CC30 (2x) CC40 (2x)		 100056802 100120702
11.2	Leaf spring (2x)		100088101
12.1 12.2 12.3	Return wheel z16 Bearing Retaining ring		100039800 253001008 601300004
13.1 13.2 13.3	Sprocket wheel z = 11 Bearing Retaining ring		100039700 253001008 601300004

Item	Description / type	Illustration	Article no.
14	Chain tensioner		
14.1	Link bar		100110700
14.2	Tensioning lever		100111400
14.3	Tensioning screw M12 x 290 with accessories		50066200
14.4	Screw M12 x 95		250512006
15	Needle cylinder		
	CC20 / CC30		51020900
	CC40		50507300
16	Needle cylinder		
	CC20 / CC30		400512002
	CC40		400523070
17	Needle wheel (polyamide)		100011300
	Needle bolt HPK		100013600
	Needle element		100013900
	Extension needle element		50507200
18	Needle head		050101800
19	Press cylinder		
	CC-20		400512012
	CC-30 and CC-40		50040301
	Screws CC13 / CC20 (8x)		500008431
	Screws CC30 / CC40 (8x)		250524009

Item	Description / type	Illustration	Article no.
20	Telescopic sheets CC-20 (4x) CC-30 (2x) CC-40 (2x)		 50011200 50040401 50519610
21	Telescopic-covering sheet CC-30 Telescopic-covering sheet CC-40		100174600 100563530
22	Rear panel (bottom) CC-20 Rear panel (top) CC-20 CC-30 CC-40		 50043400 101200046 50047300 50519609

Item	Description / type	Illustration	Article no.
23	Oil temperature gauge CC-20 and CC-30		406000010
24	Pressure gauge		405000002
25	Vent CC-30 / 40		403002002

Item	Description / type	Illustration	Article no.
26	Vent with dipstick CC-20		403002001
27	Filter cartridge for return filter CC-20 up to CC-40		403050002
28	Binding wire (20 kg /reel) CC-20V for carton Ø 2,8 mm for foil Ø 3,1 mm	without figure	 600700010 600700001
29	Binding wire (40 kg /reel) CC-30V & CC-40V for carton & foil Ø 3,1 mm for PET Ø 3,4 mm	without figure	 600700001 600700003
30	Binding wire (250 kg/reel) Ø 3,1 mm Ø 3,4 mm	without figure	 600700004 600700021
31	Clamp to secure pipe NW 10, 12L NW 12 15L NW 16 20 S Rope to secure pipe NW 10, M18/ 12L NW 12, M22/ 15L NW 16 M30/ 20 S	without figure without figure	 402010028 402010043 402016063 402010029 402010044 402016064

Spare parts concerning electric and hydraulics have to be taken out of the electric- and hydraulic diagrams

Mechanical spare parts that could not be found here must be requested directly from the manufacturer.

11. Appendix

11.1 Optional extras, others

11.1.1 Wire station (for big reels):

As an alternative to the standard equipment with the 40 kg wire reels, placed under the press frame to save space, an option is available as a wire station for large reels. When setting up a new reel the necessary aids must be used in accordance with the applicable accident prevention regulations**.**

Fig. 99: wire station

11.1.2 Bale length-size display

The bale length-size display enables the operator to observe the progress of the bale from a greater distance while charging the machine. As a result he can estimate when a possible material change can be made on the conveyor belt or when charging with a wheel loader. Thus, potentially mixed bales with different material fractions can be avoided. The large display is a two character LED display with ca. 150 mm high letters.

11.1.3 Wire monitoring

Additionally the machine can be equipped with a wire monitoring. If the wire breaks the automatic process is stopped and an error message is displayed on the touch panel.

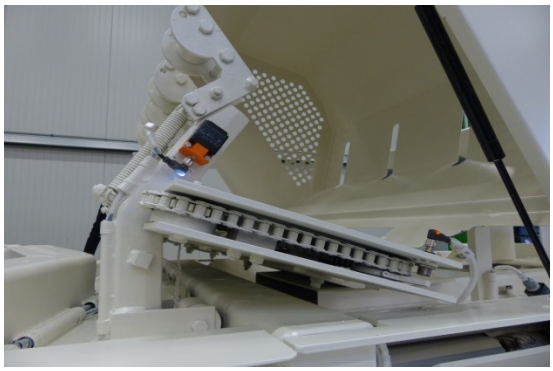


Fig. 100: wire monitoring

11.1.4 Pallet table

Additionally a pallet table can be installed at the end of the press channel. If a bale slide on the pallet table, the machine is stopped by a light barrier. Now the bale can be transported on the pallet to the storing place. A new pallet has to be loaded before starting compacting.

Fig. 101: pallet table

11.2 Wiring diagrams

General

	Any work on the electrical system of this machine has to be carried out by our customer service engineers or by a suitably qualified electrician.

The person entrusted with the work has to possess the necessary specialist knowledge of the machine and the electrical system. Furthermore, the person has to be familiar with the applicable safety regulations and the general state of the art.

Wiring diagrams for the machine

The enclosed wiring diagrams apply only to the machine which is supplied with this Operating Manual.

11.3 Records

Machine operators confirm by their signature that they have received, read and understood the Operating Manual and Maintenance Instructions. The plant operator agrees to follow anything set out herein carefully. The machine operators who have been instructed and are authorised to operate the machine must be recorded in the following table fig. 101 (page 88).

The acceptance of the machine must also be documented. For this use the form sheet Fig. Fig. 103 (page 89)

Each machine operator properly records all maintenance and overhaul work carried out and has the work confirmed by the person in charge. Always fill in each maintenance in form sheet fig. Fig. 104 (page 90)

This list - properly completed and signed - must be presented to the control bodies of the mutual indemnity association or the technical control board on demand.

Maintain an uninterrupted record!

All sheets may be copied. Keep the forms sheets in the switchgear box together with the operating manual.

Instructed machine operators :

(machine no.)

Name	Date	Signature	Responsible person

Fig. 102: form sheet operator

Machine operators confirm by their signature that they have read and understood the Operating Manual and Maintenance Instructions and agree to follow anything set out herein carefully.

Machine acceptance record: :

(machine no.)

Name	Accepted on	Signature

Fig. 103: form sheet acceptation of machine

By signing the table below machine operator confirms that they have accepted the machine as the machine in charge.

Maintenance and overhaul list of the machine :

(machine no.)

Maintenance on	Overhaul on	Date	Plant operator's signature	Confirmed by person in charge

Fig. 104: form sheet maintenance & overhaul

The machine operator properly records all maintenance and overhaul work carried out.