

GB

HSM



OPERATING MANUAL

**CHANNEL BALING PRESS
KP 88.1**

(Shredder-Baler combination: SP 4988 / SP 5088)

CE

HSM - Pressen GmbH + Co.KG

Bahnhofstraße 115

88682 Salem, Germany

Tel. ++49 (0) 75 53/822-0

Fax ++49 (0) 75 53/ 82 21 60

e-mail: info@hsm-online.de

Contents

Foreword	0-5
1 Safety	1-1
1.1 Notes on safety	1-1
1.1.1 "Work safety" symbol	1-1
1.1.2 "Notice" symbol	1-1
1.2 Classification of hazards	1-1
1.2.1 Danger	1-1
1.2.2 Warning	1-1
1.2.3 Caution	1-1
1.3 Notes on work safety	1-2
1.4 Use according to instructions	1-4
1.5 Checking the safety devices	1-4
2 Technical data	2-1
2.1 Channel baling press KP 88.1	2-1
2.2 Machine overview	2-2
2.3 Paper shredder FA 500.2	2-3
2.4 Paper shredder FA 490.1	2-3
2.5 Machine dimensions	2-4
2.6 Power requirements and fuse protection (3 x 400 V / 50 Hz)	2-4
2.7 Accessories	2-4
3 Installation	3-1
3.1 General information	3-1
3.2 Installation conditions	3-1
3.3 Supply connections	3-1
3.4 Adjustments	3-1
3.5 Transport of the baling press	3-2
3.5.1 Transport to a different operating site	3-2
3.6 Transport and installation of the paper shredder	3-2
3.7 Assembling the "paper shredder – baling press" combination	3-3

4	Start-up	4-1
4.1	Operating elements baling press	4-1
4.1.1	Call up the SERVICE menu	4-4
4.1.2	Displaying menus: Total bale counter / Daily bale counter / Operating hours	4-5
4.1.3	Displaying / adjusting menu: Bale length	4-5
4.1.4	Displaying / adjusting menu: Daily bale counter	4-5
4.2	Membrane keyboard paper shredder	4-6
4.3	First-time operation	4-7
4.3.1	Benutzersprache einstellen	4-8
4.3.1	Adjusting the user language	4-8
4.4	Running in the baling press	4-9
4.4.1	Setting the press channel adjustment cylinder	4-11
4.5	Drawing in the strapping tape	4-12
4.6	Automatic compression with light barrier	4-13
4.7	Strapping procedure	4-13
4.8	Funktionsablauf "Absackvorrichtung"	4-15
4.9	Malfunctions	4-16
4.9.1	Malfunction numbers	4-16
4.10	Shut-down	4-17
4.11	Operation outdoors	4-17
5	Inspection and maintenance work	5-1
5.1	General information	5-1
5.2	Hydraulic oil level / venting lid	5-1
5.3	Changing the hydraulic oil	5-2
5.4	Cleaning the hydraulic oil tank	5-3
5.5	Oiling and greasing moving parts	5-3
5.6	Cleaning	5-4
5.7	Screw connections	5-5
5.8	Maintenance paper shredder	5-5
6	Circuit diagrams and hydraulic diagram	6-1



The machine number is specified on the nameplate of the baling press, shown above. Guarantee claims and inquiries cannot be processed if you do not quote the machine number.

Please therefore enter this number into the grey field of the nameplate immediately after receipt of the baling press.

Foreword

This Operating Manual informs you in detail about the start-up and maintenance of your new baling press. It also contains notes on safety which must be observed.

To a great extent, the performance of your baling press depends on its proper application and thorough maintenance. You should carefully read this Operating Manual and the notes on safety and always keep them safe at hand. You can thus prevent accidents, maintain your guarantee claims against the manufacturer and always have an operative baling press.

HSM Pressen GmbH & Co. KG permanently aspire to improve their products. They reserve the right to perform any changes and modifications which are deemed necessary. However, this does not imply the obligation for a subsequent modification of already delivered machines.

Technical modifications as compared to the representations and statements in this Operating Manual which become necessary to improve the baling press are reserved.

This Operating Manual is intended for staff installing, operating and servicing the baling press. It includes technical specifications and drawings which must not be copied, distributed or used for competitive purposes or given to third parties completely or in part.

Please contact your local dealer if you still have questions after having read this Operating Manual.

1 Safety

1.1 Notes on safety

1.1.1 "Work safety" symbol



*This symbol marks all work safety notes in this Operating Manual which **endanger the health or life of people**. Please pay attention to this symbol and exercise particular care in such cases. Please also forward all work safety notes to other users.*

Apart from the instructions in this manual, you must also follow generally applicable safety and accident prevention regulations.

1.1.2 "Notice" symbol



This symbol marks information in this manual which requires particular attention so that guidelines, regulations, instructions and correct working procedures are followed and damage to or ruin of the machine and/or other equipment prevented.

1.2 Classification of hazards

1.2.1 Danger



*identifies an immediate danger. If not avoided, it **will** result in death or severe injuries (crippling).*

1.2.2 Warning



*identifies a possibly dangerous situation. If not avoided, it **could** result in death or severe injuries.*

1.2.3 Caution



*identifies a possibly dangerous situation. If not avoided, it **could** result in light or minor injuries. Is also used for warnings concerning damage to material.*

1.3 Notes on work safety

Please pay particular attention to the following notes on work safety:

- The baling press KP 88.1 has been inspected for safety by the "Fachausschuß Druck- und Papierverarbeitung" (technical committee on printing and paper processing). However, improper operation and misuse endanger
 - the health or life of the operator
 - the machine and other valuable equipment
 - the efficient operation of the shredder.
- The baling press KP 88.1 employs state-of-the-art technology and is safe in operation. However, this machine can become hazardous if used incorrectly by the instructed staff or for purposes other than those for which it was designed.
- The baling press may not be operated by persons under 16 years of age.
- Each person given duties of assembling, dismantling and reassembling and maintenance (inspection, servicing, repair) of the baling press must have read and fully understood the entire Operating Manual, in particular the "*Safety*" section.
- The baling press may only be operated, serviced and repaired by authorized, trained and instructed personnel. Such personnel must have received special instructions about potential dangers.
- Responsibilities for assembly, dismantling and reassembling, start-up, operation and maintenance must be clearly delegated and observed so that for the sake of safety no confusion as to competence can arise.
- The shut-down procedures specified in the Operating Manual must be followed during all assembly, dismantling and re-assembling, start-up, conversion, adaption and maintenance work. This type of work must be performed only when the machine is idle.
- The drive and additional devices must be secured against unintentional switching-on before performing work on the baling press. Set the main switch to "0" and secure it.
- Check whether all protective devices have been re-installed before putting the machine into operating again after repairs.
- Do not perform any work which may impair your safety while operating the machine.
- Immediately report any changes which impair your safety to the person responsible. Shut the machine down until such damage has been resolved.

-
- Before putting the machine into operation, ensure that it is in perfect working condition.
 - Ensure that the workplace on the baling press is always clean and safe.
 - The user must not make any conversions or changes on his own initiative which impair the safety of the baling press. Protective devices must not be removed or rendered inoperative.
 - All work which is not directly connected to the normal operation of the machine must always be performed when the machine is idle.
 - Doors and flaps must not be opened until the machine is idle. Observe sign!
 - Test the protective devices after installing or repairing electrical components.
 - Always follow local safety and accident prevention regulations when operating the baling press.
 - No pedestals or other raised surfaces may be placed in the vicinity of the machine if they alter the safety clearances.
 - All connecting cables must be laid in such a way that they cannot be tripped over.
 - Mechanical wearing parts must be inspected for correct function every six months.
 - All functional elements and electrical components must be inspected by a qualified electrician every six months.
 - Only persons with specialist knowledge and experience with hydraulics may work on the hydraulic equipment.
 - All lines, hoses and screw joints must be regularly inspected for tightness and visual evidence of damage! Any damage must be eliminated without delay. Spurting oil can cause injuries and fires!
 - Any system sections and pressurized lines (hydraulics) which can be opened must be rendered pressureless in accordance with the component descriptions before repair work begins.
 - When combined with a paper shredder, baling press and paper shredder must be firmly screwed together.
 - The paper shredder/baling press combination must not be operated with the paper shredder removed.

1.4 Use according to instructions

The channel baling press KP 88.1 is intended **only** for compacting paper and cardboard as well as any other materials specified in the contract.

Any other use beyond the scope described here is regarded as **not being in accordance with the instructions**. The manufacturer will not be made liable for damage resulting from incorrect use; the user alone is responsible.

Use according to instructions also includes observing the assembly, dismantling, re-assembly, start-up, operation and maintenance work specified by the manufacturer. The operation, maintenance and repair of the machine must be performed only by instructed persons who are aware of the potential dangers.

The relevant accident prevention regulations as well as the other generally recognised rules concerning safety engineering and occupational medicine must be observed.

The customer service of HSM must be consulted before the baling press is used outside its contractually agreed and intended scope of application otherwise the manufacturer's warranty will become void.

1.5 Checking the safety devices

Check the safety devices:

- at the start of every work shift (when operation was interrupted)
- at least once a week when the operation is interrupted
- after each maintenance or repair

Check the safety devices for:

- specified condition
- specified position
- safe attachment
- specified function

Perform a check using the following checklist. Eliminate the faults before putting the machine into operation!

If faults occur during operation the machine must be stopped immediately and the faults eliminated.

Do not change or remove protective devices. Do not hinder protective devices by modifications of the machine.

The machine must not be modified, for safety reasons!

Checklist for checking the safety devices

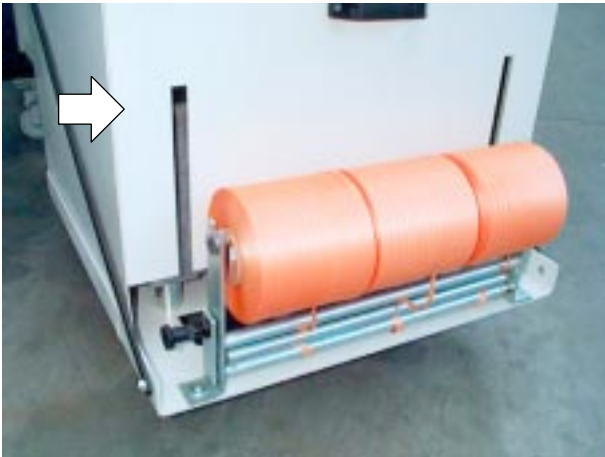
Use the following list for checking the safety devices.

Copy this list for your regular checks.

Check off the individual points when they are in order.



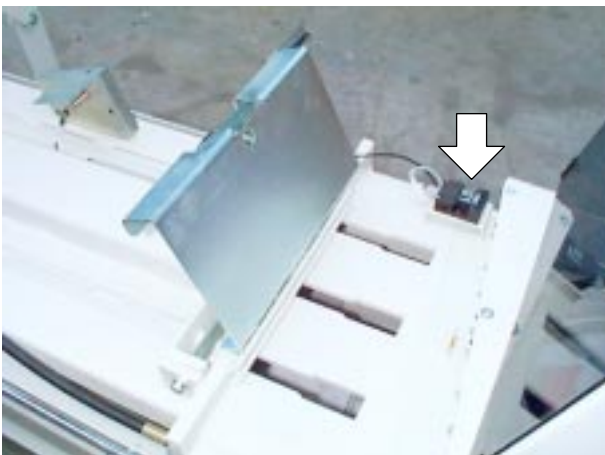
Operate the machine only when you have checked all items.



1. All protective covers must be installed and screwed tight.

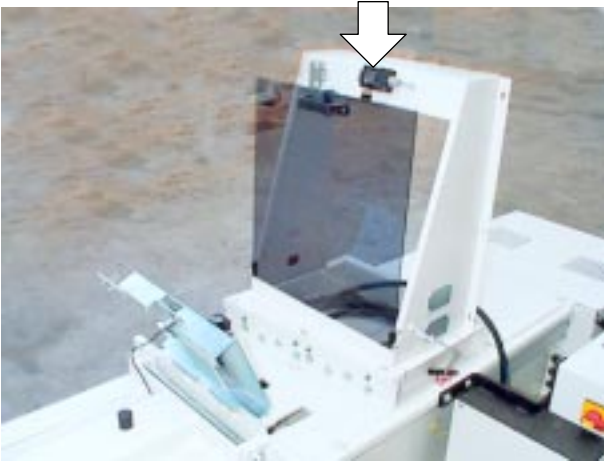


2. The switch box must be closed and the warning sign with lightning symbol must be attached at the switch box.



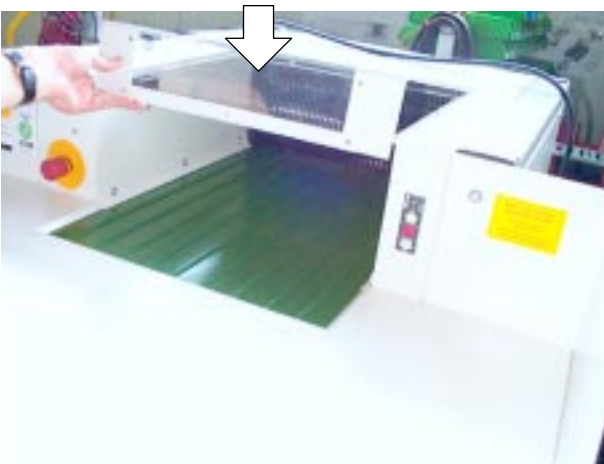
3. Check the safety switch at the strapping flap. When the strapping flap is open, the safety switch immediately switches the machine off or the machine cannot be switched on.

Test the function!



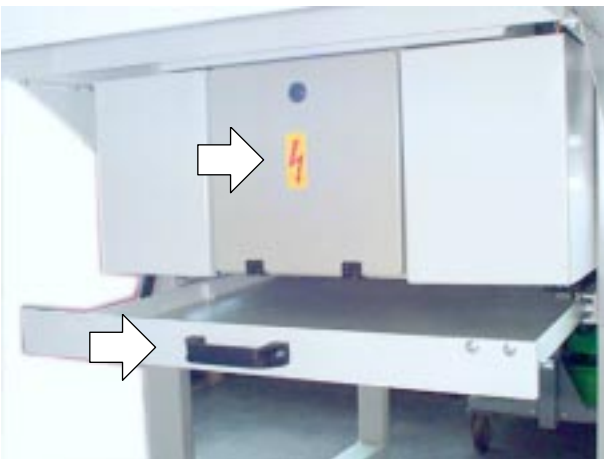
- 4. Check the safety switch at the hopper. When the inspection flap is open, the safety switch immediately switches the machine off or the machine cannot be switched on.

Test the function!



- 5. Check the safety switch at the inlet conveyor belt. When the safety flap is open, the safety switch immediately switches the machine off or the machine cannot be switched on.

Test the function!



- 6. Check the safety switch at the dirt tray of the paper shredder. When the dirt tray is open, the safety switch immediately switches the machine off or the machine cannot be switched on.

Test the function!

- 7. The switch box must be closed and the warning sign with lightning symbol must be attached at the switch box.

Checked
Date Signature

2 Technical data

2.1 Channel baling press KP 88.1

Weight	approx. 880 kg
Dimensions (L x W x H)	3310 x 1150 x 1405 mm

Press data

Pressing power	85 kN
Specific pressing power	30 N/cm ²
Compression time with return stroke	13 s
Bale size	500 x 500 x 400-600 MM
Bale weight (depending on material)	40–60 kg

Motor data

Rated power P_n	4.0 kW
Operating voltage U	400 V / 50 Hz
Rated current I_n at U = 400 V	8.5 A
Output RPM n_{out}	1450 min ⁻¹
Protection mode	IP54

Hydraulic system

Operating pressure p_{max}	210 bar
------------------------------	---------

Pump

Discharge Q with 1450 min ⁻¹	19.5 l/min
---	------------

Cylinders

Press cylinder	ø70/50 x 630 mm
Channel adjustment cylinder	ø60/40 x 120 mm

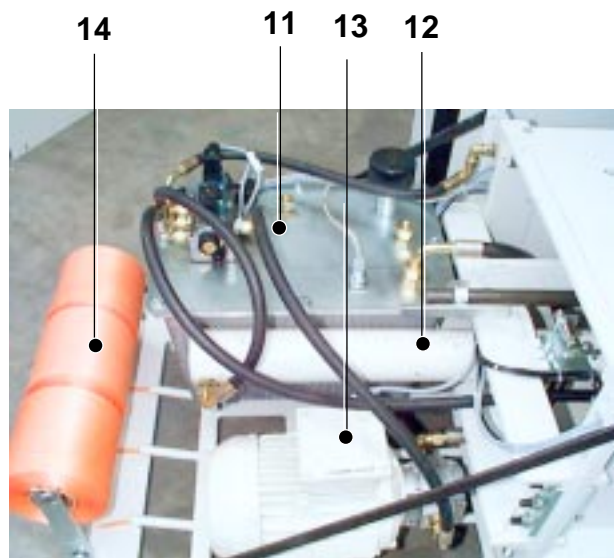
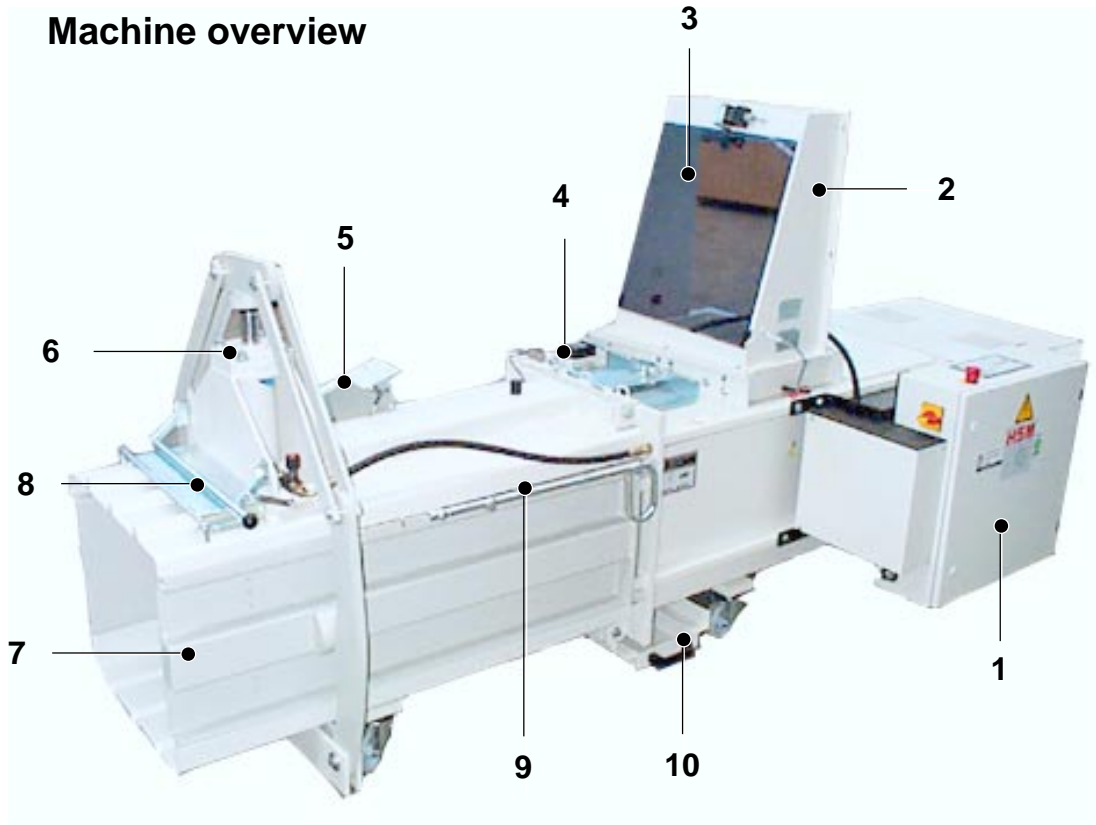
Oil tank

Oil volume	27 l
Oil type	multigrade oil to DIN 51524-T3) ISO viscosity class HVLP 22

Noise emission values

The sound pressure level according to DIN 45635 Part 27, does not exceed the value of 80 dB (A).

2.2 Machine overview



- 1 Switch and terminal box
- 2 Hopper
- 3 Inspection flap
- 4 Strapping flap
- 5 Counting wheel
- 6 Press channel adjustment
- 7 Press channel

- 8 Sacking device
- 9 Tape insertion needle
- 10 Dirt tray
- 11 Oil tank
- 12 Press cylinder
- 13 Motor
- 14 Tape station
- 15 Paper shredder FA 490.1 / FA 500.2

2.3 Paper shredder FA 500.2

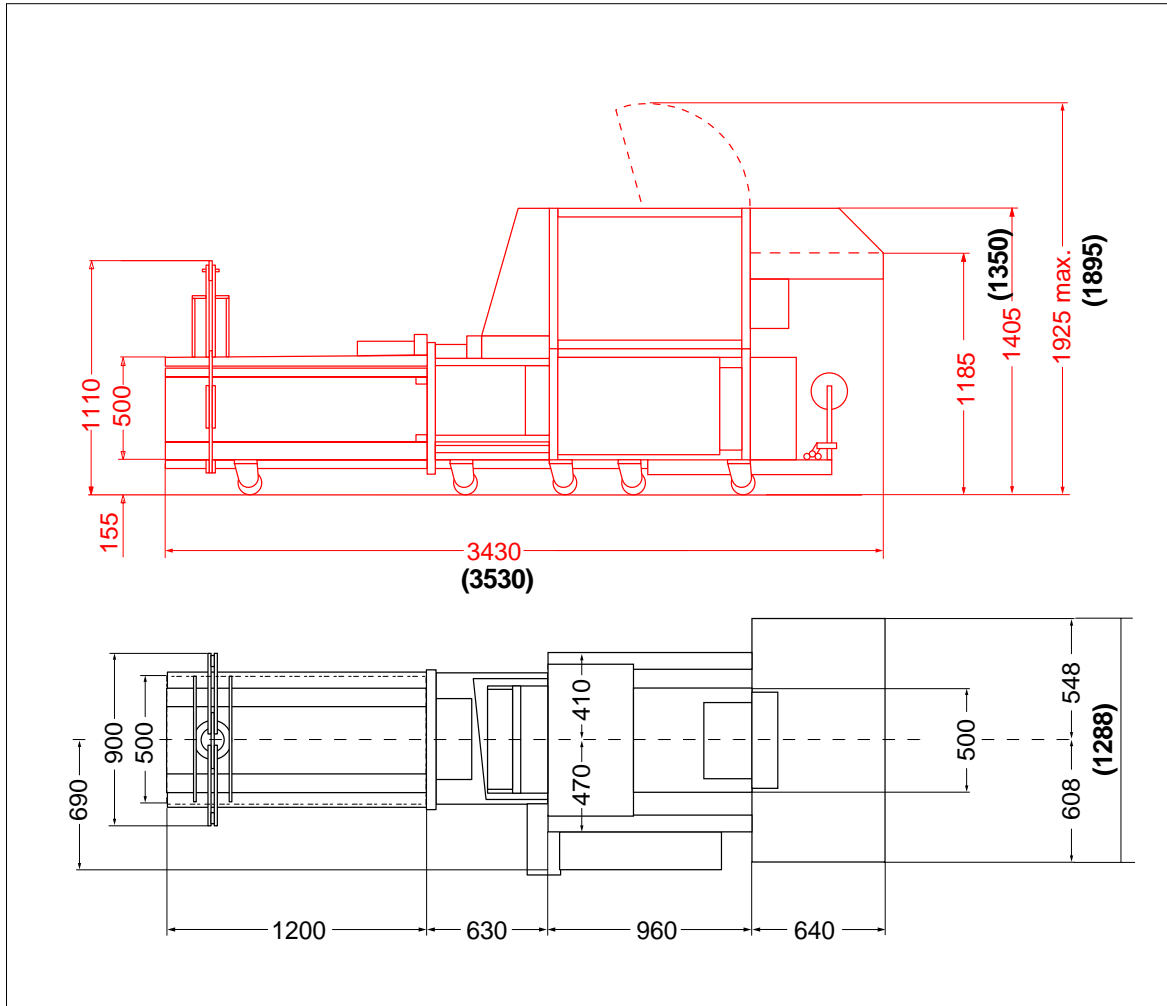
Cutting style	Cross cut	Cross cut	Cross cut
Shred size	6 x 40-53 mm	7,5 x 40-80 mm	10,5 x 40-80 mm
Safety rating DIN 32757	3	2	1
Cutting capacity per throughput approx. DIN A4, 70 g/m ²	400-450 sheets	500-550 sheets	600-650 sheets
Cutting speed	210 mm/s	210 mm/s	210 mm/s
Loading width	500 mm	500 mm	500 mm
Rated power	9.2 kW	9.2 kW	9.2 kW
Rated current	18.1 A	18.1 A	18.1 A
Weight	725 kg	725 kg	725 kg

2.4 Paper shredder FA 490.1

Cutting style	Strip cut	Cross cut	Cross cut	Cross cut
Shred size	5,8 / 10,5 mm	4,5 x 40-70 mm	7,5 x 40-80 mm	10,5 x 40-80 mm
Safety rating DIN 32757	2 / 1	3	2	1
Cutting capacity per throughput approx. DIN A4, 70 g/m ²	160-180 Sheets / 230-250 Sheets	200-220 Sheets	300-320 Sheets	420-440 Sheets
Cutting speed	235 mm/s	250 mm/s	250 mm/s	250 mm/s
Loading width	500 mm	500 mm	500 mm	500 mm
Rated power	2 x 3 kW	2 x 3 kW	2 x 3 kW	2 x 3 kW
Rated current	2 x 6,6 A	2 x 6,6 A	2 x 6,6 A	2 x 6,6 A
Weight	600 kg	600 kg	600 kg	600 kg

2.5 Machine dimensions

Combination: Baling press KP 88.1 with paper shredder HSM FA 500.2 (FA 490.1)



2.6 Power requirements and fuse protection (3 x 400 V / 50 Hz)

	KP 88.1	FA 490.1	FA 500.2
Rated power P_n	: 4.0 kW	6.0 kW	9.2 kW
Rated current I_n	: 8.5 A	13.2 A	18.1 A
Mains plug	: CEE 32		
Total fuse protection:	: KP 88.1 + FA 490.1:	25 A (Delay fuse "gl")	
Total fuse protection:	: KP 88.1 + FA 500.2:	35 A (Delay fuse "gl")	

2.7 Accessories

PE plastic bag 570/545 x 1150 x 0.1mm
 Order no.: 1 452 995 000

3 Installation

3.1 General information

We urgently recommend to have the installation work on the baling press performed by trained HSM staff.

We assume no responsibility for damage arising from incorrect installation work.

Do not start the installation work before having fully read and understood the Operating Manual.

3.2 Installation conditions

When planning the installation site (i. e. planning performed by the customer) it must be ensured that there is enough room around the baling press. This makes the installation and repair work easier. Machines connected to the baling press must be positioned accordingly.

The installation on the prepared foundation must be such that the baling press stands evenly. Level off the floor as necessary.

3.3 Supply connections

The electric power is supplied via the central control cabinet with the electric cable with a CEE plug.

A suitable socket and electric power supply must be present at the installation site.

3.4 Adjustments

Generally, all modules are assembled and the electrical and hydraulical connections are present.

The electrical and hydraulical adjustment of the various components is performed by HSM.



Caution!

Unauthorized modifications of the set values are not allowed and can result in severe damage to the machine.

3.5 Transport of the baling press

The pick-up points for unloading from a lorry by means of a fork-lift must be observed.



- Position the baling press at the installation site on a flat, smooth floor.
- Remove the packaging foil and dispose it in an ecologically beneficial manner.
- Cut the steel tapes.
- Lift the baling press approx. 10 cm with a fork-lift and remove the pieces of squared timber.
- Open inspection flap and remove all supplied material from press chamber

3.5.1 Transport to a different operating site

Over short distances the channel baling press can be rolled to the operating site. Ensure that the load on the foundation is accounted for and the space requirements fulfilled at the new installation site. An approved electrical connection must be available at the new installation site.



Caution!

Installations on the electrical system or on the control cabinet may be performed only by a qualified electrician or our customer service.

3.6 Transport and installation of the paper shredder

See OPERATING INSTRUCTIONS PAPER SHREDDER
HSM FA 500.2 resp. HSM FA 490.1

3.7 Assembling the "paper shredder – baling press" combination

The baling press KP 88.1 can be combined with the HSM paper shredders FA 490.1 and FA 500.2.



Danger!

The paper shredder and the baling press may be switched on and operated only after both machines have been properly connected and screwed together. Risk of injury!



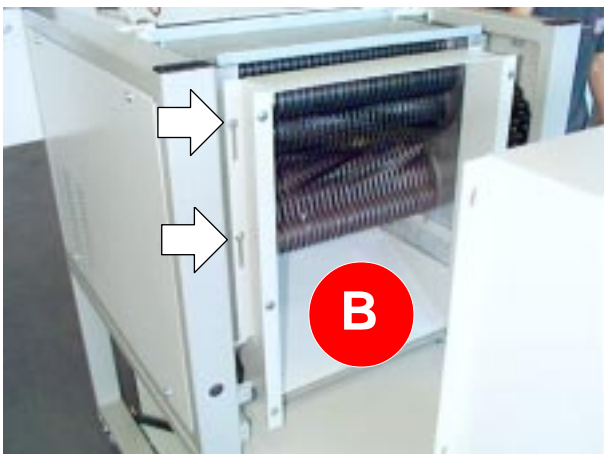
1. Push the paper shredder from the rear over the baling press.
2. Carefully push the paper shredder until the outlet funnel of the paper shredder and the hopper of the baling press meet.

Possibly the lower screw (S) at the cross beam must be removed.



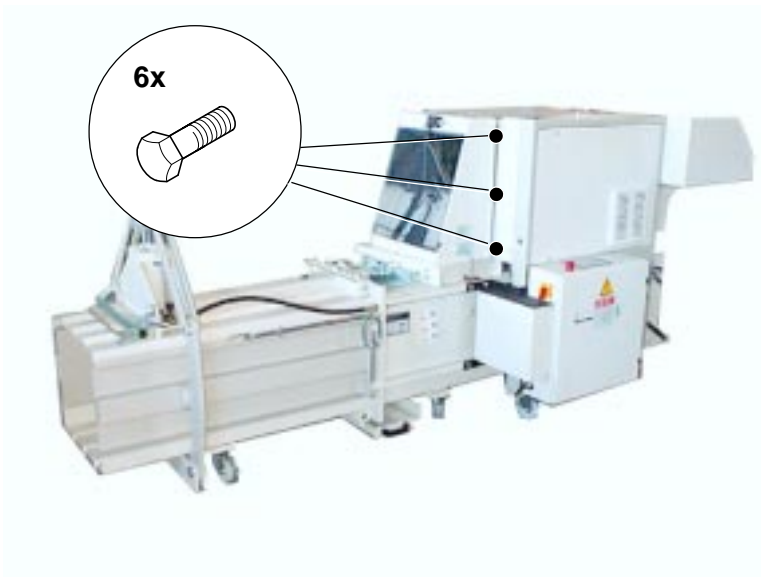
If the paper shredder cannot be pushed completely up to the press hopper, you must readjust the adaptor flange.

Screw off the cover (A).



Loosen the screws and adjust the adaptor flange (B). Screw tight the 4 screws again.

Reinstall the cover.



3. Connect paper shredder and baling press with the 6 screws supplied.



4. Insert the electric connector of the paper shredder into the socket on the baling press.

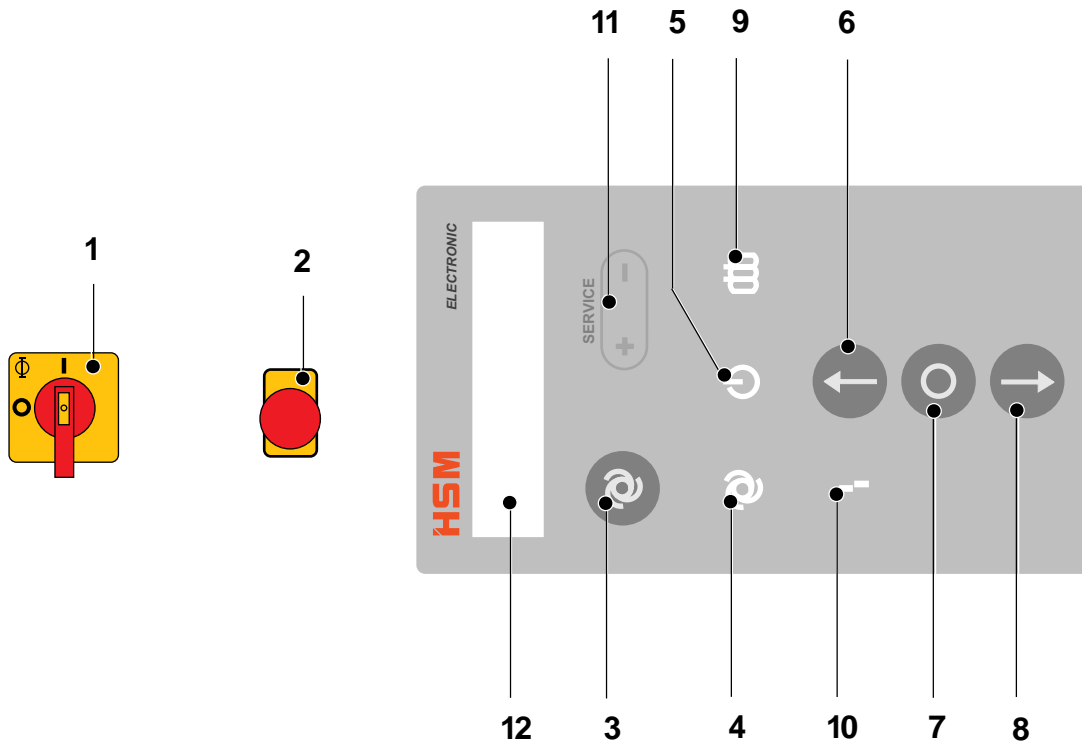


5. Now block the brake rollers of the paper shredder and the baling press.

6. Check the safety devices. Use the list for checking the safety devices in chapter 1.

4 Start-up

4.1 Operating elements baling press



- 1 Main switch
- 2 Emergency-stop
- 3 Automatic operation
- 4 Automatic operation(Light symbol)
- 5 Standby (Ready for operation)
- 6 Press ram forwards
- 7 Press ram stop
- 8 Press ram backwards
- 9 Bale finished
- 10 Malfunction
- 11 Menu selection / Scroll up (+) / down (-)
- 12 Display

**Main switch (4-1/1)**

When turned 90° clockwise, the main switch is on.
The main switch can be locked in the "Off" position with a padlock.

**Emergency-stop (4-1/2)**

When pulled out, the "Emergency-stop" pushbutton is released.
When the "Emergency-stop" pushbutton is pressed, the circuit is interrupted.
This switches the paper shredder and the baling press off.

**"Automatic operation" soft-key (4-1/3)**

Pressing this soft-key switches the baling press into automatic operation mode. By repressing the soft-key, automatic operation mode is deleted.

**Light symbol "Automatic operation" (4-1/4)**

This yellow light symbol lights up when the automatic operation is switched on.

**Light symbol "Standby" (4-1/5)**

This green light symbol lights up when the main switch is switched on and under power.
The light symbol is flashing in set-up mode resp. at the message "Bale finished".

**"Press ram forwards" soft-key (4-1/6)**

(arrow *in* compression direction)

Pressing this soft-key starts the compression process. The press ram moves forwards and compresses the material. The press ram automatically returns to its rear end position after expiry of the pressing time.
The motor stops automatically after expiry of an adjusted delay time.

**"Press ram stop" soft-key (4-1/7)**

This soft-key stops the press ram in any position.

**"Press ram backwards" soft-key (4-1/8)**

(arrow *opposite* compression direction)

When this soft-key is pressed, the press ram returns into its rear end position.

**Light symbol "Bale finished" (4-1/9)**

This blue symbol lights up when a bale has reached a certain size. The press ram stops and baling press and paper shredder are switched off.

Screen display: **Bale finished**
Strap the bale

The red LED "Baler not in automatic operation mode" (= *accords: Bag full-display*) on the operator panel of the paper shredder lights up and the standby-symbol blinks.

The cutting unit of the paper shredder now only can be run in reverse direction.

The message "Bale finished" is displayed until the strapping flap is closed again. Then there appears the

Screen display: **Manual operation**
No. of bales: xxx (= *daily bale counter*)

**Light symbol "Malfunction" (4-1/10)**

This red symbol lights up when there is any malfunction on the baling press. Baling press and paper shredder are switched off.

(-> see section "**Malfunctions**")

The installation cannot be started as long as this message is displayed!

Screen display (4-1/12)

On the display are shown the running states and the error messages.

(-> see section "**Malfunctions**")

4.1.1 Call up the SERVICE menu



SERVICE menu / + / - keys (4-1/11)

The SERVICE menu can only be called up in manual operation mode.

By simultaneous pressing of the +/- keys for approx. 3 seconds, you come to the menu **SERVICE**

With the +/- keys you can scroll to the submenus

Set-up mode - Daily bale counter - Balen length - Actual values - User language - Error memory - System

By simultaneous pressing of the +/- keys for approx. 3 seconds in the respective submenu, you can go deeper in these menus.

Pressing the +/- keys you can scroll in the menu.

By simultaneous pressing of the +/- keys you can acknowledge the adjusted values.

By pressing of any key you can return to the main menu.

Setup mode				
Bale finished		Press ram	Press channel	
Set	Reset	Press ram forw +	Open press channel +	
		Press ram backw -		

System				
Menu times				
Motor run-out time	Oil cooler off	Oil cooler on	Overloading	Starting time
xxx s	xxx °C	xxx °C	xxx s	xxx s

Error memory				
xxxx				

User language				
D, GB, ...				

Actual values				
Oil temperature	Total bale counter	Daily bale counter	Operating hours	
xx °C	xx	xx	xx	

Bale length				
Nominal value: xxx				

Daily bale counter				
No. of bales: xx	No. of bales: xx			
Erase ? Yes	Erase ? No			

4.1.2 Displaying menus: Total bale counter / Daily bale counter / Operating hours

- Simultaneously press the +/- keys for approx 3 seconds
Screen display: Menu SERVICE - Setup mode
- Press the + key 3x
Screen display: Menu SERVICE - Actual values
- Simultaneously press the +/- keys for approx. 3 seconds
**Screen display: Oil temperature
xxx°**
- Scroll to the desired menu items using the +/- keys
Total bale counter / Daily bale counter / Operating hours

**Screen display: Total bale counter
xxx**

or

**Displayanzeige: Daily bale counter
xxx**

or

**Displayanzeige: Operating hours
xxx**

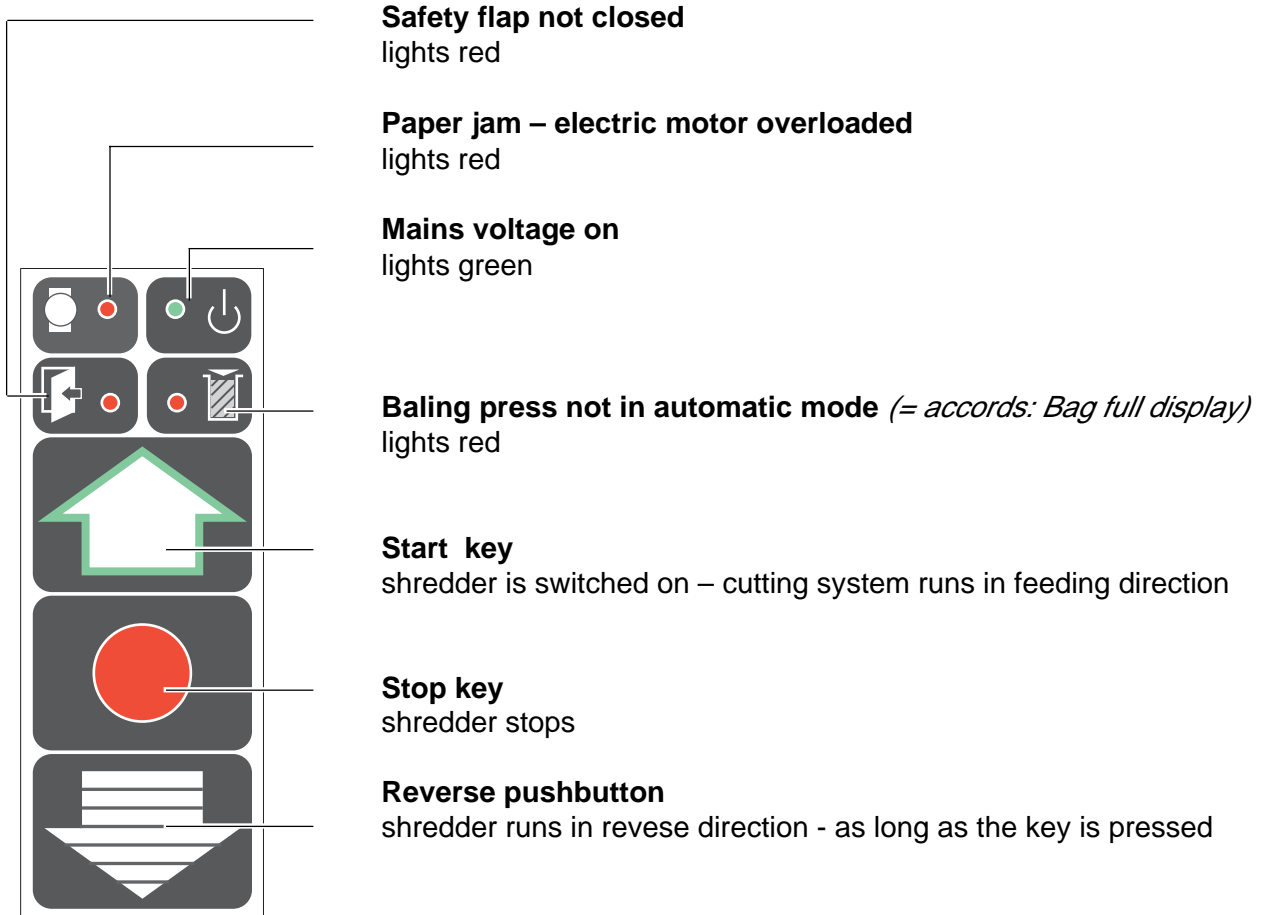
4.1.3 Displaying / adjusting menu: Bale length

- Simultaneously press the +/- keys for approx 3 seconds
Screen display: Menu SERVICE - Setup mode
- Press the + key 2x
Screen display: Menu SERVICE - Bale length
- Simultaneously press the +/- keys for approx. 3 seconds
Screen display: Nominal value xxx
- Scroll to the desired bale length using the +/- keys (200 mm ÷ 950 mm)
- Simultaneously press the +/- keys for acknowledgement

4.1.4 Displaying / adjusting menu: Daily bale counter

- Simultaneously press the +/- keys for approx 3 seconds
Screen display: Menu SERVICE - Setup mode
- Press the + key 1x
Screen display: Menu SERVICE - Daily bale counter
- Simultaneously press the +/- keys for approx. 3 seconds
**Screen display: No. of bales xxx
Erase? yes/no**
- Scroll to the desired menu item **Erase yes / Erase no** using the +/- keys
- Simultaneously press the +/- keys for acknowledgement

4.2 Membrane keyboard paper shredder



Emergency-stop button

"Emergency stop" is released by pulling out the button.

If you press the "Emergency stop" button the power circuit is broken. This switches off the press and the paper shredder.



Note

The paper shredder only works, if the press is in automatic operation mode.

**Also see separate OPERATING INSTRUCTIONS PAPER SHREDDER
FA 490. 1 bzw. FA 500.2**

4.3 First-time operation

- Open the inspection flap on the hopper and check whether the press chamber is free and remove possibly supplied spare parts or consumable materials
- Insert the CEE plug in the on-site socket.
- Release "Emergency-stop" button of the paper shredder and the baling press.
- Switch on the main switch.



- After a selftest of the control there appears the

Screen display: **Manual operation**
 Nominal xxx Actual xxx

- If the malfunction numbers 1000 (= Phase is missing) or 1010 (=wrong rotary field) appear in the display -> consult an electrician! (see section "Malfunctions")



Warning!

Failures on the electrical system and the power supply cables must be eliminated only by qualified electricians or the HSM customer service.

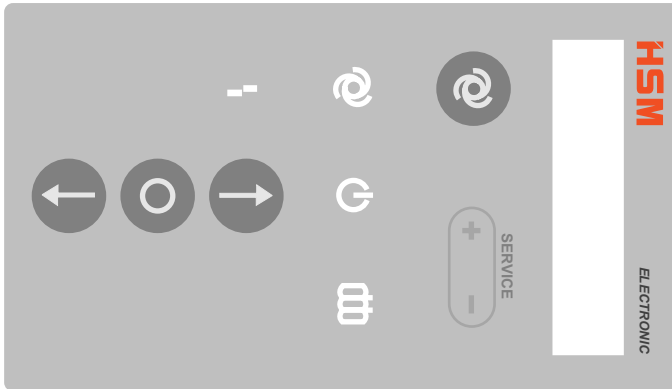
- Close the control cabinet before continuing the start-up.

4.3.1 Adjusting the user language

The screen display can be adjusted for different user languages.

The following ones are available:

D - GB - F - E - I - P - NL - N - S - FIN - DK - GR - TR - PL - CZ - RUS



- Press the +/- keys for approx 3 seconds
Screen display: Menu SERVICE - Set-up mode
- Press the + key 4x
Screen display: Set-up mode - User language
- Simultaneously press the +/- keys for approx. 3 seconds
Screen display: User language - D
- Scroll to the desired language using the +/- keys
- Simultaneously press the +/- keys for acknowledgement
Screen display: Manual operation
Nominal xxx Actual xxx

4.4 Running in the baling press

- Place the wooden frame (460 mm x 460 mm square timber: 120 mm x 120 mm) into the press channel



- Press the "Press ram forwards" key (arrow *in* compression direction)



- the press ram moves forwards , automatically reverses and stops in its start position
- pressing the stop-key stops the movement of the press ram at any position; the movement can be continued by pressing the "Press ram forwards" or "Press ram backwards" keys

- Move press ram approx. 2 times forwards and backwards in manual operation

- This braces the wooden frame in the press channel (this step is required only when the press channel had been disassembled or the wooden frame had not yet been braced)



- Press the "Automatic operation" key on the baling press
- yellow light symbol "Automatic operation" comes up

Screen display: Automatic operation
Nominal xxx Actual xxx



Note

The paper shredder can only be operated when the baling press is in automatic mode.



- Press the green arrow key (=start key)
- Place the material to be shredded on the loading table and then place batches on the infeed conveyor



If material that is not supposed to be shredded is mistakenly placed onto the conveyor belt do not try to pull it out, but



- First press the "Stop" key and then press the reverse key after the shredder has come to a standstill



- The shredder is now running in reverse
- When the reverse key is released the shredder comes to a standstill



- The material can now be removed from the conveyor belt and the shredder can be started again with the start key

The shredded material falls through the discharge chute of the shredder directly into the hopper of the press.

The press cycle is initiated by the light barrier inside the hopper when a certain filling level is reached. The press ram moves forwards and compresses the material. The press ram automatically returns to its rear end position after expiry of the pressing time.

The shredder continues running during the press cycle.

- Feed the paper shredder with material until the wooden frame is ejected at the end of the press channel during the compression process
- Switch off the main switch on the baling press
- Draw in the 3 strapping tapes (as described in section 4.5)

**Note**

The first bales compressed during the running-in of the baling press are not yet perfectly compressed and shaped. Even compressing the ejected compression material again does not result in an optimum bale.

- Switch on the main switch on the baling press
- Reload the unstrapped "running-in material" from the beginning through the inspection flap into the baling press
- Close the inspection flap
- – Press the "Press ram forwards" key and compress all "running-in material" in this manner
- ↻ – Press the "Automatic operation" key
- Following you can continue working automatically with the equipment

4.4.1 Setting the press channel adjustment cylinder

The material is compressed and pushed into the conical press channel. The press channel opens and closes depending on the pressure.

The opening speed of the press channel can or must be adjusted depending on the type of material to be pressed (frictional resistance).

**Note**

The press channel should open smoothly – not with a sudden jerk!

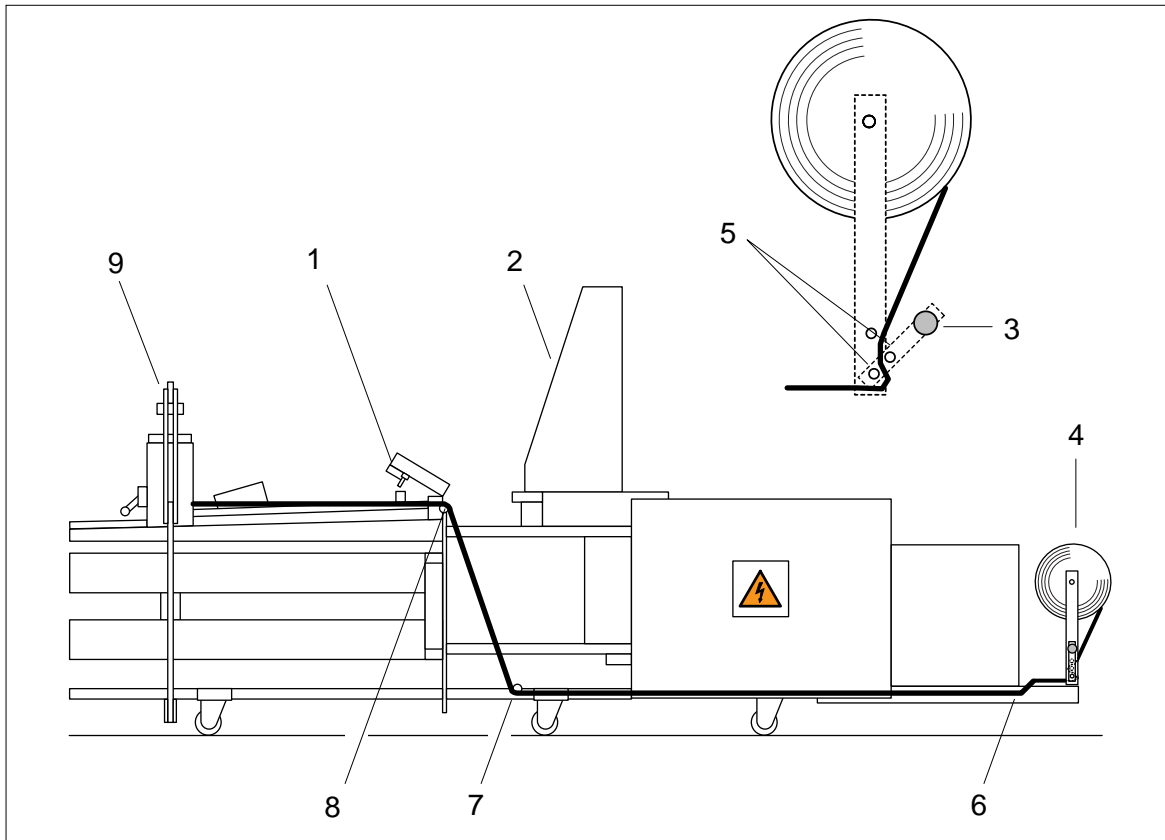
Close the throttle screw to open the press channel more **slowly**
Open the throttle screw to open the press channel more **quickly**

Basic setting:

Close the throttle screw completely and open it by **1/8 of a turn**.



4.5 Drawing in the strapping tape



- Open the strapping flap (1) and the inspection door (2) on the hopper
- Pull the strapping tape (4) from the roll
- Open the tape brake (3) and pull the strapping tape through the bore hole (5)
- Push the strapping tape into the tube (6) until the tape comes out at the front of the press chamber (7)
- Pull the strapping tape upwards and through the eyelet (8)
- Pull the strapping tape forwards up to the press channel adjustment (9) and let it be placed upon the cover, so that the tape can run on when the new bale is compressed



Caution!

Do not tie the tape end to the press channel because this can tear the tape off!

- Close the strapping flap
- Take up the loose tape on the tape roll and close the tape brake

4.6 Automatic compression with light barrier



- Press the "Automatic operation" key
- yellow light symbol "Automatic operation" comes up
Screen display: Automatic operation
Nominal xxx Actual xxx

– Now you can start feeding the paper shredder continuously

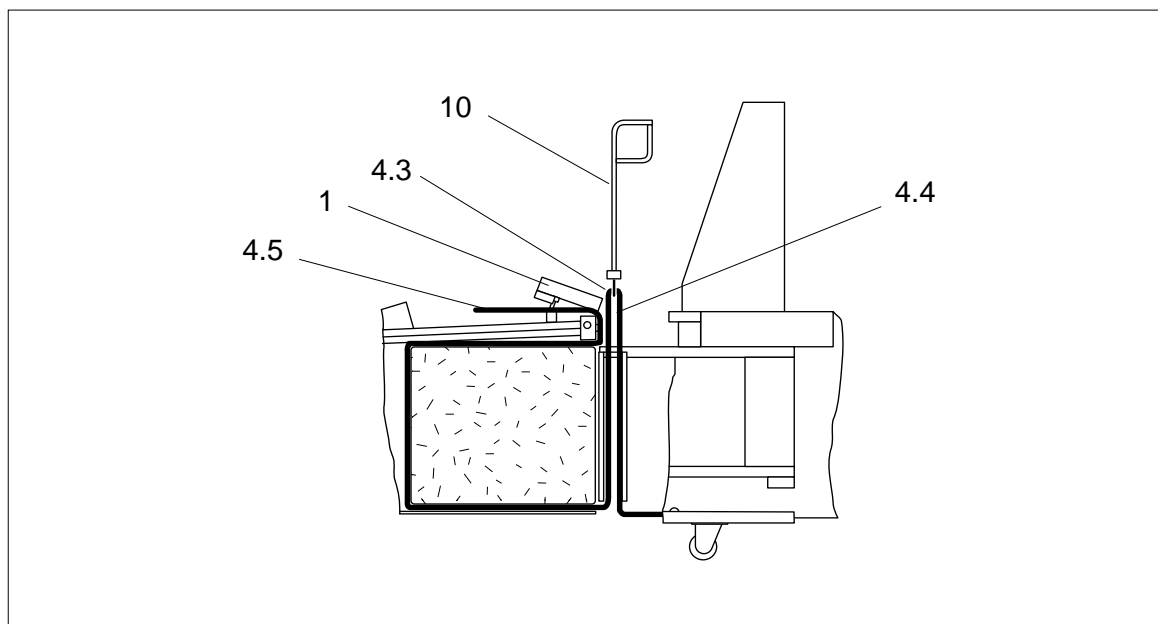
In this setting, the press ram automatically moves forwards and backwards until the beam of the light barrier is interrupted by compression material.

After the set bale length has been reached, the message "*Bale finished - Strapping*" is displayed and the press ram stops in its foremost position.

4.7 Strapping procedure

The press ram moves into its front position and stops in "Strapping" position under pressure. The bale must now be strapped three times. Proceed as follows:

- Open the strapping flap (1) and loosen the tape brake



- Check whether the channels in the press ram are free from material and clean the channels using the tape insertion needle (10), if necessary

- Push down the tape insertion needle (10) through the first strapping channel of the press ram
- When the tape insertion needle is rotated by 90°, the catching claw grips the loose tape
- Pull the hooked-in strapping tape up and put the tape insertion needle to the side
- Cut the tape loop with a knife or a pair of scissors and knot the tape ends (4.5) and (4.3)

**Note**

*Make sure that you do not mix up the tape ends (4.3) and (4.4)!
Bale strapping is then impossible!*

- Pull the cut tape (4.4) immediately through the respective lugs up to the press channel adjustment

**Caution!**

Do not tie the tape end to the press channel because this can tear the tape off!

- Repeat this process for the 2nd and 3rd strapping process
- Close the strapping flap (1) and the tape brake

**Warning!**

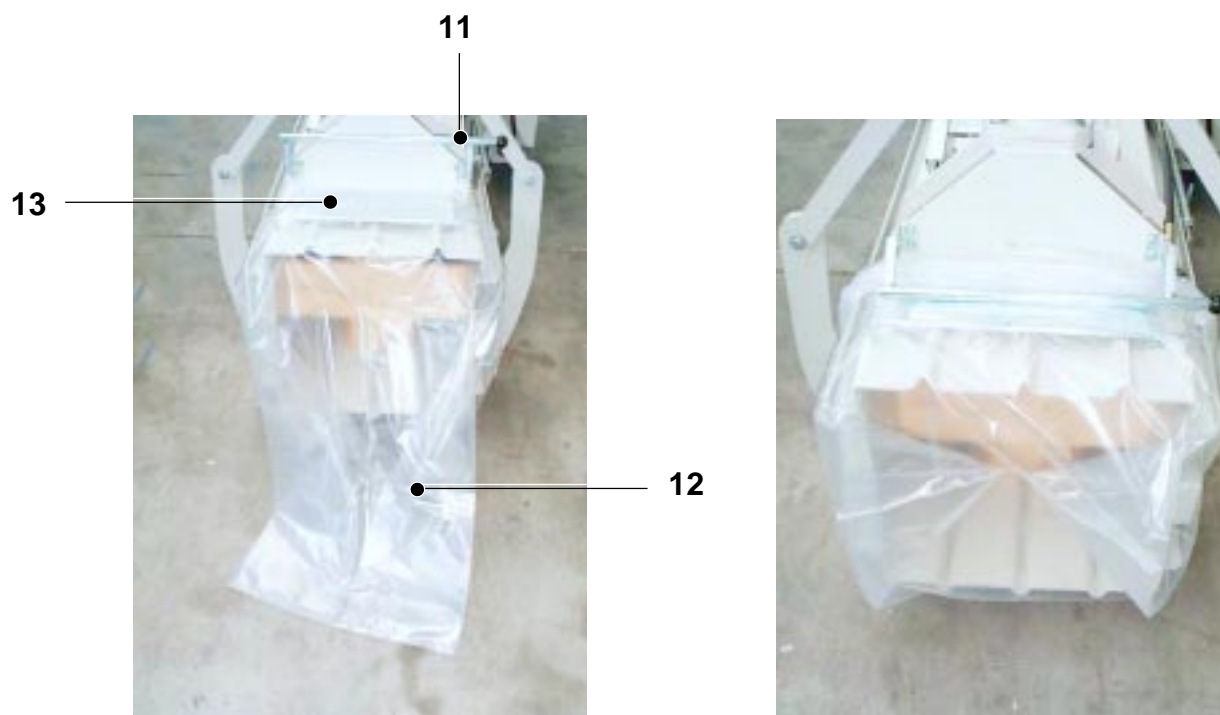
If the channels in the press ram are not cleared carefully, it could cause that a tape will be caught in the press ram and pulled in by the reverse movement of the press ram.

*Never hold tight a tape with your hands, that is pulled in!
Squeezing and cutting injuries could be the result.*

- Move the press ram with the "Press ram backwards" key into its initial position
- The compression can now be initiated again with the "Automatic operation" key or manually with the "Press ram forwards" key.

4.8 "Sacking" procedure

- Lift the tension lever (11)
- Pull the plastic sack (12) over the outlet opening and push it further on over the metal sheet (13)
- Lower the tension lever (11)
- the ready bale is automatically pushed into the plastic sack.



Accessories:

Plastic sack

Order no.: 1 452 995 000

4.9 Malfunctions

As soon as there is any malfunction on the baler, the read light symbol is displayed. The baling press switches off and a corresponding malfunction message / malfunction number is shown on the display. By simultaneous pressing the +/- keys, certain malfunction messages can be erased.

Service - Hotline: ++49 (0) 75 53/822-0

4.9.1 Malfunction numbers

Code	Beschreibung	Abhilfe
1000	Phase is missing / mains input	Electrician! Check onsite fuses.
1010	Incorrect connection of phases / Wrong direct. of rotation	Electrician! Check rotatory field
1100	Oil temperature too high resp. line break	Let oil cool down
1110	Sensing device for oiltemperature defective	Electrician! Change sensing device
1200	Motor protective switch has triggered off	Check motor / acknowledge Q801M
1201	Motor protective switch oil cooler has triggered off	Check motor / acknowledge Q811M
1210	Emergency-off is actuated / baling press	Unlock emergency-off pushbutton
1211	Emergency-off is actuated	Unlock emergency-off pushbutton
1222	Inspection flap at the hopper is open	Close inspection flap
1223	Strapping flap is open	Close strapping flap
1271	Supervising time "Extend press ram"	Check movement of press ram
1272	Supervising time "Retract press ram"	Check movement of press ram
1273	Shearing malfunction	Remove material jam
1274	Compression malfunction	Check channel adjustment / check induct. switch B1004
1282	Inductive switch channel adjustment	Check inductive switch B1001
1290	Light barrier compression/material bridge	Remove material bridge / check B907 / clean light barr.
1291	Light barrier overcharging/material bridge (option)	Remove material bridge / check B 910 / clean light barr.
1300	Hardware defective	Electrician! Contact service of HSM
1310	Short circuit output Master	Electrician! Contact service of HSM
1320	Short circuit output Slave	Electrician! Contact service of HSM

- B 901: Press ram in rear position
- B 907 : Light barrier compression
- B 910: Light barrier overcharging (option)
- B 1001: Channel adjustment
- B 1004: Press ram in front position
- B 1007: Counting wheel
- B 1107: Oil temperature sensor

4.10 Shut-down

- Move the press ram into the starting position (Press ram in rearmost position)
- Switch off main switch.
- Secure the main switch against unauthorized switching on.

4.11 Operation outdoors

Some special points must be observed here:



Caution!

Put into operation only under supervision.

The operator must ensure that unauthorized persons do not have access to the combination press.

- Secure the main switch against unauthorized switching on.
- The equipment must not be directly exposed to rain.
- The maintenance intervals must be reduced.
- If the temperature drops below 0°C, use a different hydraulic oil with a suitable viscosity, if required.

5 Inspection and maintenance work

5.1 General information

All inspection and maintenance tasks refer to single-shift operation

- Check all mechanical wearing parts (rollers, tape insertion needle etc.) for correct function every *3 months*
- Check all lines, hoses and connections for leakage and visual evidence of damage before starting to work



Warning!

*Repair any damage without delay!
Spurting oil can cause injuries and fires!*

Repair and maintenance work on the electrical installations or the control cabinet may only be carried out by a qualified electrician or by the HSM after-sales service!

5.2 Hydraulic oil level / venting lid

The hydraulic oil level must be checked at least once every three months. The aggregates can be severely damaged if the oil level is too low.

Oil level control:

- Move the press ram into its rearmost position
- Switch off the main switch
- Screw off the screws on both sides of the cover
- Take out the spindle with the tape rolls and put it on the ground
- Take off the cover
- Screw off the venting lid



- Check the oil level at the dipstick of the venting lid
 - The oil level must be between the two notches on the oil dipstick
 - If the oil level in the tank is too low, replenish oil via the opening for the venting lid
 - To increase the service life of all hydraulic components, replace the oil *every year*
- Check the filling and venting filter lid once a month for contamination and permeability of air
 - Screw the filling and venting filter lid back on again
 - Screw the cover back on again
 - Put the spindle with the tape rolls back again

5.3 Changing the hydraulic oil

Change the hydraulic oil *once a year*.

- Move the press ram in its starting position
- Switch off the main switch
- Screw off the screws on both sides of the cover
- Take out the spindle with the tape rolls and put it on the ground
- Take off the cover
- Position a suitable container to collect the hydraulic oil below the oil drainage screw or use an oil suction aggregate
 - The tank contents of the hydraulic oil tank is about 27 l
- Screw off the oil drainage screw on the side of the oil tank with an Allen wrench (SW 10) and collect the oil with the container
- Screw off the venting lid
- Clean the hydraulic oil tank if it is severely soiled
- Screw the oil drainage screw back on again together with a new copper ring seal.

Oil type:

- multigrade oil to DIN 51524-T3, ISO viscosity grade HVLP 22

	ISO-Viskositätsklasse	ESSO	DEA	SHELL	ARAL	BP	FINA
Mineralöle Mineral oils	ISO VG 22 HVLP	UNIVIS N 22	Astron ZHLP 22	Tellus Öl T 22	Aral Vitam HF 22	Bartran HV 22	HYDRAN HV 22

**Note**

When using detergents and solvents, observe applicable accident prevention regulations of the vocational cooperative society!

Observe environmental legislation when disposing of used oil!

Never mix mixtures of hydraulic oil and detergents with used oil! Always collect these substances in separate containers and dispose of them correctly!

- Fill the tank with oil until the oil level is between the notches on the oil dipstick
- Move the press ram forwards and backwards several times and check the oil level again (as described above) with the press ram in foremost position
- Top up oil as necessary
- Screw the filling and venting lid back on again
- Screw the cover back on
- Put the spindle with the tape rolls back again

5.4 Cleaning the hydraulic oil tank

- Screw off the hexagon screws on the tank cover using open-end spanner SW13 and remove the seal
- Clean the inside of the hydraulic oil tank and remove any oil sludge
- Re-install the oil drainage screw, replace the tank cover seal and install the tank cover

5.5 Oiling and greasing moving parts

The press ram guide is almost maintenance-free. The rollers used have a grease filling which lasts their service life.

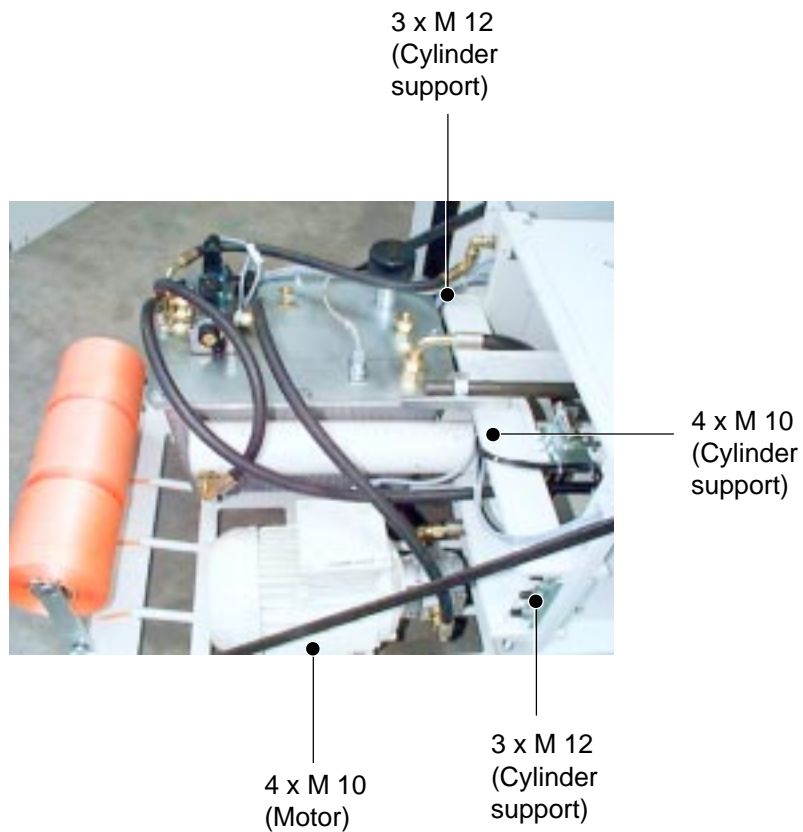
The sliding guide elements on the side are made of wear-resistant, glass fibre-reinforced plastics. All moving parts and hinges, especially the door hinges as well as the door lock itself must be lubricated as required.

5.6 Cleaning

- Move the press ram into its rearmost position
- Switch off the main switch
- Screw off the screws on both sides of the cover
- Take out the spindle with the tape rolls and put it on the ground
- Take off the cover
- Clean the area behind the press ram -> suck off all soil particles!
- Screw the cover back on again
- Put the spindle with the tape rolls back again



Cleaning



- Empty the dust tray beneath the baling press **once a week**



5.7 Screw connections

Check firmness of labelled screw connections with a torque wrench **once a month** and retighten if necessary.

The remaining screw connections must be checked for firmness at least **once a year**.

Property class: 8.8 / 10.9

Thread sizw	Tightening torque (Nm)		
	Property class 8.8	Property class 10.9	Property class 12.9
M 4	2,8	4,1	4,8
M 5	5,5	8,1	9,5
M 6	9,6	14	16
M 8	23	34	40
M 10	46	67	79
M 12	79	115	135
M 14	125	185	220
M 16	195	290	340
M 18	280	400	470
M 20	395	560	660
M 22	540	760	890
M 24	680	970	1150
M 27	1000	1450	1700
M 30	1350	1950	2300

BY F. GROSS SCHRAUBEN GMBH & CO. (Screw and nut zinc coated: $\mu=0,125$)

5.8 Maintenance paper shredder

Also see separate **OPERATING INSTRUCTIONS PAPER SHREDDER**
FA 490. 1 bzw. FA 500.2

6 Circuit diagrams and hydraulic diagram



Note

**Missing documents please order at
HSM Pressen GmbH + CoKG
Bahnhofstraße 115
D-88682 Salem
Telefon: +49-7553-822-0
Telefax: +49-7553-822160**

The machine number is specified on the nameplate of the baling press. Inquiries can badly be processed if you do not quote the machine number.



1	2	3	4	5	6	7	8																																								
A	B	C	D	E	F																																										
<h2 style="margin: 0;">Technical data / Technische Daten</h2> <p style="margin: 0;">HSM Pressen GmbH&Co KG Bahnhofstr.115 88682 Salem Tel.: +49(0)7553/822-0 mailto:info@hsm-online.de http://www.hsm-online.de</p>																																															
<p>key/Legende</p> <p>=BP : baling press / Ballenpresse</p> <p>+S : in the control cabinet / im Schaltschrank</p> <p>+MA : on the machine / an der Maschine</p> <p>+BF : operating panel / Bedienfeld</p>																																															
<p>This diagram is valid for: Dieser Plan ist gültig für:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">maschin. type Maschinentyp</th> <th style="text-align: left;">power Leistung</th> <th style="text-align: left;">voltage Spannung</th> <th style="text-align: left;">frequency Frequenz</th> </tr> </thead> <tbody> <tr> <td>KP88.x</td> <td>4kW</td> <td>400V</td> <td>50Hz</td> </tr> <tr> <td>AK807</td> <td>4kW</td> <td>400V</td> <td>50Hz</td> </tr> </tbody> </table>								maschin. type Maschinentyp	power Leistung	voltage Spannung	frequency Frequenz	KP88.x	4kW	400V	50Hz	AK807	4kW	400V	50Hz																												
maschin. type Maschinentyp	power Leistung	voltage Spannung	frequency Frequenz																																												
KP88.x	4kW	400V	50Hz																																												
AK807	4kW	400V	50Hz																																												
<p>Observe protection mark according to DIN 34!</p> <p>Schutzvermerk nach DIN 34 beachten!</p> <p>Erstellt mit ELCAD (R) 7.10</p> <p>all wires without cross section information: mm²</p> <p>alle Leitungen ohne Querschnittsangabe: mm²</p>																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">voltage Spannung</td> <td style="width: 50%;">3x400V/50Hz</td> </tr> <tr> <td>net Netz</td> <td>3P+N+PE</td> </tr> <tr> <td>power Leistung</td> <td>4kW + x</td> </tr> <tr> <td>fuse Absicherung</td> <td>32A</td> </tr> <tr> <td>control voltage Steuerspannung</td> <td>24VDC</td> </tr> <tr> <td>guideline Vorschrift</td> <td>VDE 0100</td> </tr> </table>		voltage Spannung	3x400V/50Hz	net Netz	3P+N+PE	power Leistung	4kW + x	fuse Absicherung	32A	control voltage Steuerspannung	24VDC	guideline Vorschrift	VDE 0100	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">HSM</td> <td colspan="2" style="text-align: center;">Technical data - Technische Daten</td> </tr> <tr> <td colspan="2" style="text-align: center;">Ersatz durch</td> <td colspan="2" style="text-align: center;">Masch. Nr.:</td> </tr> <tr> <td colspan="2" style="text-align: center;">KP88.x</td> <td colspan="2" style="text-align: center;">6 414 596 10 0</td> </tr> <tr> <td colspan="2" style="text-align: center;">Ersatz für</td> <td colspan="2" style="text-align: center;">Diagram Nr.:</td> </tr> <tr> <td colspan="2" style="text-align: center;">URSPRUNG</td> <td colspan="2" style="text-align: center;">Plan Nr.:</td> </tr> <tr> <td colspan="2" style="text-align: center;">2</td> <td colspan="2" style="text-align: center;">7</td> </tr> <tr> <td colspan="2" style="text-align: center;">1</td> <td colspan="2" style="text-align: center;">8</td> </tr> </table>						HSM		Technical data - Technische Daten		Ersatz durch		Masch. Nr.:		KP88.x		6 414 596 10 0		Ersatz für		Diagram Nr.:		URSPRUNG		Plan Nr.:		2		7		1		8	
voltage Spannung	3x400V/50Hz																																														
net Netz	3P+N+PE																																														
power Leistung	4kW + x																																														
fuse Absicherung	32A																																														
control voltage Steuerspannung	24VDC																																														
guideline Vorschrift	VDE 0100																																														
HSM		Technical data - Technische Daten																																													
Ersatz durch		Masch. Nr.:																																													
KP88.x		6 414 596 10 0																																													
Ersatz für		Diagram Nr.:																																													
URSPRUNG		Plan Nr.:																																													
2		7																																													
1		8																																													
A	B	C	D	E	F																																										

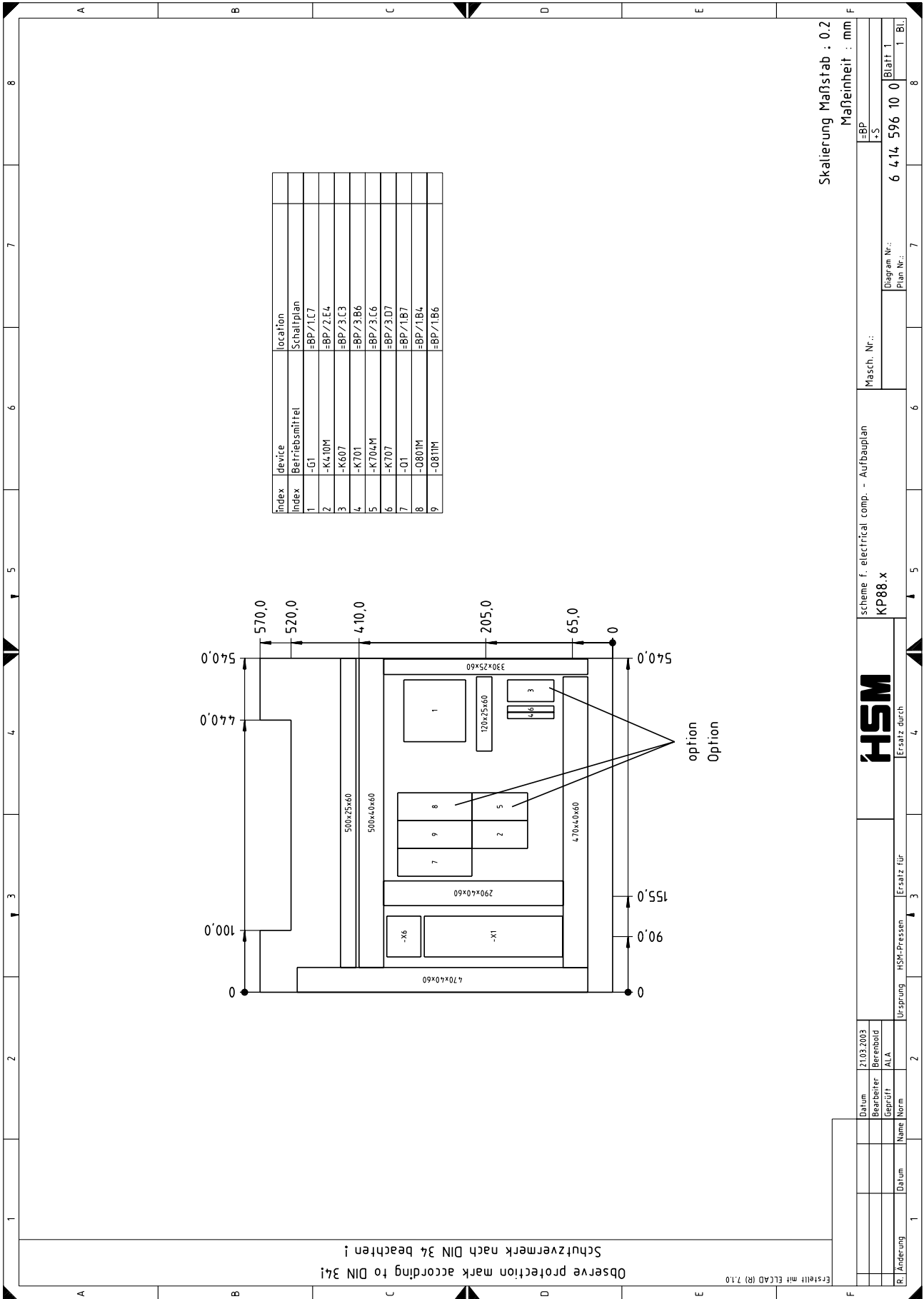


Diagram Nr.:	6 4 14 596 10 0	Blatt 1
Plan Nr.:		1 Bl.

Masch. Nr.:	
schema f. electrical comp. - Aufbauplan	KP88.x

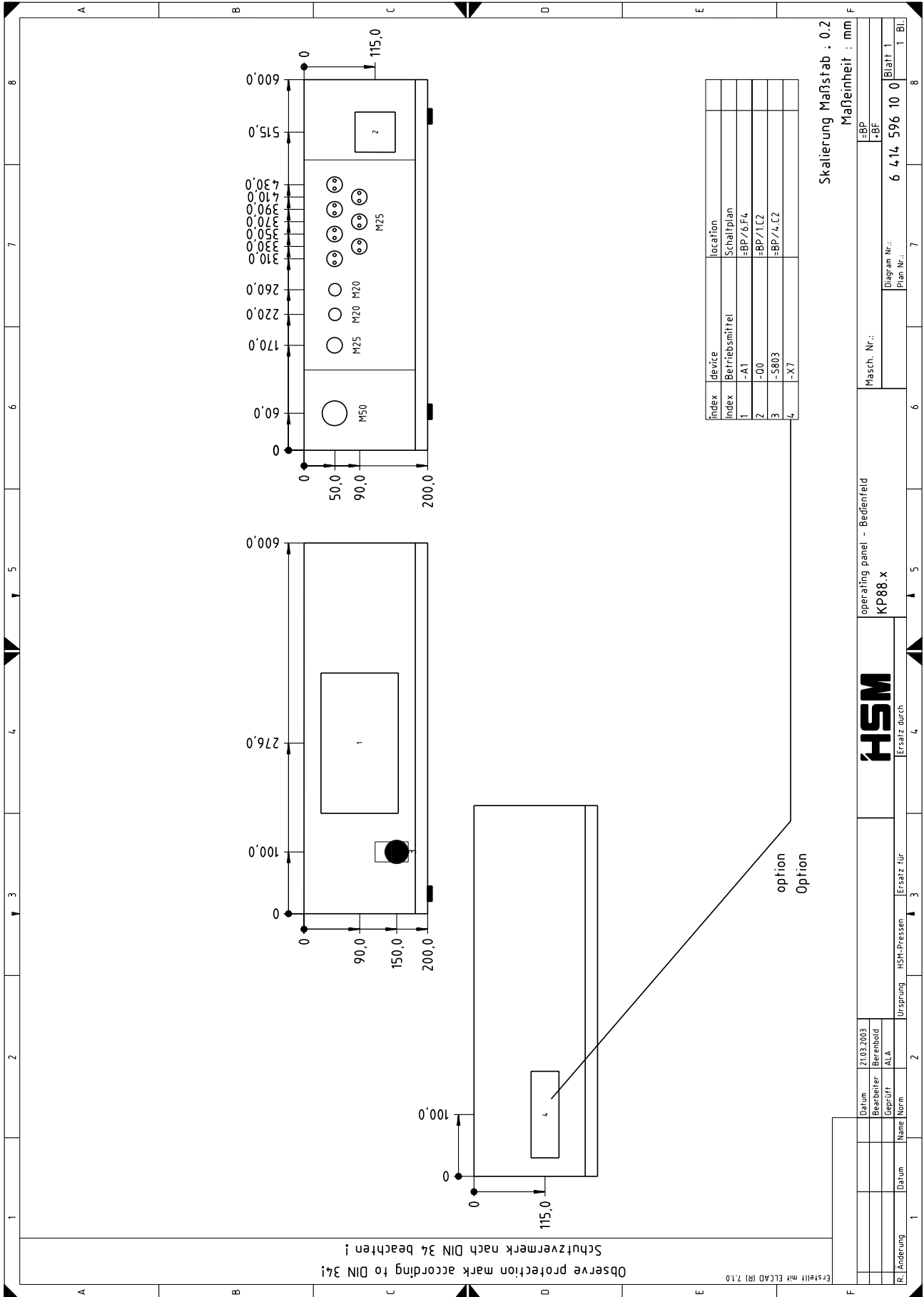
Ursprung	HSM-Pressen	Ersatz für	
Erstellt durch			

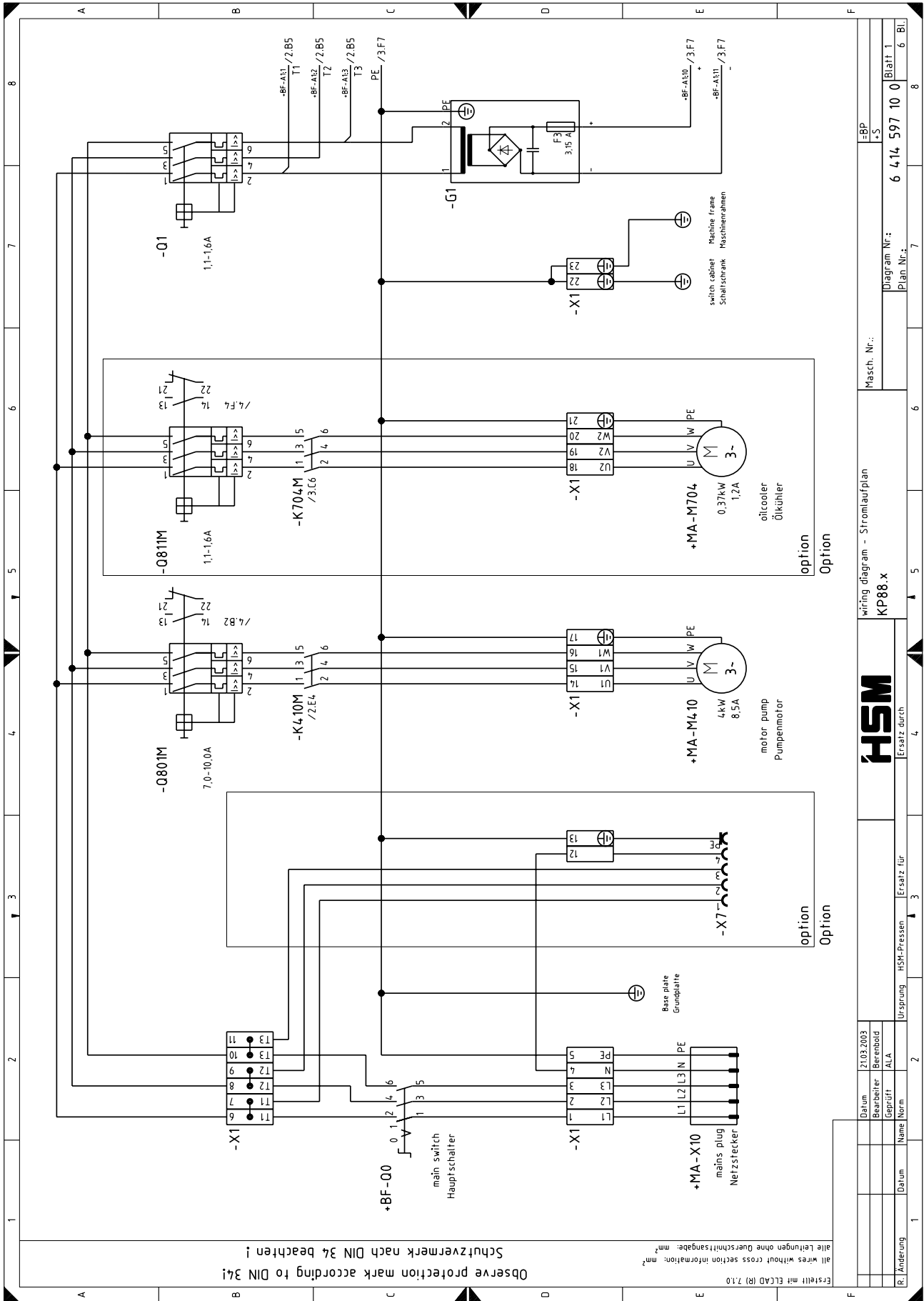
Datum	21.03.2003
Bereit	
Geprüft	ALA
Name	
Norm	

Datum	
Bereit	
Geprüft	
Name	
Norm	

Datum	
Bereit	
Geprüft	
Name	
Norm	

Datum	
Bereit	
Geprüft	
Name	
Norm	



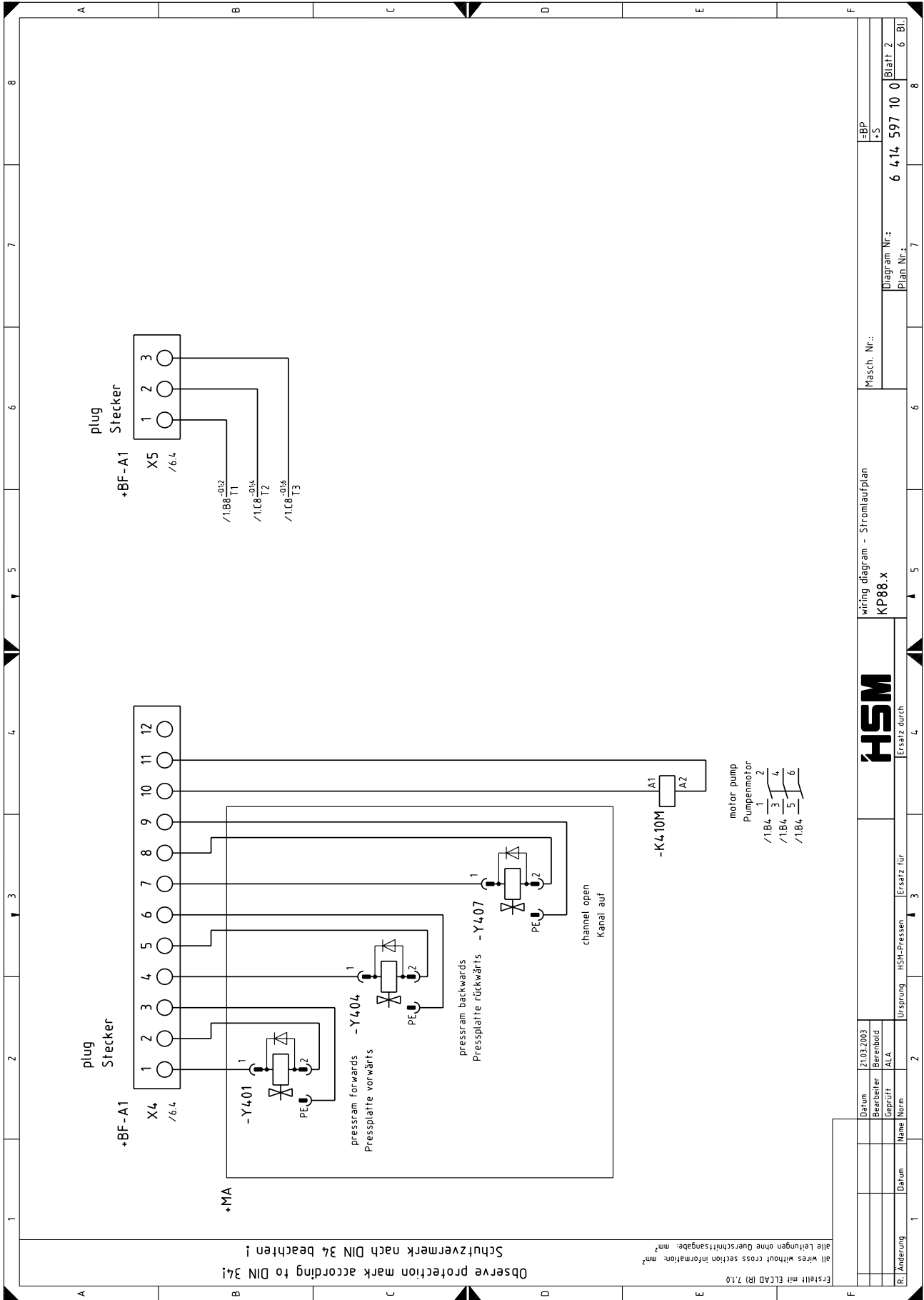


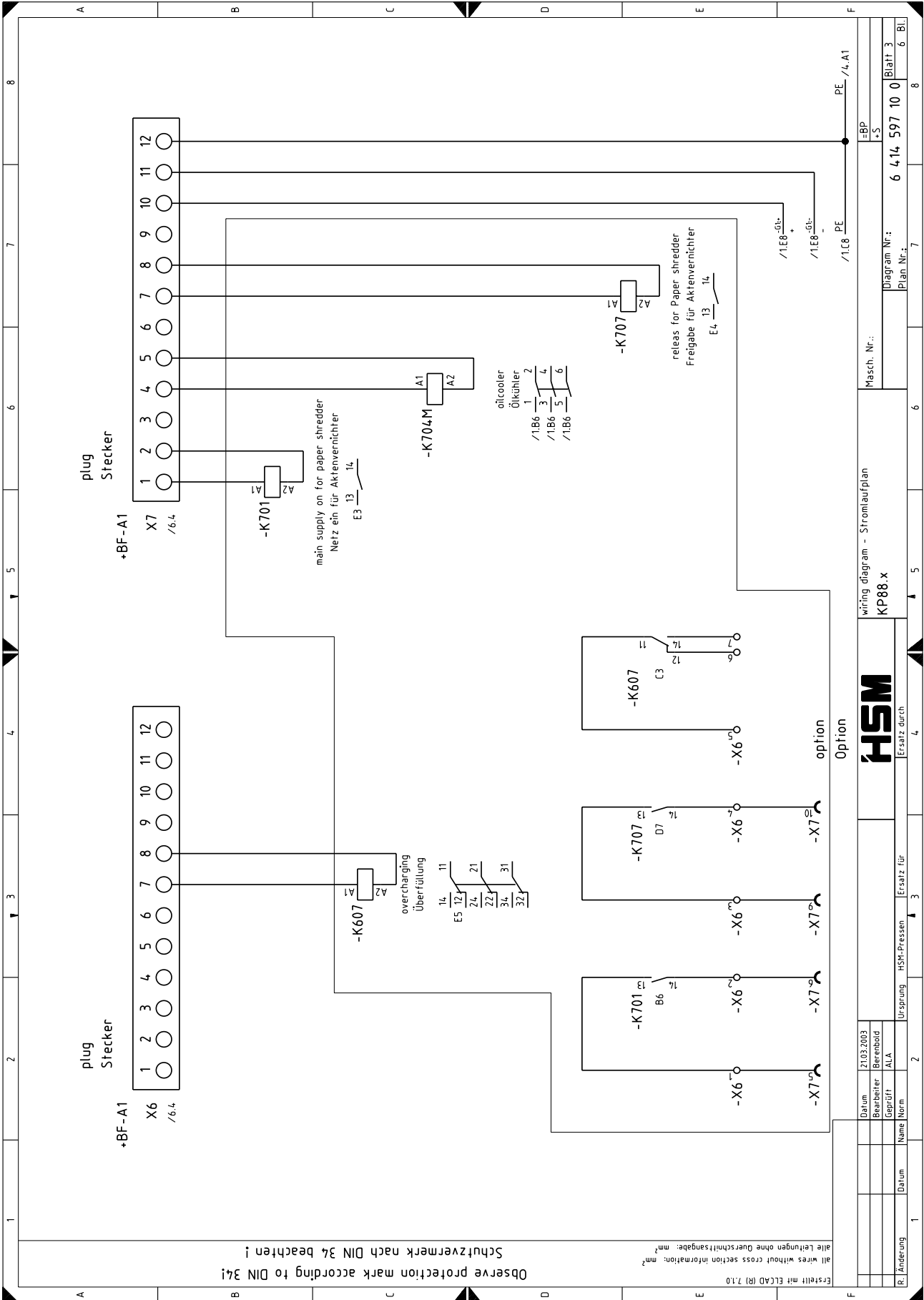
wiring diagram - Stromlaufplan
KP88.x

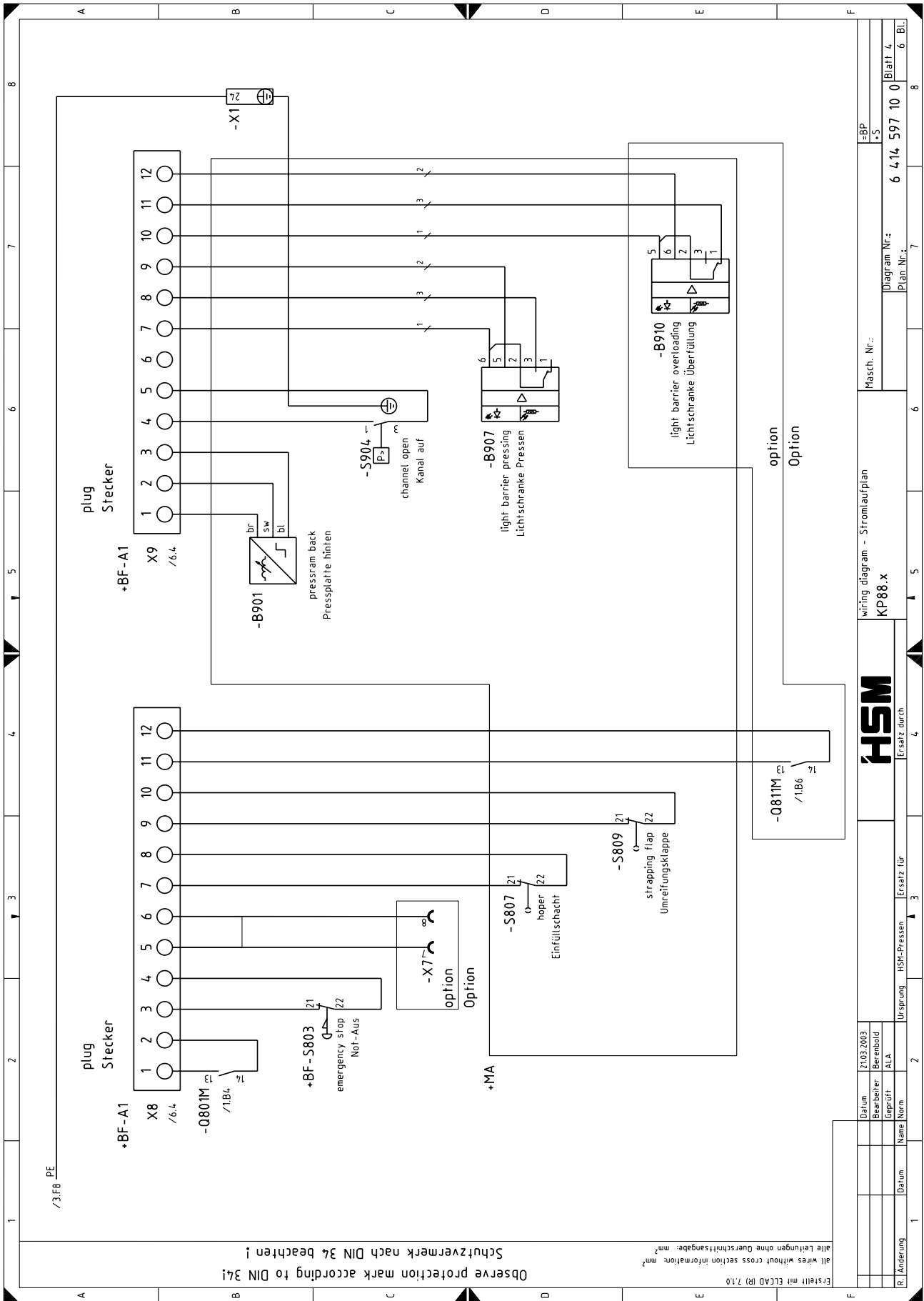
Masch. Nr.:	6 414 597 10 0	Blatt 1	6 Bl.
Diagram Nr.:	6 414 597 10 0	Plan Nr.:	6 Bl.

HSM

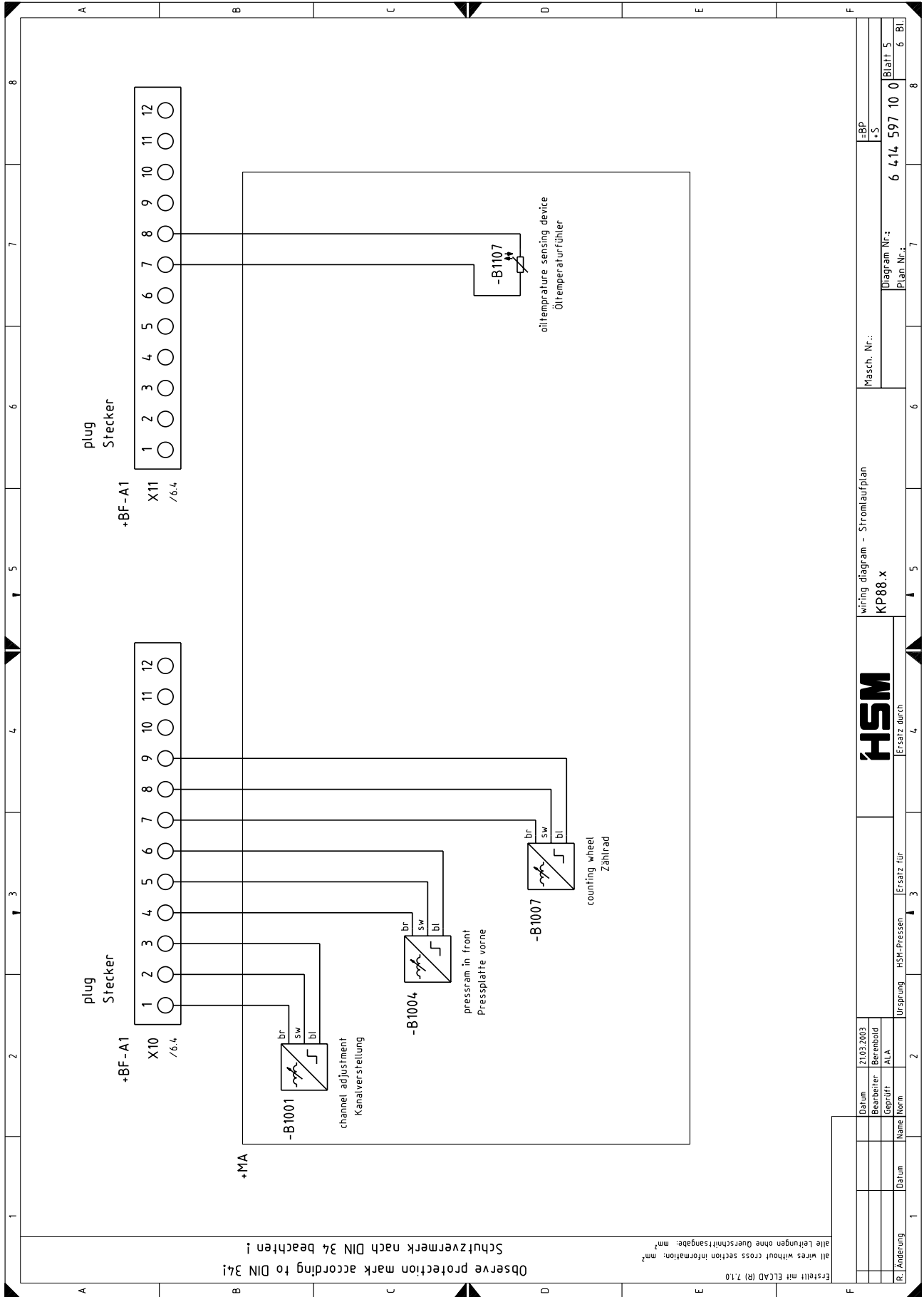
Ersatz durch		Ersatz für	
Ursprung	HSM-Pressen		
Datum	21.03.2003	Datum	21.03.2003
Bearbeiter	Berenbold	Geprüft	ALA
Name	Norm		







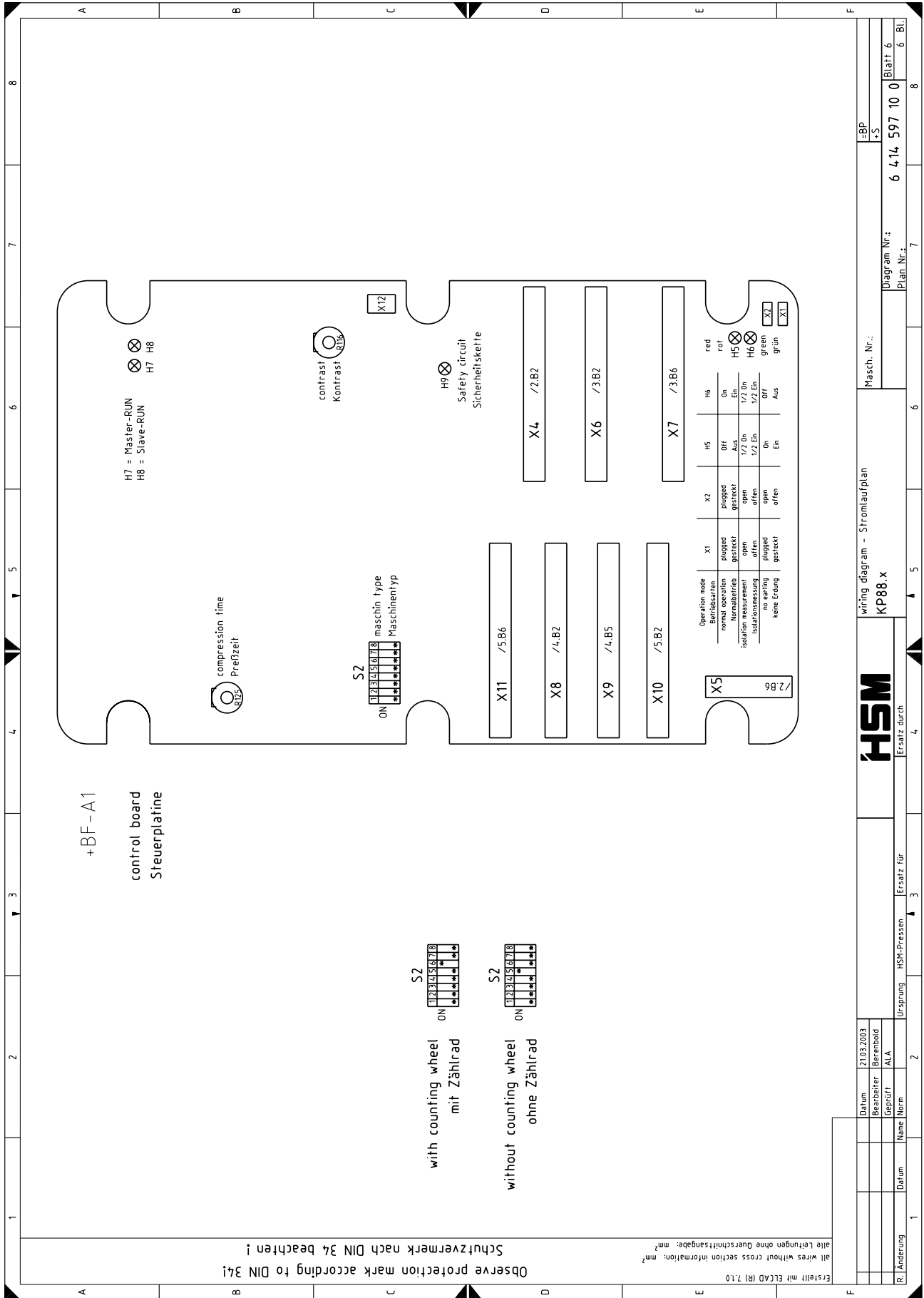
Date		2103.2003		Masch. Nr.:		=BP	
Prepared		Berenbold		Diagram No.:		+S	
Checked		ALA		Plan No.:		6 4 14 597 10 0	
Origin		HSM-Pressen		Blatt 4		6 BL	
Replacement by		Ersatz durch		Blatt 4		6 BL	
Name		Name		Blatt 4		6 BL	
Date		Date		Blatt 4		6 BL	
Norm		Norm		Blatt 4		6 BL	
2		3		4		5	
3		4		5		6	
4		5		6		7	
5		6		7		8	
6		7		8			
7		8					
8							



Observe protection mark according to DIN 34!
Schutzvermerk nach DIN 34 beachten!

Erstellt mit ELCAD (R) 7.10
all wires without cross section information: mm²
alle Leitungen ohne Querschnittsangabe: mm²

Date		21.02.2003		Masch. Nr.:		=BP +S	
Preparer		Beremöld		Diagramm Nr.:		6 414 597 10 0	
Geprüft		ALA		Plan Nr.:		Blatt 5	
Name		Norm		Ursprung		Ersatz für	
Datum		HSM-Pressen		Ersatz durch		Blatt 6	
R. Änderung		1		2		3	
		3		4		5	
		6		7		8	



R. Änderung		Erstellt mit ELCAD (R) 7.1.0		Observe protection mark according to DIN 34! Schutzvermerk nach DIN 34 beachten !														
Datum	Name	Geprüft	Bearbeiter	cable designation Kabelbezeichnung		frei	target char. external Zielzeichen extern	terminal bord Anschlußleiste						target char. internal Zielzeichen intern	frei	cable designation Kabelbezeichnung		device comment Gerätekommentar
Datum	Name	Geprüft	Bearbeiter	0	0	0	device Betriebsmittel	terminal number Klemmennummer	typ	wire connection Drahtverbindung	comment Klempenkommentar	location Darstellungsort	device Betriebsmittel	0	0	0	device comment Gerätekommentar	
Leiste : -X1 Klemmenanzahl : 24																		
Ursprung							main plug Netzstecker	X	+MA-X10	L1	1	L1	/1.02	+BF-00	1	X		main switch Hauptschalter
							"	X	+MA-X10	L2	2	L2	/1.02	+BF-00	3	X		"
							"	X	+MA-X10	L3	3	L3	/1.02	+BF-00	5	X		"
							"	X	+MA-X10	N	4	N	/1.02					"
							"	X	+MA-X10	PE	5	PE	/1.02	PE	X			"
Ersatz für							main switch Hauptschalter	X	-BF-00	2	6	T1	/1.82	-Q801M	1	X		
							"	X	-X7	1	7	T1	/1.82					
							main switch Hauptschalter	X	-BF-00	4	8	T2	/1.82	-Q801M	3	X		
							"	X	-X7	2	9	T2	/1.82					
							main switch Hauptschalter	X	-BF-00	6	10	T3	/1.82	-Q801M	5	X		
							"	X	-X7	3	11	T3	/1.82					
							"	X	-X7	4	12		/1.03					
							"	X	-X7	PE	13	⊕	/1.03	PE	X			
Ersatz durch							motor pump Pumpenmotor	X	+MA-M4.10	U	14	U1	/1.04	-K4.10M	2	X		
							"	X	+MA-M4.10	V	15	V1	/1.04	-K4.10M	4	X		
							"	X	+MA-M4.10	W	16	W1	/1.05	-K4.10M	6	X		
							"	X	+MA-M4.10	PE	17	⊕	/1.05	PE	X			
							oilcooler Ölkühler	X	+MA-M704	U	18	U2	/1.06	-K704M	2	X		
							"	X	+MA-M704	V	19	V2	/1.06	-K704M	4	X		
							"	X	+MA-M704	W	20	W2	/1.06	-K704M	6	X		
							"	X	+MA-M704	PE	21	⊕	/1.06	PE	X			
							"			22	⊕	/1.07	PE	X				
							"			23	⊕	/1.07	PE	X				
							channel open Kanal auf	X	+MA-S904	24	⊕	/4.88	PE	X				

