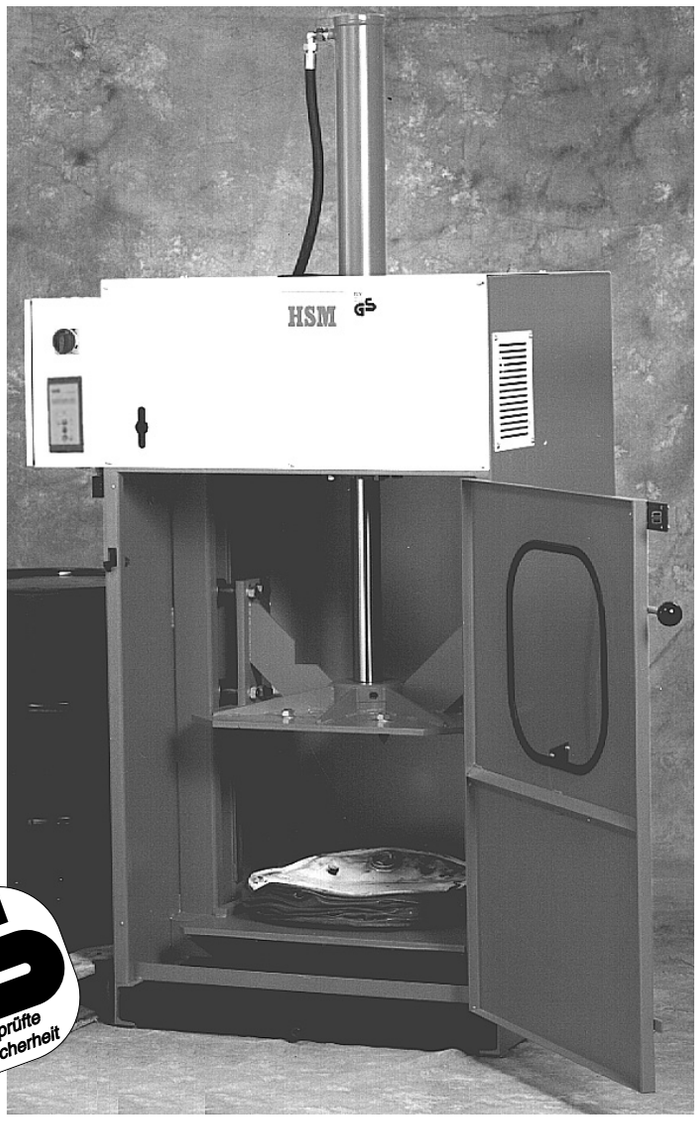
HSM FP3000 Barrel Crusher

Instruction Manual

GB

HSM



OPERATING INSTRUCTIONS

BARREL PRESS

HSM FP 1500
HSM FP 3000

CE

Keep this instruction for future use!

6.817.999.520 - Edition 03/2000

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6.817.999.520 - Edition 03/2000

1 Introduction

1.1 About this documentation

The purpose of this Operating Manual is to assist you in the operation of the barrel press in accordance with the intended use. It contains important information for the safe, expert and economical operationof the barrel press. Observing this Operating Manual helps to prevent danger, to reduce repair costs and downtime and to improve the reliability and service life of the barrel press.

The Operating Manual must always be available to the personnel.

The Operating Manual must be read and used by all persons who work with and on the barrel press, e.g. with the following:

- Operation, including set-up, troubleshooting, disposal of production waste, disposal of operating and auxiliary materials
- Maintenance (maintenance, inspection, repair)
- Transport

In addition to this Operating Manual and the compulsory accident prevention regulations in the user country and at the installation location, the recognised technical rules for operation according to safety and technical practices must be observed.

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

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.

Design and technical modifications as compared to the representations and statements in this Operating Manual are reserved.

This Operating Manual was established with consideration of the EC directives.

1.2 Nameplate and machine number

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 Guarantee claims and inquires cannot be processed if you do not quote the machine number.

Please therefore enter this number in the grey field on the nameplate immediately after receipt of the barrel press.

1.3 Copyright

We own the copyright to this Operating Manual. It is issued only to purchasers of our machines.

Without our permission, these documents may neither be reproduced nor issued to third parties, in particular to competitors. This applies also to extracts from this documentation.

1.4 Explanations

The header and footer contain the following information concerning this Operating Manual:

- Chapter headline
- Type
- Identification number of Operating Manual
- Date of edition
- Specification of chapter and page

Control elements

The designations of the control elements are marked with double quotes in this manual. When a figure containing the mentioned control element is referred to in the text, the item number is indicated following the designation.

Example: "Standby light symbol" (3-4/2).

Figure legends and item numbers

figures have consecutive numbers. Important system or machine parts shown on the figure have an item number.

In the legend to the figure, the machine parts are listed in the sequence of the item numbers. When a figure is referred to within the text, the machine part can be easily found used the specified chapter number, figure number and item number.

Example: (3-4/2) means chapter 3 - figure 4 / item number 2.

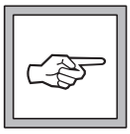
1.5 Pictograms

The following symbols (pictograms) are used in this Operating Manual for especially important information.

➪ This arrow prompts the user for an action.

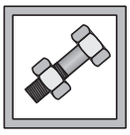
Safety information

This pictogram marks information on damage prevention for the user.



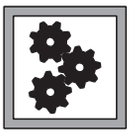
Note

This pictogram marks special characteristics of the barrel press.



Assembly and installation information

This pictogram marks information on the assembly of single parts and assemblies.



Functional information

Special characteristics in the operation or handling of the barrel press are pointed out.

Maintenance information

This pictogram marks special characteristics in maintenance for the operator (e.g. a special tool to be used).

Environmental information

This pictogram marks environmental regulations for the operator (e.g. water act, waste act).

2 Safety

2.1 Use according to instructions

The barrel press **FP 1500** is intended only for compacting **empty light sheet metal barrels** as well as any other materials specified in the contract.

The barrel press **FP 3000** is intended only for compacting **empty light sheet metal barrels and empty rolling hoop drums** as well as any other materials specified in the contract.

Warning

Explosive danger!
You can be severely insured by spreading metal parts and splinters.
Do not press
- containers of highly inflamable or explosive goods
- containers under pressure

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 assembly, dismantling, re-assembly, start-up, operation and maintenance work specified by the manufacturer must be observed.

Irrespective of the laws and regulations mentioned in this Operating Manual, the appropriate national laws and regulations which are valid for the operator must be observed.

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

The barrel press has been inspected for safety by the Berufsgenossenschaft Druck und Papier (mutual indemnity association print and paper processing).

However, improper operation and misuse endanger:

- the health and life of the user
- the barrel press and other valuable equipment of the operator
- the efficient performance of the barrel press.

2.2 Selection and qualification of staff

The barrel press employs state-of-the-art technology. However, this machine can become hazardous if used incorrectly or for purposes other than those for which it was designed.

– The barrel press may only be operated, serviced and repaired by authorized, trained and instructed personnel.

– Each person given duties of assembling, dismantling and reassembling and maintenance (inspection, servicing, repair) of the barrel press must have read and fully understood the entire Operating Manual, in particular the "Safety" section before starting to work. We suggest the management obtains written confirmation in particular from personnel only working occasionally with the barrel press.

– The management has the obligation to instruct the personnel in handling the barrel press and to create binding instructions. The operating and maintenance personnel must receive regular training on safety regulations.

– The responsibilities of the staff for assembly, dismantling and reassembling, start-up, operation and maintenance must be clearly delegated and observed.

– Persons to be trained or instructed may operate the barrel press only under the permanent supervision of an experienced person.

– The barrel press may not be operated by persons under 16 years of age.

– Work on the electrical system of the barrel press may only be performed by a qualified electrician or by instructed persons under instruction and supervision of a qualified electrician according to the electro-technical rules.

– Only persons with specialist knowledge and experience with hydraulics may work on the hydraulic equipment.

2.3 Organisational measures

– The Operating Manual must always be available to the personnel.

– All safety and danger information on the barrel press must be kept complete and legible.

– In addition to the Operating Manual the generally recognised legal and other binding regulations concerning accident prevention and environmental protection must be observed.

– The barrel press must not be modified or converted without prior approval from the manufacturer.

– Only use original spare parts.

2.4 Handling the barrel press

– Always work according to the instructions.

– Before switching on and starting the barrel press, ensure that nobody is jeopardized by the operation of the barrel press.

– Operate the barrel press only when all protective devices and safety-technical equipment have been installed and are operative. Do not make any conversions or modifications on your own initiative.

– In normal operation, open the loading flap and the bale ejection door only when the hydraulic cylinder is idle.

– Check the barrel press at least once per shift for externally visible damage and defects.

– Ensure that the barrel press workplace is always clean and safe.

– Immediately shut down and secure the barrel press when malfunctions occur.

– Immediately report any changes in the the operational behaviour to the competent person. Shut the machine down and secure it, if necessary.

– Wear your personal safety clothes during operation.

– Observe the relevant safety and environmental regulations (e.g. hazardous material act, waste act, water act) when handling hazardous materials.

2.5 Maintenance and repair

– Work on the electrical system of the barrel press may only be performed by a qualified electrician or by instructed persons under instruction and supervision of a qualified electrician according to the electro-technical rules.

Mechanical maintenance and repair work

➪ Switch off main switch and secure against switching on again.

➪ Pull mains plug.

– Mechanical and hydraulic functional elements must be inspected by qualified staff for correct function and wear every six months.

– Check whether all protective devices have been re-installed before putting the machine into operation again after repairs.

Electrical maintenance and repair work

➪ Switch off main switch and secure against switching on again.

➪ Pull mains plug.

– All electrical functional elements and components must be inspected by a qualified electrician every six months.

– All connecting cables must be laid in such a way that they cannot be tripped over.

– Check whether all protective devices have been re-installed before putting the machine into operation again after repairs.

Oils, greases and other chemical substances

– When handling oils, greases and other chemical substances observe the safety regulations which are applicable for these products. The relevant DIN safety data sheets are provided by the respective supplier.

Hydraulic system

– 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. Observe the safety regulations for hydraulic hoses. Spurting oil can cause injuries and fires.

– The hoses must be immediately replaced when defects are determined during the check.

– Any system sections and pressurized lines which can be opened must be de-pressurized according to the hydraulic diagram before repair work begins.

2.6 Environmental protection

– Observe the applicable environmental legislation for all work on and with the barrel press.

– Dispose of waste oil and resiudal fluids from the compressed material in a correct manner. These substances may neither be disposed of via the drainage system nor be allowed to permeate into the ground.

– Observe the safety data sheet according to DIN 52 900 when using cleaning agents and solvents. This data sheet contains the physical, safety-technical, toxicological and ecological data which are essential when handling chemical substances. In addition it contains recommendations for the safe storage, handling and transport of these substances.

2.7 Checklist for checking the safety devices

when
- at the start of each work shift (when operation is sporadic)
- at least once a week in continuous operation
- after each maintenance or repair

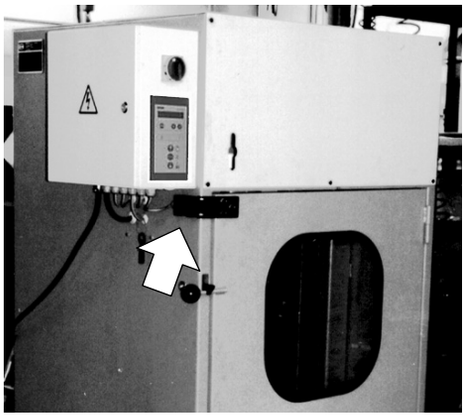
for
- specified condition
- specified location
- safe attachment
- specified function

Copy the following checklist for the regular checks.

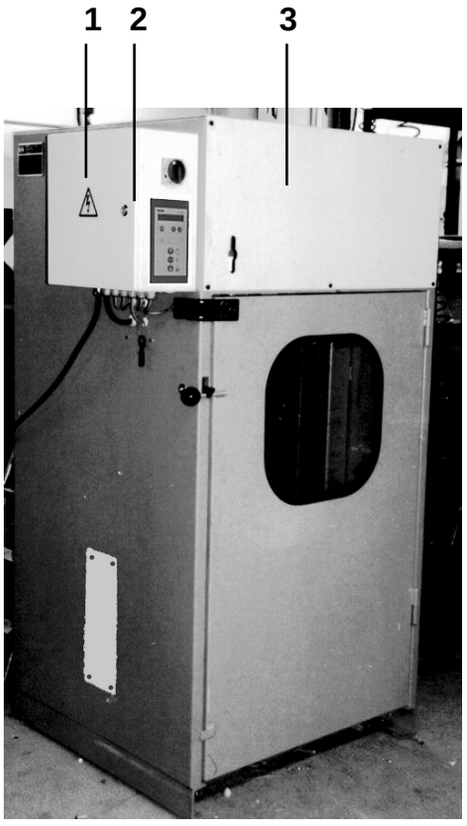
Checklist for the safety devices

Check off the individual points when they are in order. ☑

Operate the barrel press only when all points have been checked and are in order.



☐ Check the function of the safety switch on the loading door.
When you open the loading door while the barrel press is in operation, the barrel press must immediately switch off. It must be impossible to switch the barrel press on while the loading door is open. After closing the loading door, it must be possible to switch the barrel press on again.



☐ All protective covers must be installed and screwed tight.

- front cover (3)
- rear cover
- rear panel

☐ The control cabinet (2) must be closed.

☐ The warning sign with the lightning symbol (1) must be attached at the indicated position.

Checked	
.....	.....
Date	Signature

3 Description

3.1 Short description of barrel presses

The barrel press **FP 1500** is intended only for compacting **empty light sheet metal barrels** as well as any other materials specified in the contract.

The barrel press **FP 3000** is intended only for compacting **empty light sheet metal barrels and empty rolling hoop drums** as well as any other materials specified in the contract.

Consult the customer service of HSM if you plan to use the barrel press outside its contractually agreed and intended scope of application.

Technical characteristics

- short cycles
- usable indoor and outdoor
- collecting basin for residual liquid
- electro-hydraulic drive
- membrane keypad with LED-display
- automatic return stroke
- press ram on roller bearings
- press ram with spikes for barrel opening
- piston rod hard-chrome plated
- almost maintenance free
- enclosed construction with inspection window
- welded frame

3.2 Technical data

Machine characteristics	FP 1500	FP 3000
Total weight	approx. 720 kg	approx. 990 kg
Press data		
Pressing power	180 kN	280 kN
Pressing time with return stroke	16 s	31 s
Max. height of barrel	932 mm	1092 mm
Max. diameter of barrel	618 mm	618 mm
Type of barrel	light sheet metal	rolling hoop light sheet metal
Motor data		
Rated power P_n	7,5 kW	7,5 kW
Operating voltage U	400 V	200 V
Frequency f	50 Hz	50 or 60 Hz
Rated current I_n	14.5 A	25.3 A
Output RPM n_{out}	3000 min^{-1}	3600 min^{-1}
Protection mode	IP54	IP54
Hydraulic system		
Pump		
Discharge Q with 3000 min^{-1}	41.4 l/min	
Operating pressure $p_{Operation}$	210 bar	
Oil tank		
Volume	27 l	
Oil type	Multigrade oil (DIN 51524-T3) ISO viscosity class HVLP 22	

Colour

Frame	orange RAL 2008
Covers	grey-white RAL 9002

Machine dimensions (ready for operation)	**FP 1500**	**FP 3000**
Width	1168 mm	1168 mm
Depth	960 mm	960 mm
Max. height	2430 mm	2892 mm

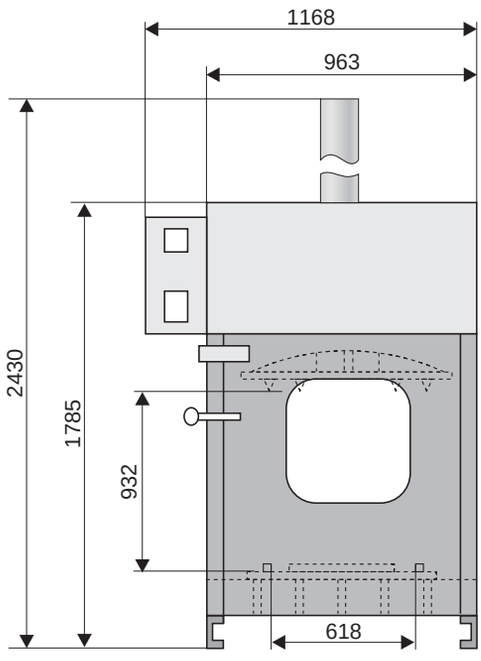


Fig. 3-1 FP 1500

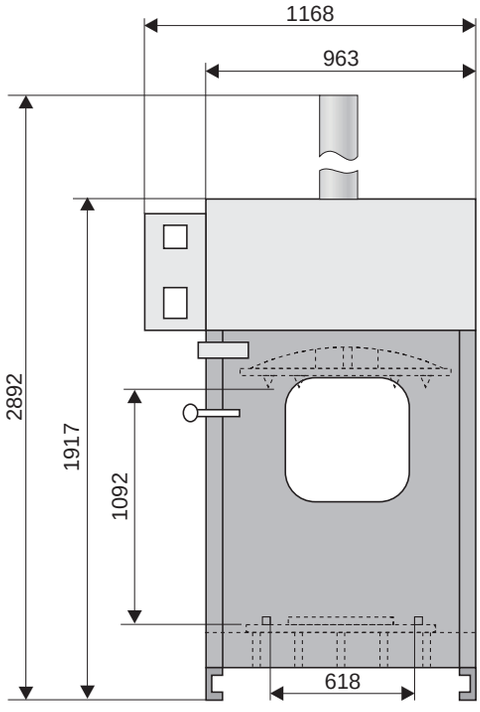


Fig. 3-2 FP 3000

Space requirements	FP 1500	FP 3000
Width	2180 mm	2180 mm
Depth	1980 mm	1980 mm
Height	2430 mm	2892 mm

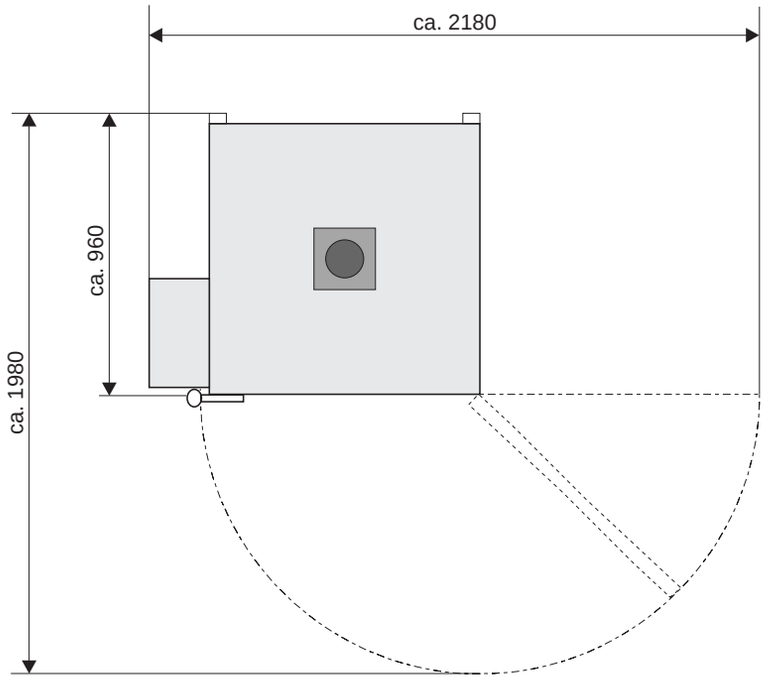


Fig. 3-3 Top view FP 1500 / FP 3000

Power requirements and fuse protection (3 x 400 V / 50 Hz) (2 x 200 V / 50 Hz)		
Total rated power P_n	7.5 kW	7.5 kW
Total rated current I_n	14.5 A	25.3 A
Total fuse protection	25 A (slow)	35 A (slow)
Mains plug	CEE 32	depending on country

Noise emission values

The barrel press has the following values for the sound pressure level according to DIN 45635 Section 27:

Idle	1 m / 7 m *)	75,2 / 70,2 dB (A)
Full load	1 m / 7 m *)	79,8 / 75,2 dB (A)

*) Distance measured between measuring instrument and machine surface at the hopper.

3.3 Description of operating elements

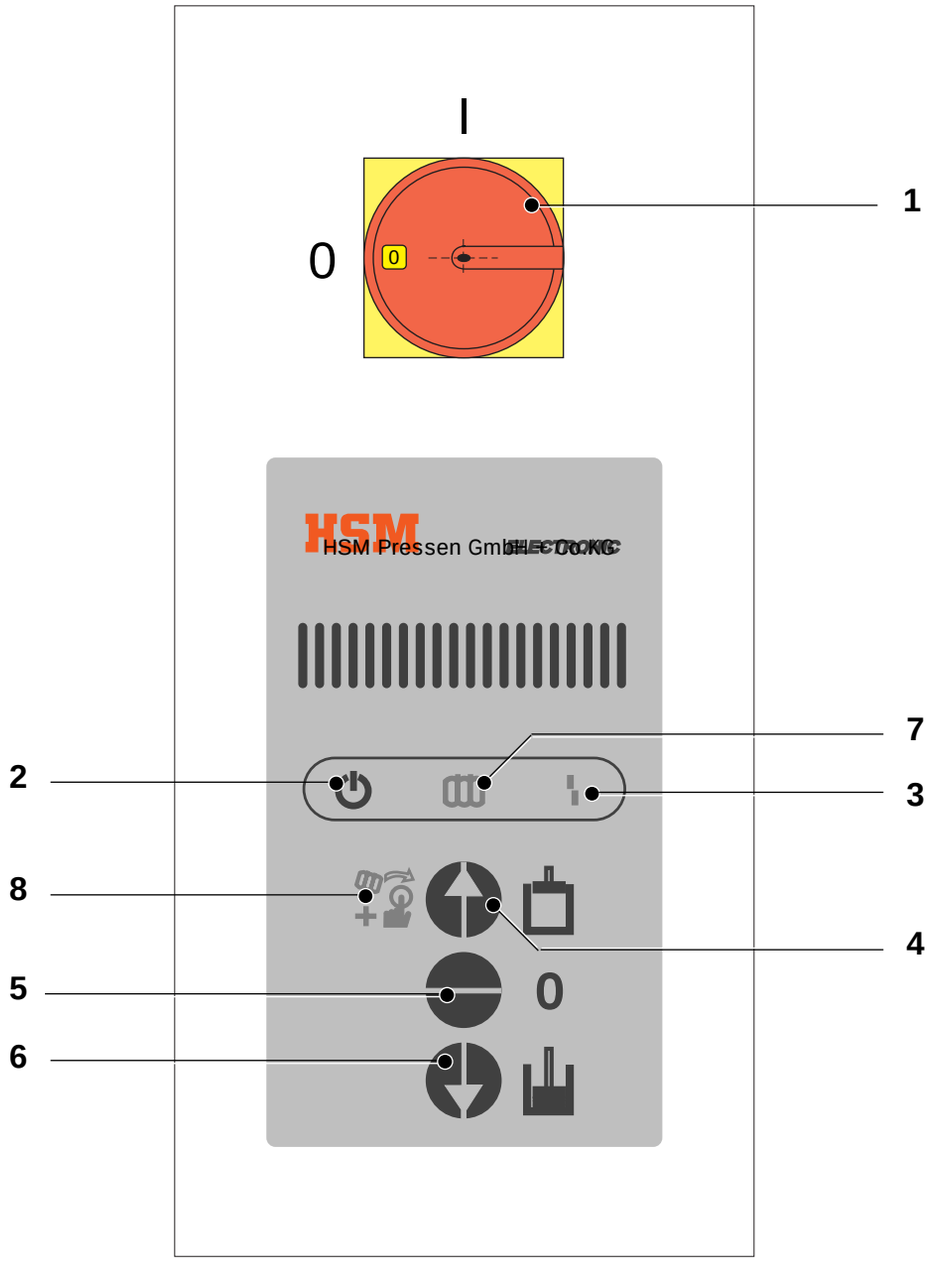


Fig. 3-4 Control panel

1 Main switch
2 Standby (Ready for operation)
3 Malfunction
4 Raise press ram
5 Press ram stop
6 Lower press ram
7 no function
8 no function

Main switch (1)
When turned 90° clockwise, the main switch is on.
The main switch can be locked in the *"Off"* position with a padlock.

Light symbol "Standby" (2)
This message is displayed when the main switch is switched on and under power.
This message is flashing if the door is open.

Light symbol "Malfunction" (3)
This message is displayed when there is any malfunction on the barrel press. The symbol flashes at the malfunctions "Wrong direction of rotation" and "Phase is missing".
The barrel press cannot be started as long as this message is displayed!
(-> see section **"Malfunctions"**)

"Raise press ram" key (4)
When this soft-key is pressed, the press ram returns into its upper end position with the door closed.

"Press ram stop" key (5)
With this soft-key the press ram can be stopped in any position.
The movement can be continued by pressing the "Raise/lower press ram" soft-key.

"Lower press ram" key (6)
Pressing this soft-key while the door is closed starts the compression. The press ram moves down and compresses the material.The press ram automatically returns into its upper end position after expiry of the pressing time.

4 Transport

4.1 Transport information

The barrel press must be transported in vertical position.

Transport means

Use adequately dimensioned transport means (lorry, crane, fork-lift) for transport and installation of the barrel press.
The suspension must be designed for at least 750 kg (FP 1500) or 1000 kg (FP 3000).

Machine centre of gravity

The press ram must be in the bottom position (moment of tilt). The centre of gravity is then in the bottom half of the barrel press.

Apply the hoists at the specified positions (Fig. 4-1) only.

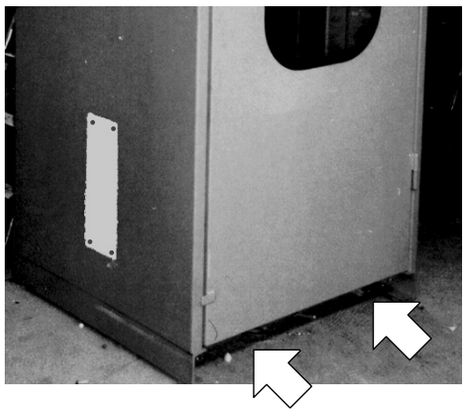
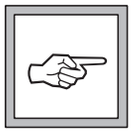


Fig. 4-1 Pick-up points for transport

A fork-lift truck can also be used for transport to the installation site.

Safety regulations

Observe the relevant safety regulations and the valid accident prevention regulations.



Transport damage

If damage is determined after unloading when accepting the delivery, HSM and the forwarding company must be informed immediately. If necessary, an independent expert must be contacted immediately.

➪ Remove packing and transit clamps.

➪ Dispose of packing in an ecologically beneficially manner.

4.2 Transport to a different operating site

When the barrel press is transported to a different operating site, there may be no compression material in the barrel press. Ensure that the load on the foundation is accounted for (5.1) and the space requirements fulfilled at the new installation site (3.2). An approved electrical connection must be available at the new installation site.

Qualified personnel

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

The following must be observed for transport to a different operating site:

- Transport with press ram in bottom position (moment of tilt)
- Transport with lowered cylinder (transport height).

Transport with press ram in bottom position

Für transport within a plant it is normally sufficient to move the press ram into bottom position to shift the centre of gravity of the barrel press. It must be checked that the cylinder projects at the top (see Fig. 3-1).

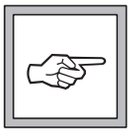
- ➪ Move press ram into bottom position by pressing the "Lower press ram" soft-key.
- ➪ Press the "Press ram stop" soft-key when the bottom position is reached.
- ➪ Switch off the main switch.
- ➪ Take out the collecting basin for residual liquid and dispose the residual liquid in an ecologically beneficially manner.
- ➪ Disconnect the current supply from the mains.

The barrel press can be transported to a different operating site when the transport information (Section 4.1) is observed.

Transport with lowered cylinder

If vertical transport is not possible due to the projecting cylinder, the cylinder can be retracted by loosening the cylinder flange (see Section 5.4).

- ➪ Put a timber on the bottom plate
  - Height for timber - FP 1500: 350 mm
  - Height for timber - FP 3000: 320 mm



Transport information

The timber's height has to be considered, otherwise the hydraulic hoses can be teared off whilst lowering the hydraulic cylinder.

- ➪ Move press ram down by pressing the "Lower press ram" soft-key.
- ➪ Press the "Press ram stop" soft-key when the timber is reached.

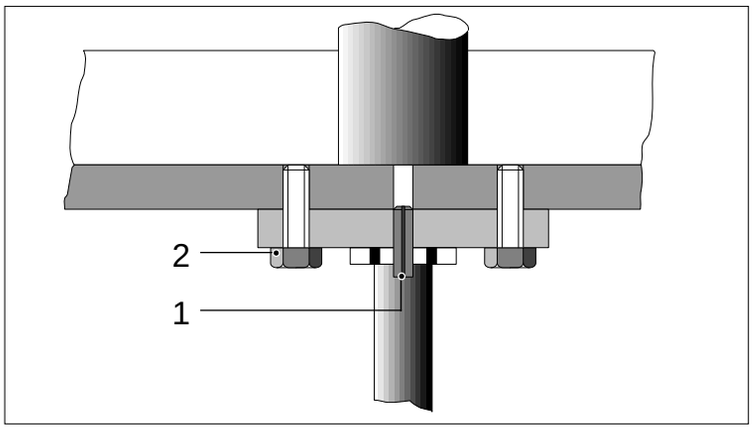
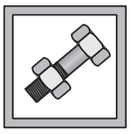


Fig. 4-2 Attachment of cylinder flange

1 Dowel pins
2 Screws

➪ Loosen and remove the screws on the cylinder flange.

➪ Press the "Raise press ram" soft-key. The cylinder must move down.



Assembly information

If the cylinder does not move down check whether the dowel pins became loose all screws were removed or the cylinder is hooked on the hydraulic hose.

➪ Lower the cylinder step by step until it has reached the desired transport height.

➪ Switch the main switch off.

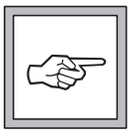
➪ Take out the collecting basin for residual liquid and dispose the residual liquid in an ecologically beneficially manner.

➪ Disconnect from the mains.

The barrel press can be transported to a different operating location when the transport information (Section 4.1) is observed.

5 Installation

5.1 General information



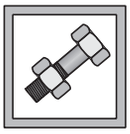
Qualified personnel

We urgently recommend to have the installation work on the barrel press performed by trained HSM personnel. We assume no responsibility for damage arising from incorrect installation work.

Installation site

When determining the installation site consider the space required for maintenance and inspection work on the barrel press (see Section 3.2).

The barrel press may only be operated in dry locations.



Installation outdoors

Attach a protection against rain water when the barrel press is operated outdoors. The power supply must fulfill the requirements for installation outdoors (additional FI protection).

Environmental information

Residual liquid should not come into the earth.
Keep to the environmental regulations

No special foundation is required. Check the carrying capacity of the ground if doubts exist.

Supply connections

The barrel press is supplied ready for connection with the appropriate connecting cable and plug.

A suitable CEE socket must be present at the installation site.

Adjustments

The various components and the electrical and hydraulic systems are set by HSM before delivery.

Operational safety

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

5.2 Installing the barrel press

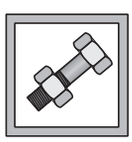
Installation personnel

All installation work may be performed only by trained persons who act on behalf of the operator. The valid accident prevention regulations and VBG 4, 5 and 15 as well as DIN VDE 0105 Part 1 must be complied with.

➪ Place barrel press at installation site on an even, smooth floor.

➪ Level off a possible unevenness of the floor with metal shims.

➪ Open the door an take out the collecting basin for residual liquid.



Assembly and installation information

The closing screw at the front of the collecting basin can be unscrewed with an Allan key. By this the collecting basin can be emptied without being removed off the guding.

➪ Put the collecting basin into the guiding under the door. (Fig. 5-1)

Fig. 5-1 Guding collecting basin

➪ The on-site power supply must be installed by a qualified electrician.

➪ The protective devices must be fully installed before start-up.

Checking the protective devices

All protective devices must be checked for their effectiveness by a person acting on behalf of the operator. Use the checklist for the safety devices (Section 2.7).

5.3 Start-up at installation site

Checking the direction of rotation

Check the direction of rotation of the motor before the first start-up.

➪ Insert the CEE plug in the on-site socket.

➪ Switch on the main switch.

When the phases of the on-site power supply are incorrectly connected this is signalled by the "Malfunction" light symbol .

-> see section **"Malfunctions"**

5.4 Move cylinder into position

The cylinder is retracted during transport and must be moved into operating position and connected with dowels and screws before the first compression.

➪ For a better control, unscrew the front cover above the door.

Risk of squeezing

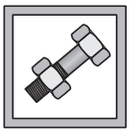
Do not reach into the unprotected parts of the barrel press as long as the covers are removed.

➪ Press the "Lower press ram" soft-key.

- Ensure that the cylinder end and the hoses which are visible on top of the machine move up.
- If the cylinder does not move it is possible that the door is open.

➪ Move up the cylinder in several steps.

➪ In the meantime, open the door and check the position of the cylinder flange. Do not operate under pressure before the cylinder is screwed tight.



Assemblyinformation

The cylinder is not secured against turning. The hydraulic hoses or the fittings on the cylinder can be damaged whilst moving.

➪ Permanently control the position of the cylinder and the hydraulic hoses.

➪ Press the "Lower press ram "soft-key until the cylinder flange has reached the upper housing frame.

Stop cylinder movement

Immediately press the "Press ram stop" soft-key when the cylinder flange has reached the upper housing frame.

Do not operate under pressure because the timber will be squeezed.

Installation information

The glued adjusting plates on the cylinder flange must not be removed.

- Open the door and adjust the cylinder flange to the tapped holes on the upper housing frame.
- Tap the dowel pins (5-2/1) into the bore holes on the upper housing frame.
- Screw in the supplied screws (5-2/2) and tighten them with a torque spanner.

FP 1500	M 16x50 (8.8)	195 Nm
FP 3000	M 20x70 (8.8)	395 Nm

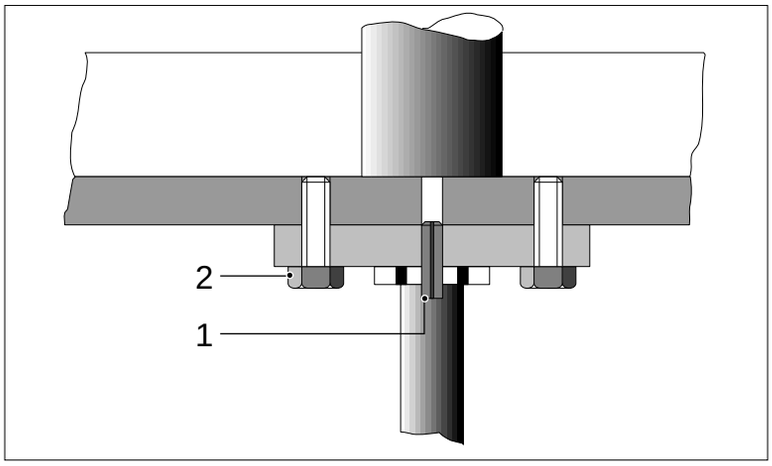


Fig. 5-2 Fastening of flange

1 Dowel pins
2 Screws

- Now close the door and move the press ram into the upper end position.
- Re-install all unscrewed covers.
- Take the timber out of the press.

The barrel press is now ready for operation.

6 Working with the barrel press

6.1 Normal operation

Starting the barrel press

➪ Switch the main switch on.

➪ Check all protective devices using the checklist (see Section 2.7).

The barrel press is now ready for operation.

Operation

➪ Put the barrel into the barrel press.

➪ Ensure that the barrel stands inside of the three buffers on the bottom plate.

➪ Close the door

➪ Press the "Lower press ram" soft-key.

Functional information

The press ram moves downwards. The press ram automatically switches over and moves back into start position after the press time has elapsed.

➪ Take out the pressed material and refill the barrel press.

Environmental information

Dispose residual liquid in the basin by environmental regulations.

Shutting down the barrel press

- ➪ Close the door
- ➪ Move the press ram completely down and stop it with the "Press ram stop" soft-key.
- ➪ Switch off the main switch.
- ➪ Secure the main switch against unauthorized switching on.

6.2 Operation outdoors

Some special points must be observed here:

Special supervisory obligations

Put into operation only under supervision.

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

When the barrel press is not operated it must be shut down and secured against unauthorized use.

– The barrel press must not be directly exposed to rain.

Environmental information

Residual liquid should not come into the earth.
Keep to the environmental regulations

– The maintenance intervals must be reduced.

– If the temperature drops below 0°C, use hydraulic oil with a suitable viscosity, if required.

7 Troubleshooting

Reaction to malfunctions

When a malfunction occurs, the cause must be determined and corrected. Immediately put the barrel press out of operation. Please observe the "Safety" section for troubleshooting.

Qualified personnel

Troubleshooting often requires special knowledge and must therefore only be performed by qualified personnel.

As soon as there is any malfunction on the baler, the read light symbol is displayed. The barrel press cannot be started as long as the red light symbol is displayed!

Possible cause	***What to do***
Phase is missing	Electrician! Check onsite fuses.
Incorrect connection of phases / Wrong direction of rotation	Electrician! Check rotatory field
Oiltemperature too high	Let oil cool down
Sensing device for oiltemperature defective	Electrician! Change sensing device
Motor protective switch has swapped	Motor too hot! Let motor cool down
Door switch defective	Switch / Switching mechanism -> Contact service of HSM
Limit switch for "Press ram on top" defective	Switch / Switching mechanism -> Contact service of HSM

8 Maintenance

8.1 General information

All inspection and maintenance tasks refer to single-shift operation. In multi-shift operation, these tasks must be performed with proportionate frequency.

➪ Clean the barrel press if soiled.

Electric voltage

Clean the barrel press only when the main switch is switched off.

➪ Mechanical and hydraulic functional elements must be inspected by qualified staff for correct function and wear every *6 months*.

➪ Before every workday, check all lines, hoses and connections for leakage and visual evidence of damage.

Risk of injury

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

Maintenance intervals

Check the filling and venting filter lid every month for contamination and air permeability.

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

Qualified personnel

Maintenance and repair work on the electrical installation or the control cabinet may only be carried out by a qualified electrician or by the HSM customer service.

8.2 Oil level / venting lid

- Move the press ram into its upper end position.
- Switch the main switch off.
- Screw off the rear cover and the venting lid.
- Check the oil level on the oil dipstick of the (8-1/1) venting lid. The oil level must be between the two notches on the oil dipstick.
- If the oil level is below the bottom notch, replenish oil via the opening for the venting lid (8-1/1).

Maintenance interval

To increase the service life of all hydraulic components, replace the oil every year.

- Screw the venting filter lid back on again.
- Screw the rear cover back on again.

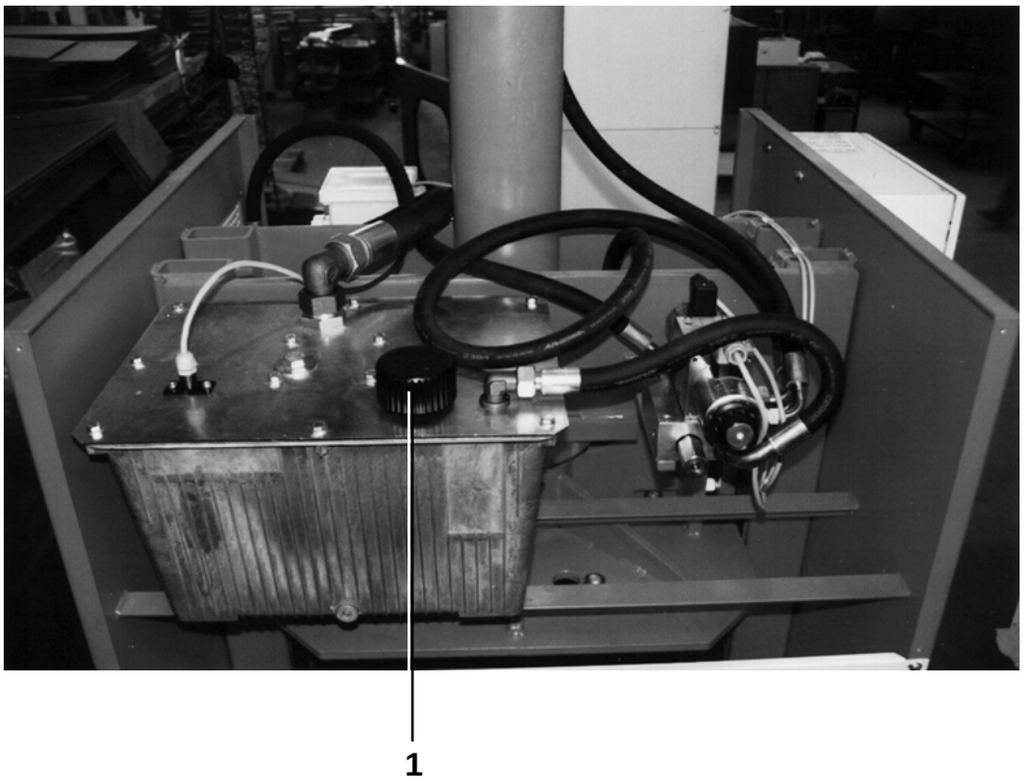


Fig. 8-1 Hydraulic unit

1 Venting filter lid

8.3 Changing the hydraulic oil

Waste disposal information

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!

- ➪ Move the press ram into its upper end position.
- ➪ Switch the main switch off.
- ➪ Remove the rear cover.
- ➪ Position a suitable container below the oil drainage screw to collect the oil.
- ➪ Unscrew the oil drainage screw on the side of the oil tank with an Allen wrench (SW 10) and collect the oil in the container.
- ➪ Clean the hydraulic oil tank if it is severely soiled (see Section 8.4).

Accident prevention regulations

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

- ➪ Screw the oil drainage screw back on again together with a new copper ring seal.
- ➪ Fill the tank with the specified oil volume.

Tank contents, oil type

The tank contents of the oil tank is 27 l.
Oil type: Multigrade oil (DIN 51524-T3)
ISO viscosity grade HVLP 22 (see Section 3.2).

	ISO-Viskositäts-klasse	DEA	ESSO	SHELL	ARAL	BP	MOBIL
Mineralöle Mineral oils	ISO VG 22 HLP	Astron HLP 22	NUTO H 22	Tellus Öl 22	Aral Vitam GF 22	Energol HLP 22	Mobil DTE 22

	NLGI-Klasse	ESSO	DEA	SHELL	ARAL	BP	MOBIL
Wälzlagerfett (lithiumverseift) **Bearing grease** (lithium saponified)	2 -3	Exxon BEACON 2	Glissando 30	ALVANIA Fett R 3	Aralub HL 3	Energrease LS 3	Mobilux EP 2

➪ Switch the main switch on.

Risk of squeezing

Do not reach into the unprotected parts of the barrel press while the covers are removed.

➪ Move the press ram up and down several times and check the oil level again with the press ram in the upper position (see Section 8.2).

➪ Top up oil as necessary.

➪ Screw the venting filter back on.

➪ Screw the rear cover back on.

If you use an oil sucton aggregate, proceed accordingly as per the above description.

8.4 Cleaning the hydraulic oil tank

➪ Drain oil (see Section 8.3).

➪ Unscrew the hexagon screws on the tank cover using an open-end spanner SW 13 and remove the tank cover and the seal.

➪ Clean the inside of the hydraulic oil tank, remove and dispose of any oil sludge.

➪ Screw the oil drainage screw back on together with a new copper ring seal.

➪ Replace the tank cover seal and install the tank cover.

8.5 Lubricating moving parts

➪ Move the press ram down until the press ram guides are easily accessible after the door has been opened.

➪ Switch the main switch off and secure it against switching on.

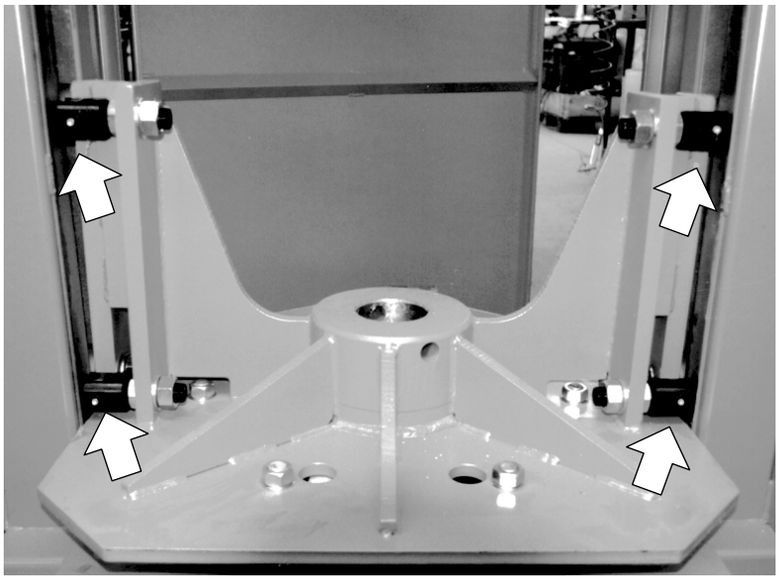


Fig. 8-2 Rollers of press ram guides

➪ Remove the covers on both sides (Fig. 8-3).

➪ Lubricate all rollers of the press ram guide (Fig. 8-3) with multi-purpose grease as required.

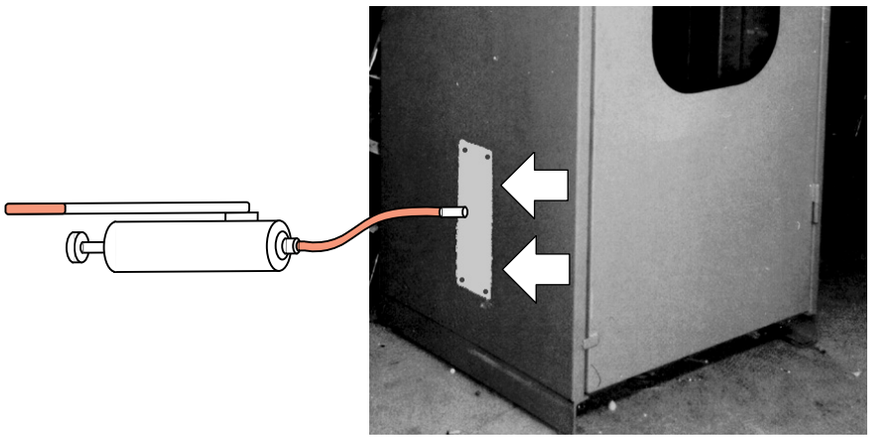


Fig. 8-3 Side cover and lubricating points

➪ Lubricate all moving parts and hinges, in particular the door hinges as well as the bearings of the door lock with multi-purpose grease.

9 Replacing components

Safety information

The valid accident prevention regulations VBG 4, 5 and 15 as well as DIN VDE 0105 Part 1 must be complied with when performing repairs.

Install all protective devices and check their effectiveness before putting the baling press into operation.

Electrical voltage

Repair barrel press only when the main switch is switched off. Malfunctions of the electrical system or the feed cables may only be repaired by qualified electricians or the HSM customer service.

Qualified personnel

We recommend to have repairs of the barrel press made by trained HSM personnel. We assume no liability for damage caused by incorrect repair.

Operational safety

Unauthorized modifications of components or changes of the set electrical and hydraulic values are not allowed and can cause severe damage to the barrel press.

Please send your order for spare parts to:

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: support@hsm-online.de

10 Waste disposal information

HSM barrel presses have a high life expectancy. However, the time when a revision or repair is no longer economical comes for every machine. Then the operator must ask how he can properly dispose of the barrel press?

The following regulations and laws must be observed at the present time:

- Hazardous waste act
- Waste disposal proof regulation
- Water act
- Waste act

We would be pleased to inform you in due course about the legal stipulations with regards to disposal when the problem arises.

Please fill in the "Proof of disposal" on the following page and send it to our company.

Proof of disposal

HSM - Pressen GmbH + Co. KG

Bahnhofstraße 115
D-88682 Salem
Germany

The machine specified below

Designation: Barrel press

Model: _____

Machine number: _____

Year of construction: _____

was disposed of in compliance with the applicable regulations.

Address of last operating company

Address of waste disposal company

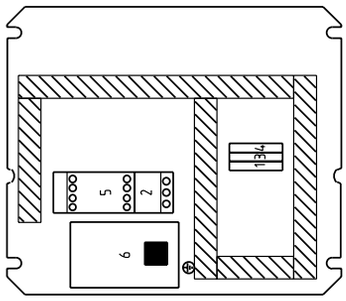
....

Date and signature of last operator

Date and signature of waste disposal company

11 Wiring diagrams

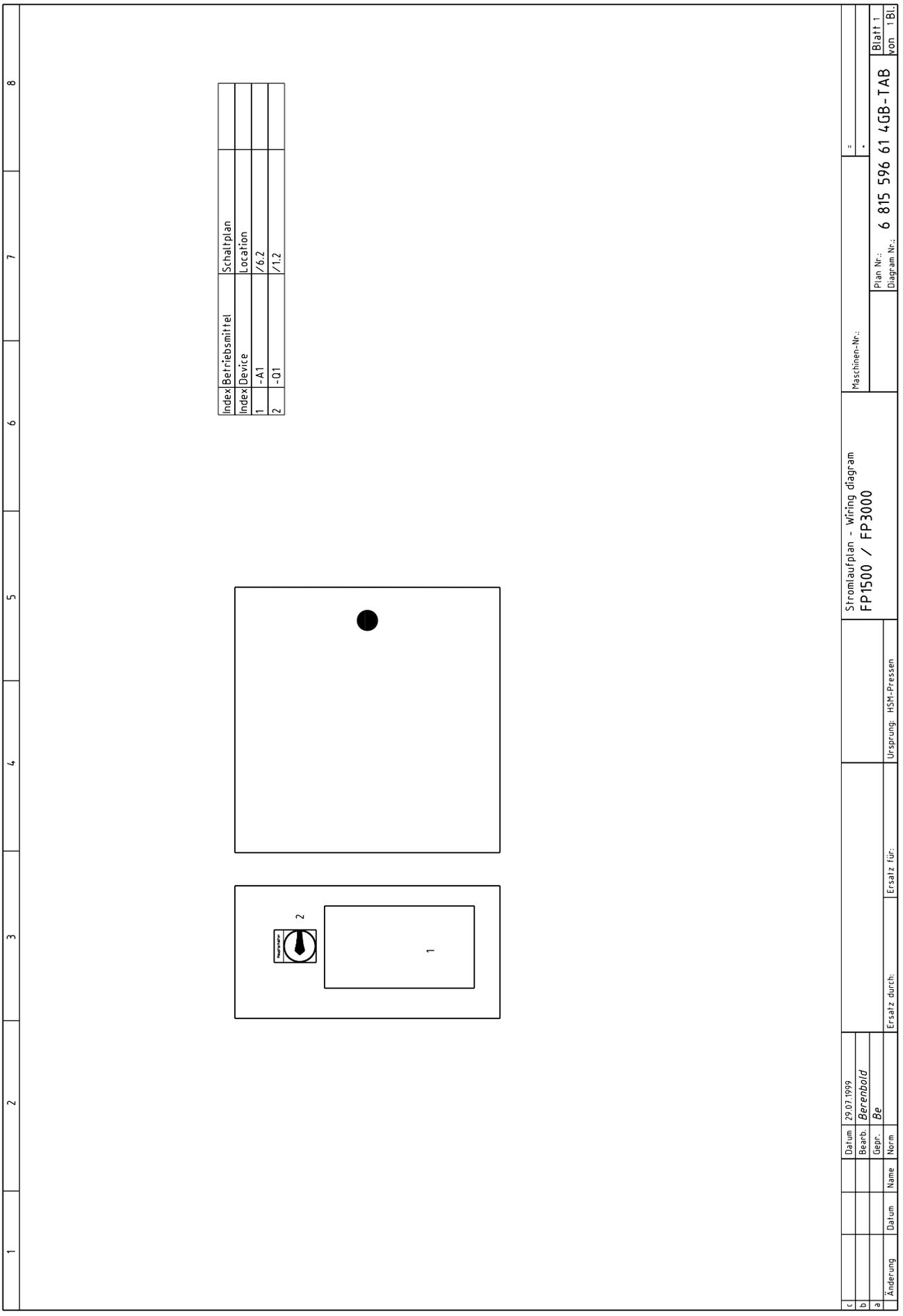
Index	Betriebsmittel	Schaltplan
Index	Device	Location
1	-F1	/1.5
2	-F1.1	/1.3
3	-F2	/1.5
4	-F3	/1.5
5	-K1.1	/3.6
6	-T1	/1.5

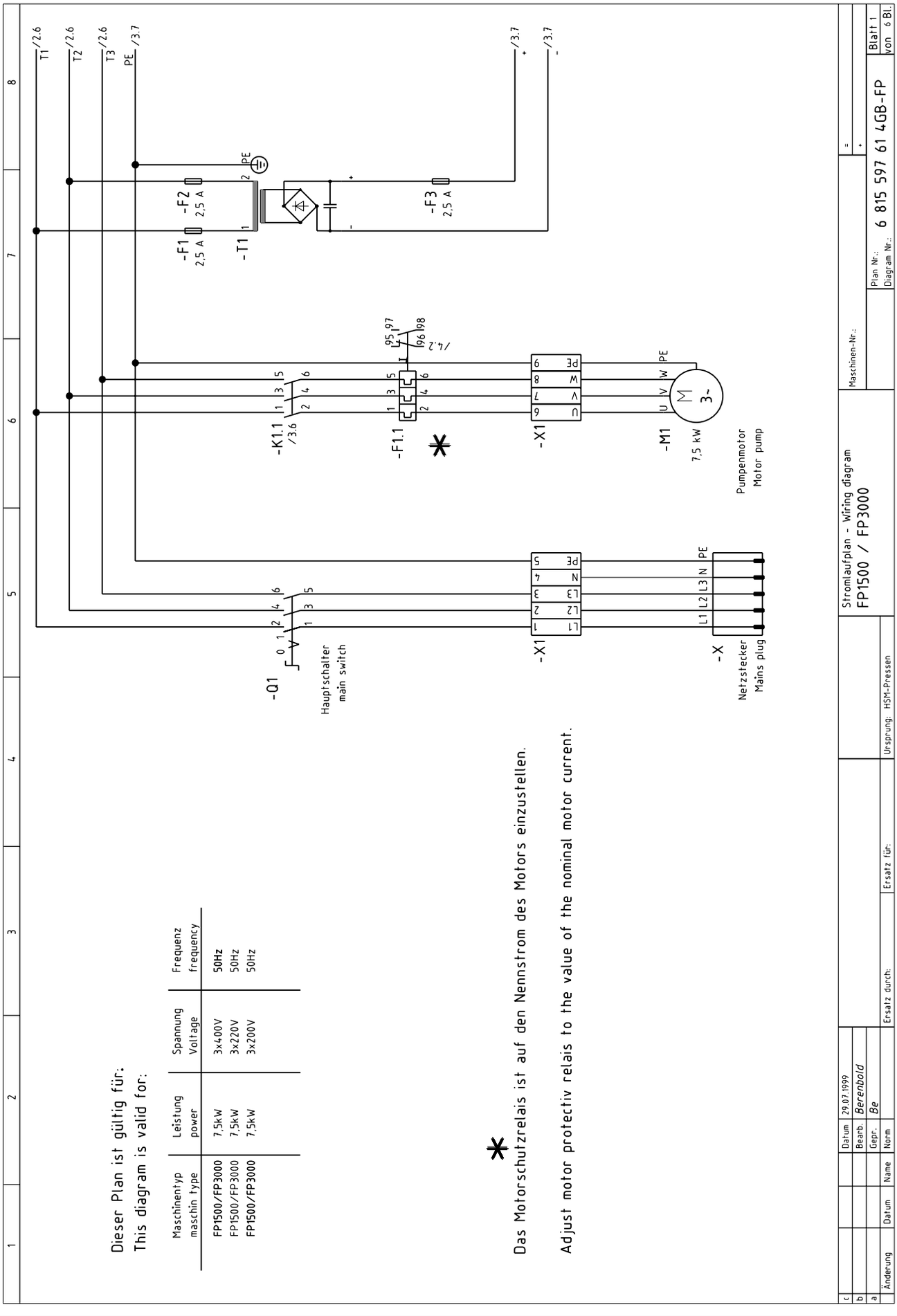


Stromlaufplan - Wiring diagram
FP1500 / FP3000

Maschinen-Nr.:
Plan Nr.: 6 815 596 61 4GB-AB
Diagram Nr.:
Blatt 1
von 1 Bl.

Änderung | Datum | Name | Ersatz durch: | Ersatz für: | Ursprung: HSM-Pressen
Datum 29.07.1999
Bearb. Berenbold
Gepr. Be
Norm


Index Betriebsmittel Schaltplan
Index Device Location
1 -A1 /6.2
2 -Q1 /1.2
1
2
Stromlaufplan - Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.: 6 815 596 61 4GB-TAB
Diagram Nr.:
Blatt 1
von 1 Bl.
Änderung Datum Name Norm
Datum 29.07.1999
Bearb. Berenbold
Gepr. Be
Ersatz durch:
Ersatz für:
Ursprung: HSM-Pressen

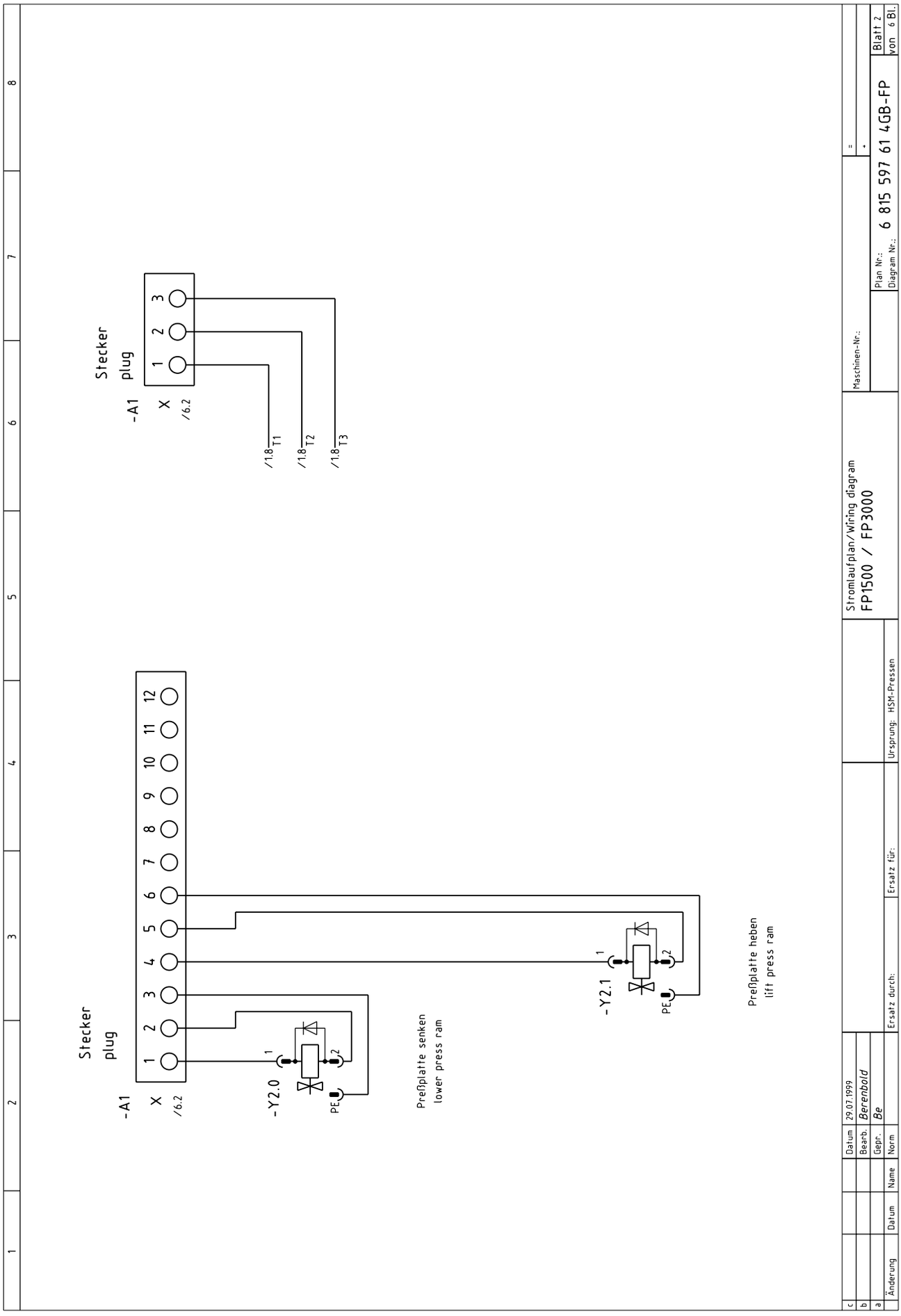


Dieser Plan ist gültig für:
This diagram is valid for:

Maschinentyp maschin type	Leistung power	Spannung Voltage	Frequenz frequency
FP1500/FP3000	7,5kW	3x400V	50Hz
FP1500/FP3000	7,5kW	3x220V	50Hz
FP1500/FP3000	7,5kW	3x200V	50Hz

* Das Motorschutzrelais ist auf den Nennstrom des Motors einzustellen.

* Adjust motor protectiv relais to the value of the nominal motor current.


Stecker
plug
-A1
X
/6.2
/1.8 T1
/1.8 T2
/1.8 T3
Stecker
plug
-A1
X
/6.2
-Y2.0
PE
Preßplatte senken
lower press ram
-Y2.1
PE
Preßplatte heben
lift press ram
Stromlaufplan/Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.:
Diagram Nr.: 6 815 597 61 4GB-FP
Blatt 2
von 6 Bl.
Änderung
Datum
Name
Norm
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29.07.1999
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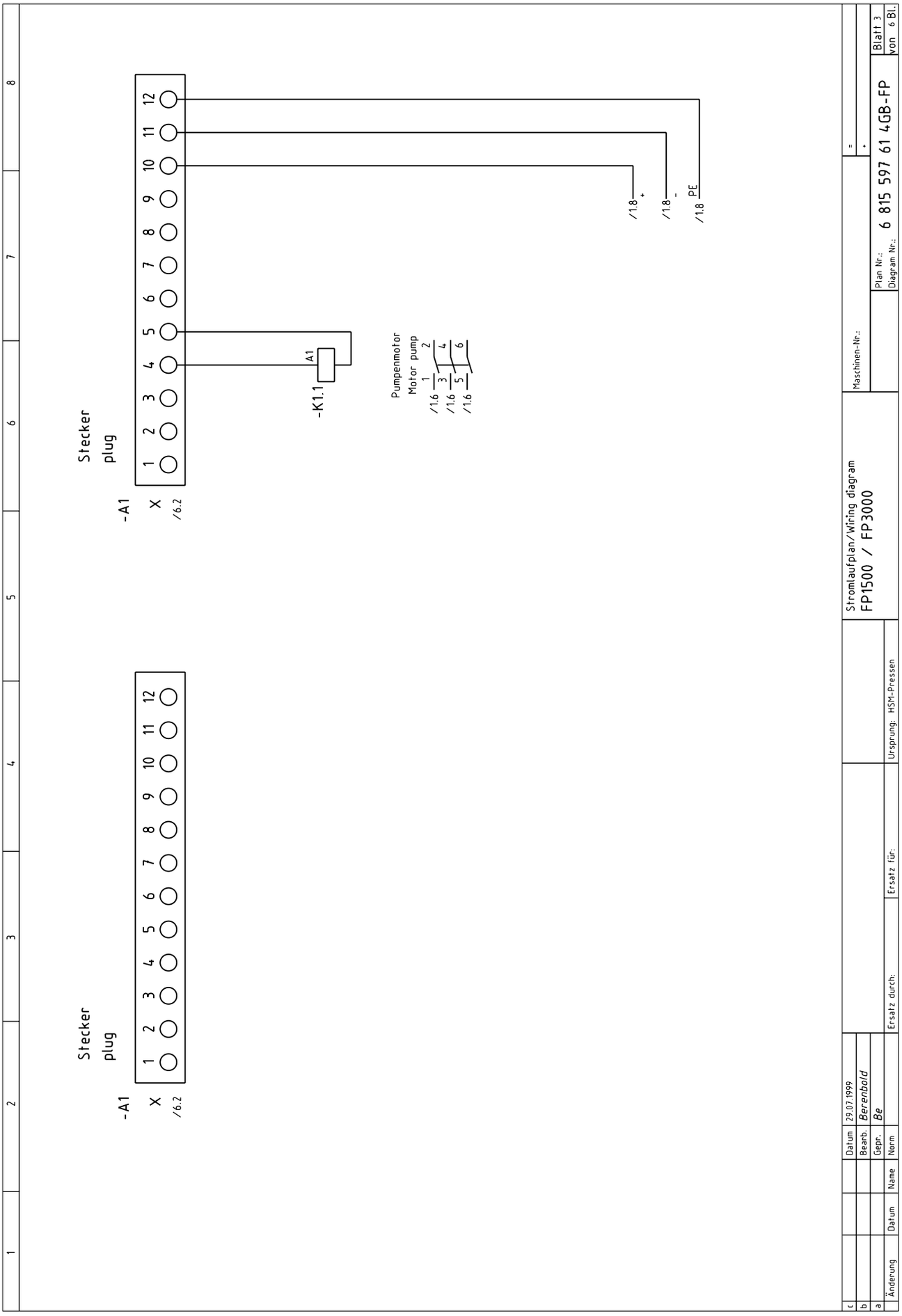
Ursprung: HSM-Pressen


Stecker
plug
-A1
X
/6.2
1 2 3 4 5 6 7 8 9 10 11 12
Stecker
plug
-A1
X
/6.2
1 2 3 4 5 6 7 8 9 10 11 12
A1
-K1.1
Pumpenmotor
Motor pump
1 2
/1.6
3 4
/1.6
5 6
/1.6
/1.8 +
/1.8 -
/1.8 PE
Stromlaufplan/Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.: 6 815 597 61 4GB-FP
Diagram Nr.:
Blatt 3
von 6 Bl.
Datum 29.07.1999
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Gepr. Be
Norm
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Ursprung: HSM-Pressen
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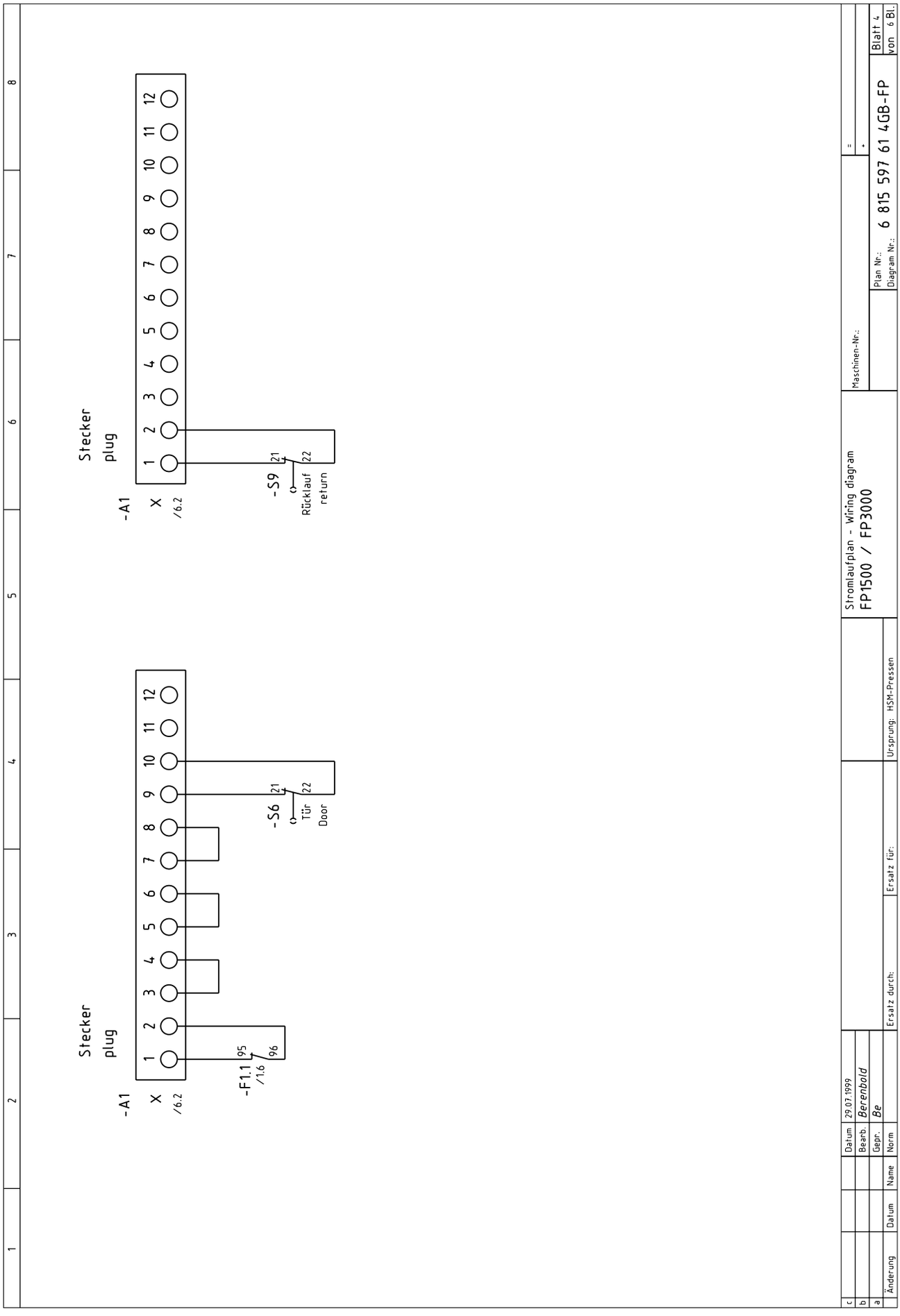
Datum
Name


Stecker
plug
-A1
X
/6.2
-F1.1
/1.6
95
96
-S6
21
22
Tür
Door
-S9
21
22
Rücklauf
return
Stromlaufplan - Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.: 6 815 597 61 4GB-FP
Diagram Nr.:
Blatt 4
von 6 Bl.
Datum 29.07.1999
Bearb. Berenbold
Gepr. Be
Norm
Name
Datum
Änderung
Ersatz durch:
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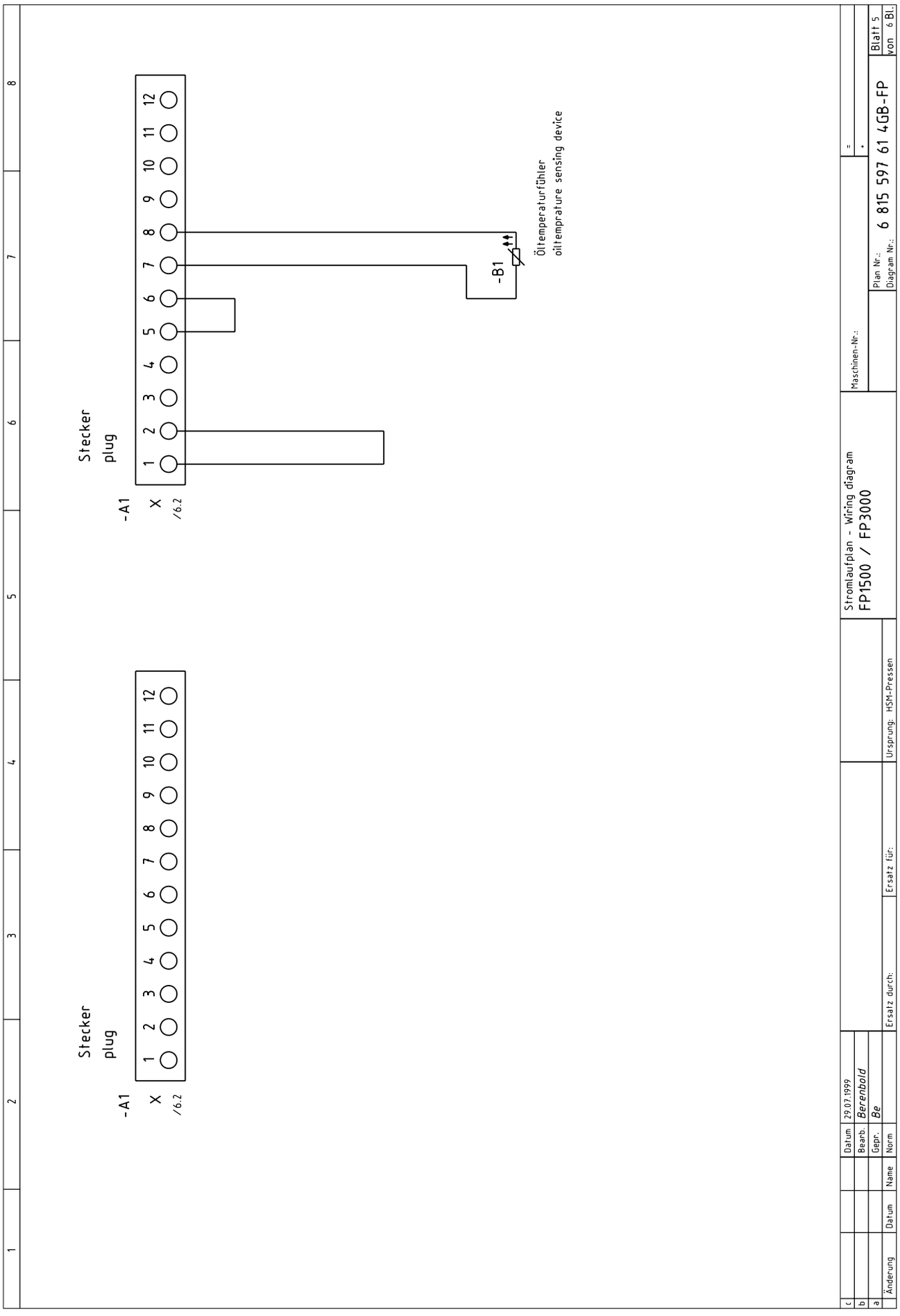
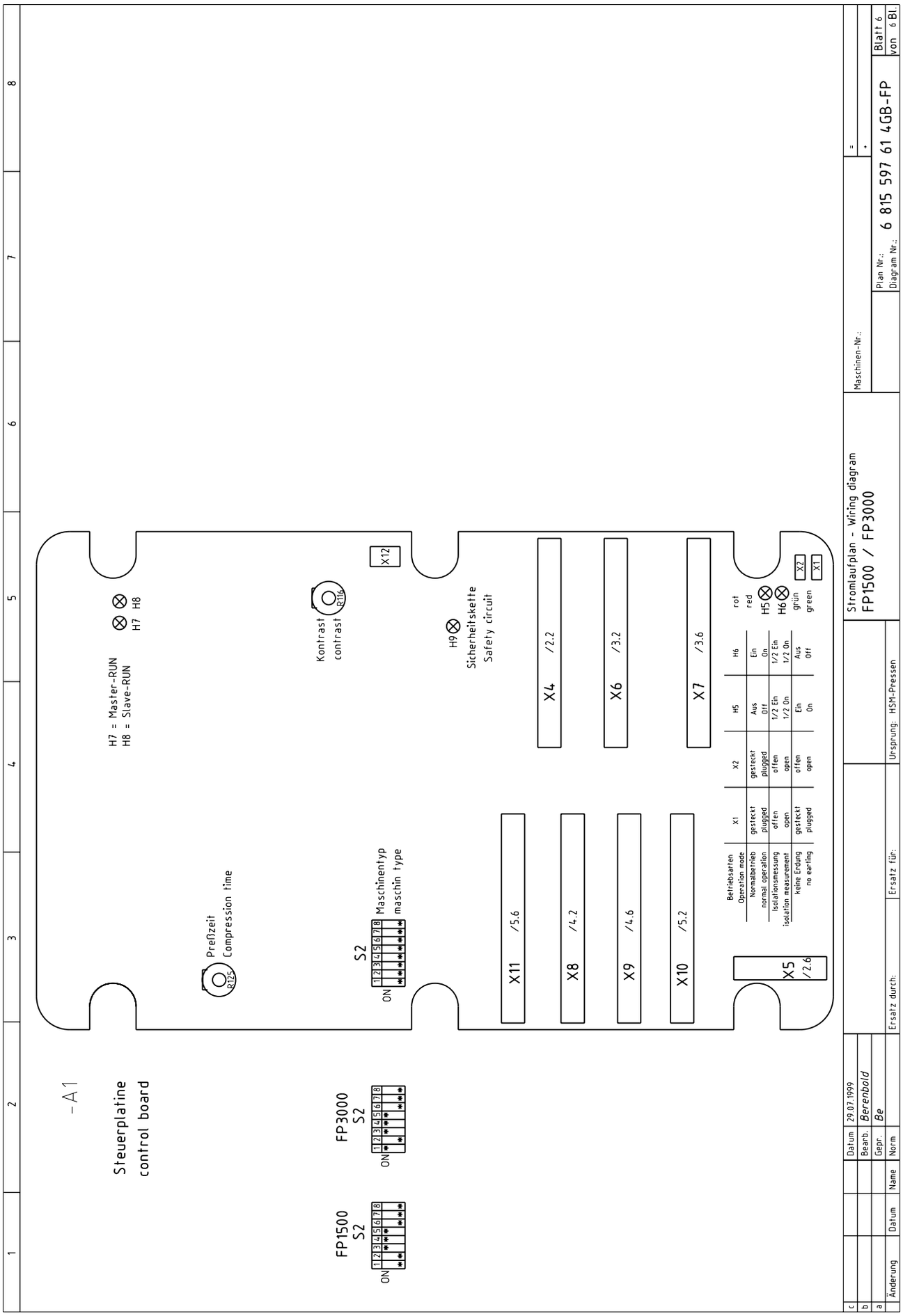
Ursprung: HSM-Pressen


Stecker
plug
-A1
X
/6.2
1 2 3 4 5 6 7 8 9 10 11 12
-B1
Öltemperaturfühler
oiltemprature sensing device
Stromlaufplan - Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.: 6 815 597 61 4GB-FP
Diagram Nr.:
Blatt 5
von 6 Bl.
Datum 29.07.1999
Beanb. Berenbold
Gepr. Be
Name
Norm
Ersatz durch:
Ersatz für:
Ursprung: HSM-Pressen
Änderung
Datum


-A1
Steuerplatine
control board
H7 = Master-RUN
H8 = Slave-RUN
H7 H8
Preßzeit
Compression time
Kontrast
contrast
X12
H9
Sicherheitskette
Safety circuit
S2
Maschinentyp
maschin type
X11 /5.6
X8 /4.2
X9 /4.6
X10 /5.2
X4 /2.2
X6 /3.2
X7 /3.6
X5 /2.6
X2
X1
FP3000
S2
FP1500
S2
Betriebsarten
Operation mode
Normalbetrieb
normal operation
Isolationsmessung
isolation measurement
keine Erdung
no earting
X1
X2
H5
H6
gesteckt
plugged
offen
open
Aus
Off
Ein
On
1/2 Ein
1/2 On
rot
red
grün
green
Stromlaufplan - Wiring diagram
FP1500 / FP3000
Maschinen-Nr.:
Plan Nr.: 6 815 597 61 4GB-FP
Diagram Nr.:
Blatt 6
von 6 Bl.
Änderung
Datum
Name
Norm
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Ursprung: HSM-Pressen

Änderung	Datum	Name	Norm
a			
b		Bearb.	Gepr.
c	29.07.1999	Datum	

Ersatz durch:

Ersatz für:

Ursprung: HSM-Pressen

Klemmenplan - Terminal connections

FP1500 / FP3000

-X1

Plan Nr.: 6 815 598 61 4GB-KLP

Diagram Nr.:

Blatt 1 von 1 Bl.

Gerätekommentar Device comment	Kabelbezeichnung Cable designation	Zielzeichen extern Target char.external Gerätebezeichnung Device	Anschlußbezeichnung Connection	Anschlußleiste Terminal bord Terminal number Klemmennummer	Strep joint Laschenverbindung	Comment Klemmenkommentar	Wire connection Drahtverbindung	Location Darstellungsort	Zielzeichen intern Target char.internal Gerätebezeichnung Device	Anschlußbezeichnung Connection
		Leiste: -X1								
		insgesamt 9 Klemmen								
Netzstecker Mains plug		-X10	L1	1		L1		/1.5	-Q1	1
"		-X10	L2	2		L2		/1.5	-Q1	3
"		-X10	L3	3		L3		/1.5	-Q1	5
				4		N		/1.5		
Netzstecker Mains plug		-X10	PE	5		PE		/1.5	PE	
Pumpenmotor Motor pump		-M1	U	6		U		/1.6	-F1.1	2
"		-M1	V	7		V		/1.6	-F1.1	4
"		-M1	W	8		W		/1.6	-F1.1	6
"		-M1	PE	9		PE		/1.6	PE	

12 Hydraulic diagram