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Manual for service technicians
for waste compactors MPC][SKPC][STP-CA/K/N/L *][STP*

Manual for service technicians
for waste compactors MPC][SKPC][STP-CA/K/N/L *][STP*

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Attention:

This manual is for your information only; it is intended for trained service personnel and is not an operating, service or maintenance manual. The manual does not replace training on the machine. The safety requirements for handling of waste compactors are specified in the waste compactor manual and must be complied with when carrying out any work with or on waste compactors. This manual is subject to ongoing technical modifications, all values given here are sample values and have to be coordinated with the customer service department of Werner & Weber prior to use and confirmed by Werner & Weber in writing.

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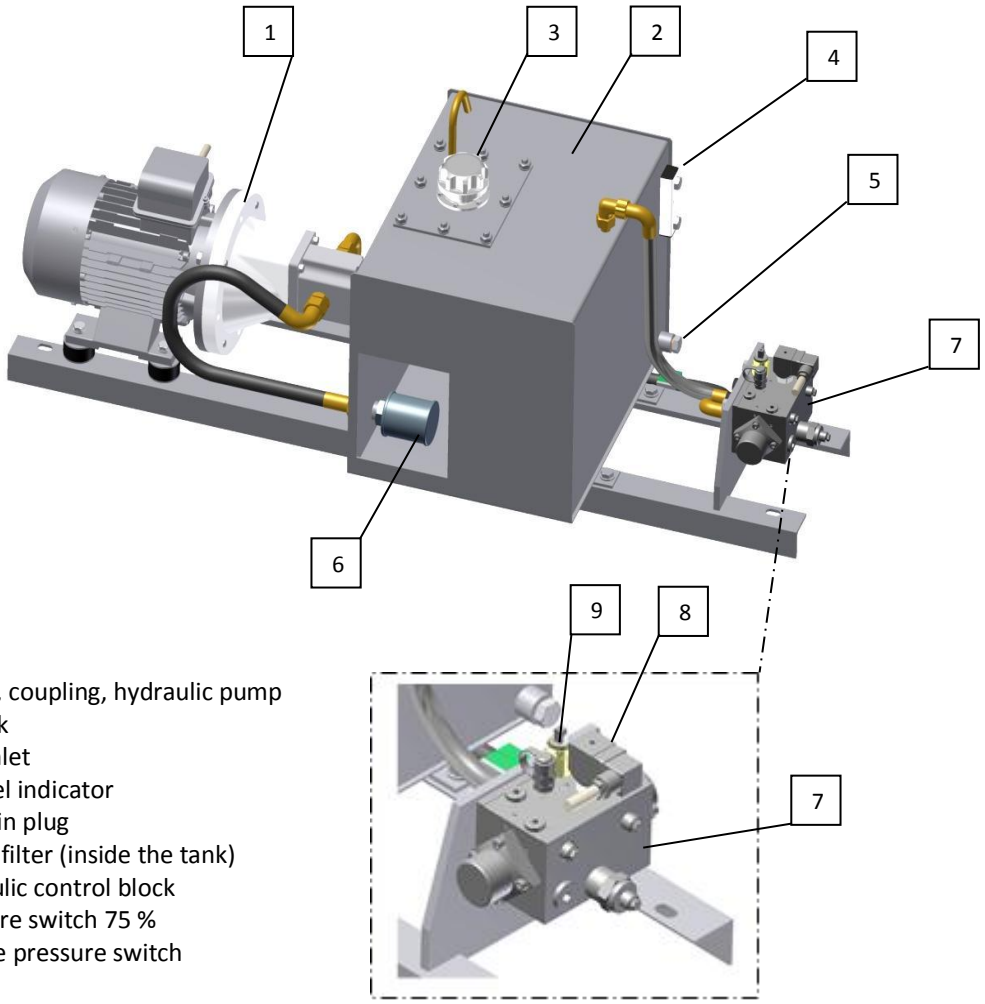
1. Drive of waste compactor

2. Description of hydraulic system with control block HST001-ALU

The construction of the hydraulic drive is very simple. A hydraulic pump drives the press cylinders which move the press piston. An auto-switching hydraulic 4/2 control block controls the cylinder movement and changes the moving direction (forward/back). The duration of compacting is controlled by the electric control system.



1 … motor, coupling, hydraulic pump
2 … oil tank
3 … tank inlet
4 … oil level indicator
5 … oil drain plug
6 … intake filter (inside the tank)
7 … hydraulic control block
8 … pressure switch 75 %
9 … release pressure switch

5

2.1 Control block HST001-ALU made by Werner & Weber

The hydraulic 4/2-way valve block as described in the following is equipped with a differential control unit and is located in the hydraulic and electrical container unit above the feed opening. The control block is an auto-switching 4/2-way valve NG16 and switches the cylinder/s continuously between return stroke/forward stroke and forward stroke/return stroke. Switching is done under pressure control, i.e. without electric limit switches. The control block queries the final position of the cylinders by means of pressure measurement. Therefore additional functions can be easily performed, such as final position control, pressure queries etc.

2 different makes of control blocks are currently integrated in Werner & Weber waste compactors:

2.1.1 With adjustable pressure values – made by Werner & Weber

Type HST001-ALU.V2 || HST001-ALU.V2.02

The switchover pressure of this valve can be adjusted at the position Cylinder front and Cylinder rear. Thus the compaction force can be varied.
2 pressure switches are mounted on the control block. An adjustable pressure switch for the query of 75% of the maximum pressure, this pressure switch sends a signal to the 75% fill status indicator lamp. The second pressure switch is designed for the so-called "Release function", a function that enables the movement of the press piston in short individual strokes. This switch allows to release trapped persons.
This block is fitted to all standard machines from year of construction 00/2011

2.1.2 With pre-set pressure values – made by Werner & Weber

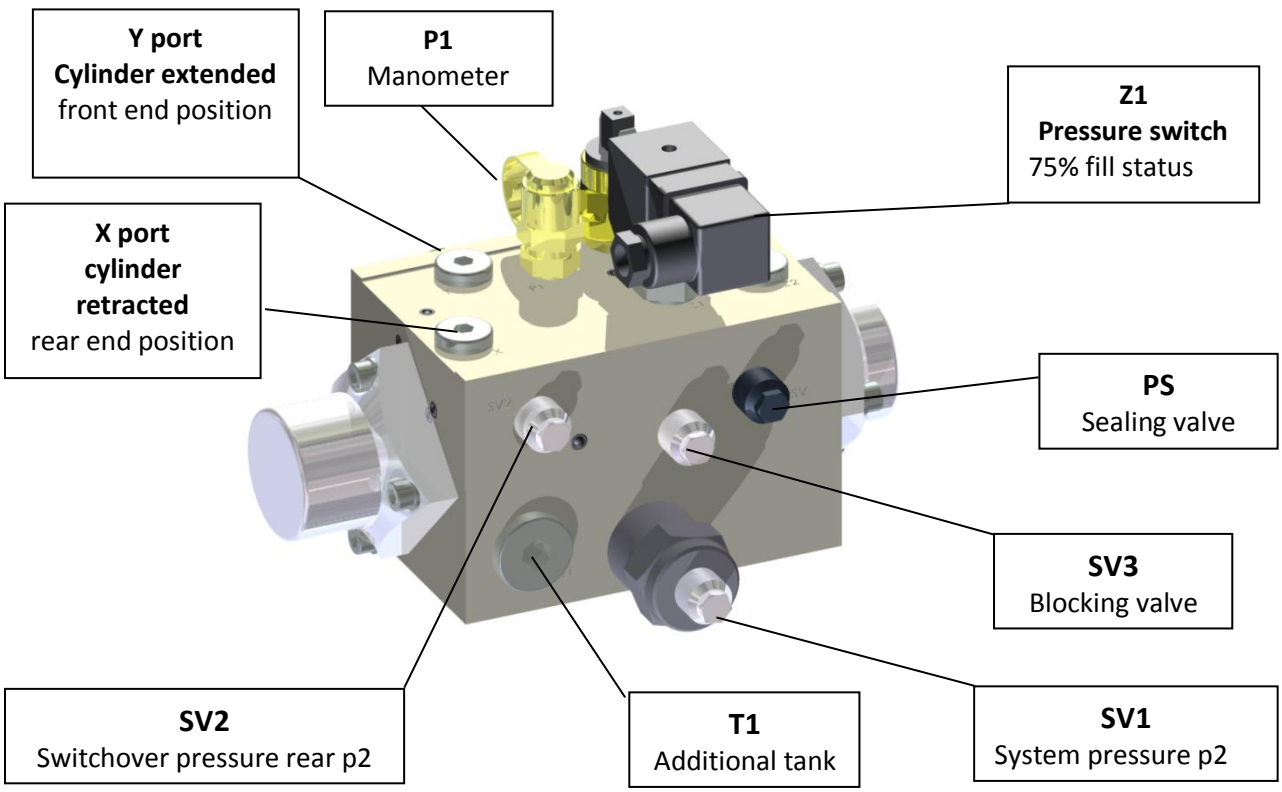
Type HST001-ALU || HST001-ALU.02(03)(04)(05)

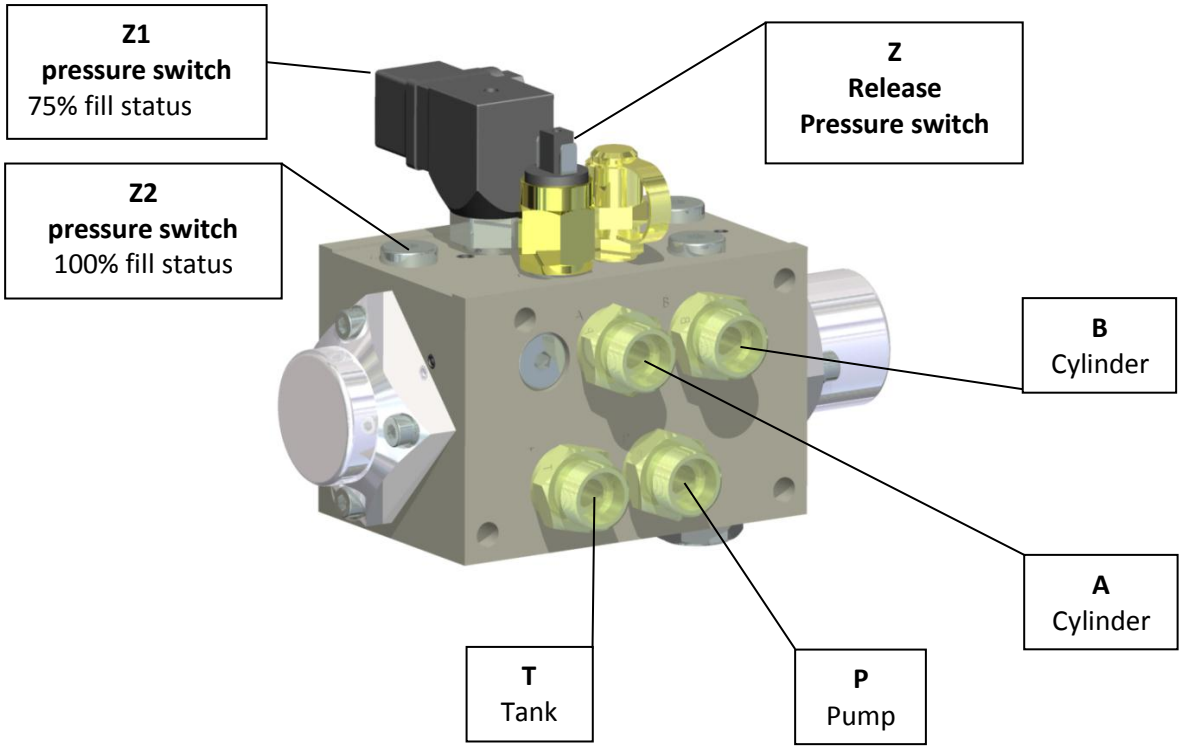
The switchover pressure of the cylinders of this valve is pre-set and can only be modified with an optional accessory device. This control block effectively prevents manipulation of the pressure setting. 2 pressure switches are mounted on the control block. An adjustable pressure switch for the query of 75% of the maximum pressure, this pressure switch sends a signal to the 75% fill status indicator lamp. The second pressure switch is designed for the so-called "Release function", a function that enables the movement of the press piston in short individual strokes. This switch allows to release trapped persons.
This block is fitted to some machines from year of construction 10/2009

2.1.3 Type HST001- made by Buschjost

All machines from 1986 to year 09/2010 are equipped with the adjustable control block made by Buschjost. This control block basically works like the control block made by WW. A detailed description of the valve and setting instructions are available on request.

Figure: control block HST001-ALU.V2





Port	Gewinde	Benennung
A port	G1/2"	Cylinder port A cylinder base
B port	G1/2"	Cylinder port B cylinder rod
P port	G1/2"	Pump port
T port	G1/2"	Tank port
(port T1)	G1/2"	(additional tank port)
X port	G1/4"	Pressure switch cylinder retracted (rear end position)
Y port	G1/4"	Pressure switch cylinder extended (front end position)
P1 port	G1/4"	Measuring port manometer
Safety valve SV1 – p1	-	Pressure relief valve, system pressure
Safety valve SV2 – p2	-	Pressure relief valve, switchover pressure rear
Blocking valve SV3	-	for setting of pressures
PS valve	-	Compactor synchronization valve
Z port	G1/4"	Release pressure switch
Z1 port	G1/4"	Pressure switch Fill status 75%
Z2 port	G1/4"	Pressure switch Fill status 100% (optional)

2.2 Setting instructions, control block

for HST001-ALU.V2 || HST001-ALU.V2.02 || HST001-ALU.03/04/05
Pressure setting of control block if block is preset and sealed at the factory

Required tool: Open-end wrench size 10, Allen key size 5 and 2.5

2.2.1 Setting the rear switchover pressure (cylinder retracted):

1. Mount the manometer on P1
2. Unscrew all the caps from SV1, SV2, PS and SV3, first loosen and remove the seals.
3. Screw in the SV2 half a revolution (clockwise) using an Allen key
4. Using an Allen key, unscrew the SV1 half a revolution (anti-clockwise)
5. Using an Allen key, unscrew the SV3 one revolution (clockwise)
6. Start the compactor; the press piston moves back and stops automatically at the rear end position (cylinder retracted)
7. If the press piston does not stop at the rear end position (usually with SKPC compactors), stop the machine. Screw in the PS valve half a revolution and start again, then the press piston should stop with retracted cylinders.
8. Turn the hexagon socket screw on the SV1 pressure relief valve until the desired switchover pressure "rear" is displayed on the manometer (standard value is 130 bar).
9. The pressure is now set. Then slowly relieve the SV2 valve by turning the hexagon socket screw (unscrew) so that the press piston performs a movement forward. Wait about 5 seconds and then stop the compactor with the emergency stop.
10. Optional:
11. If the PS valve (black cap) had to be screwed in half a revolution (see section 7), now unscrew it half a revolution.
12. Put the SV2 cap - PS cap (black) where required - back on again and tighten it

Optional:
For safety reasons you can check the switchover pressure (cylinder retracted) again on the manometer. How to proceed:
Unscrew the SV1 a quarter of a revolution, press start, the press piston retracts and stops at the rear end position (cylinder retracted).
Then screw the main pressure valve SV1 slowly in, watch the manometer to check at which pressure the press piston moves forward again (down SKPC).

immediately afterwards the pressing power (compaction force) is set

2.2.2 Setting the pressing power/compaction force (cylinder extended)

1. Start the compactor. The press piston moves forward and stops in front position. The pressing power (compaction force) can only be set in this position. Use an Allen key size 5 to screw in the main pressure valve SV1 (clockwise) until the desired pressing power (= switchover pressure front = cylinder extended) is displayed on the manometer (e.g. 240 bar).
2. Switch off the compactor with the emergency stop button.
3. Mount the SV1 cap and tighten it.
4. Check the switchover pressure and pressing power/compaction force again.
   Switch on the compactor, the press piston moves back and switches from reverse stroke to forward stroke and moves forward. The press piston stops at front end position (cylinder extended). Now check the pressure on the manometer again.
5. If the pressure shown on the manometer corresponds to the desired pressure (tolerance = approx. +/- 10 bar), then screw in the SV3 valve until it hits the limit stop. The cylinders are switched over and the press piston moves back.
6. Stop the compactor with the emergency stop button.
7. Mount the cap on SV3 and tighten it.
8. Put the compactor into operation again and check for proper functioning.

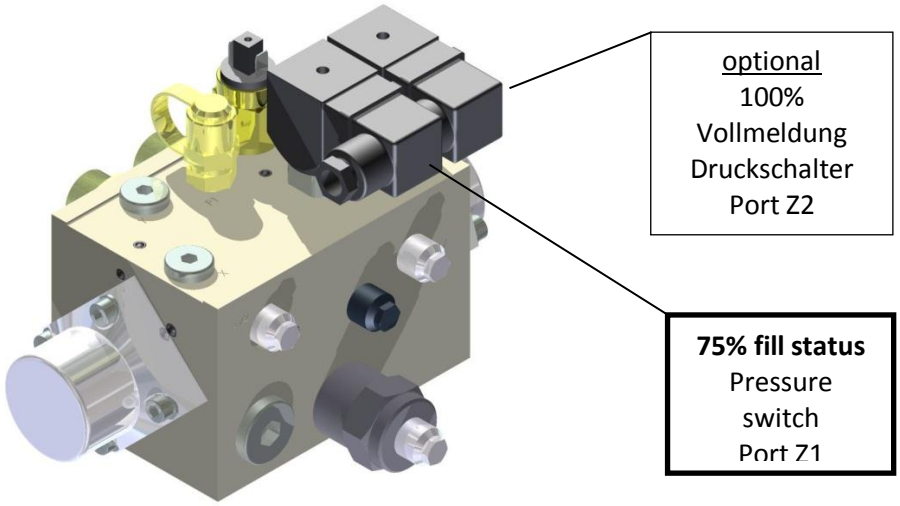
ATTENTION:

The max. set system pressure must not exceed **240bar.**
The switchover pressure "rear" (cylinder retracted) must not exceed **150bar**

2.2.3 Setting values of all pressure switches and pressure relief valves

The setting values can be found on the data sheet at the end of the instructions in section 5.1 / page 26

2.3 Setting pressure switch 75% and 100% fill status



2.3.1 Setting 75% fill status

The used pressure switch has the following connections:

1 and 3 = normally open NO - when pressure is available, the contact closes
1 and 2 = normally closed NC - when pressure is applied the contact opens.

As a standard, the pressure switch is connected between 1 and 3. The standard presetting of the 75% pressure switch is 180 bar (see engraving). If you want to change this value, this can be set on the pressure switch:

1. The pressure switch point is increased when the setting screw is screwed in on the pressure switch
2. A „+“ quarter rotation corresponds to approx. 25 bar
3. The pressure switch point is decreased when the setting screw is unscrewed on the pressure switch
4. A „-“ quarter rotation corresponds to approx. 25 bar
5. You can check on the display of the PLC whether the pressure switch sends a signal. When it operates properly, a signal is displayed at input 4. The signal appears only when the cylinders are extended and switch to reverse stroke.

2.3.2 Setting 100% fill status

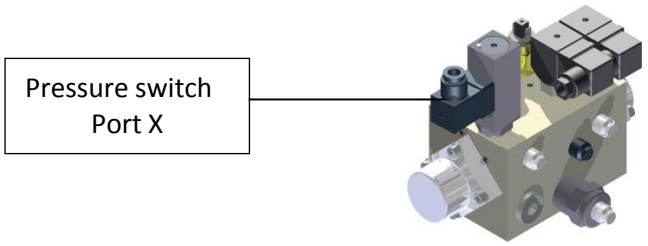
An additional adjustable pressure switch can be fitted to port Z2 on the control block. This pressure switch can be used to query e.g. the max. pressure. The electrical signal can be used to query the 100% fill status. Since the pressure switch is adjustable, any pressure values can be queried and used for evaluation.
The setting of the 100% pressure switch is analogous to the 75% pressure switch, but the signal input is displayed at input 5 on the PLC.

2.4 Additional function, end position control of cylinders

Sometimes it is necessary that the cylinders stop after compaction either in retracted position (compacting chamber "open") or in extended position (compacting chamber "closed"). This is achieved by connecting an additional pressure switch either in the X or Y port.

2.4.1 "Rear" end position

Once compaction is complete, the compactor has to clear out the compacting chamber (cylinder retracted) → pressure switch connected to port X

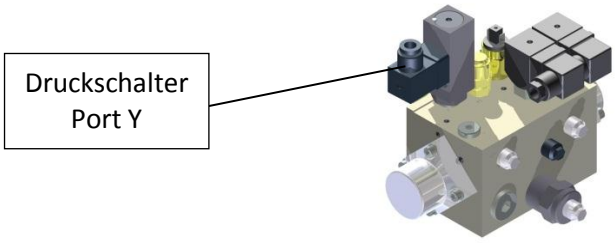


A pressure switch, e.g. Werner & Weber HT111.02, is mounted in the "X" port of the valve block and is connected to the electric control of the compactor as "normally open NO". The switching point of the pressure switch must be set to approx. 35 bar (depending on the hydraulic unit and the compactor type). The electric motor does not switch off after the expiry of the motor run time which has been set in the PLC. Due to the pressure switch, the power contactor remains energized until the cylinders are fully retracted. Because of the subsequent hydraulic switching pulse, the contacts of the pressure switch are closed in "X" and thus the electric motor is switched off.

If necessary, the switching pressure can be changed accordingly. Loosen the safety screw, screw the setting screw in or out approx. ¼ revolution until the pressure corresponds to the desired function. A quarter revolution equals approx. 3 bar

2.4.2 "Front" end position

Once compacting is complete, the compactor has to close the compacting chamber (cylinder extended) → pressure switch connected to port Y



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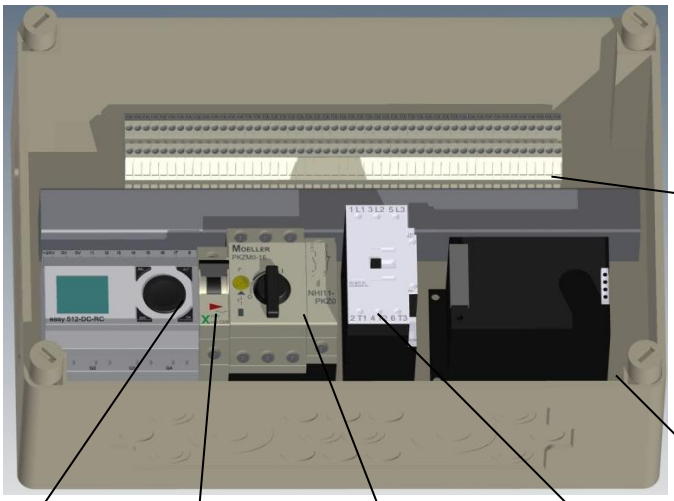
A pressure switch, e.g. Werner & Weber HT111.02, is mounted in the „Y“ port of the valve block and is connected to the electric control of the compactor as "normally closed NC". The switching point of the pressure switch must be set to approx. 20 bar (depending on the hydraulic unit and the compactor type). The electric motor does not switch off after the expiry of the motor run time which has been set in the PLC. Due to the pressure switch, the power contactor remains energized until the cylinders are fully extended. Because of the subsequent hydraulic switching pulse, the contacts of the pressure switch are closed in „Y“ and thus the electric motor is switched off.

If necessary, the switching pressure can be changed accordingly. Loosen the safety screw, screw the setting screw in or out approx. ¼ revolution until the pressure corresponds to the desired function. A quarter revolution equals approx. 3 bar

3. Description of electrical system

3.1 Electrical control box

The electrical control box is either located in the container unit of the waste compactor or mounted in an external unit depending on the compactor type. The control system design is very simple, see description:



The version of the EST-control system (e.g. EST151-24V) of your machine is indicated on the circuit diagram supplied. Currently, the following control systems are in use:

Starting from September 2007: EST150-24V
EST150.01-24V
Starting from December 2009: EST151-24V
EST151.01-24V
EST151.T-24V

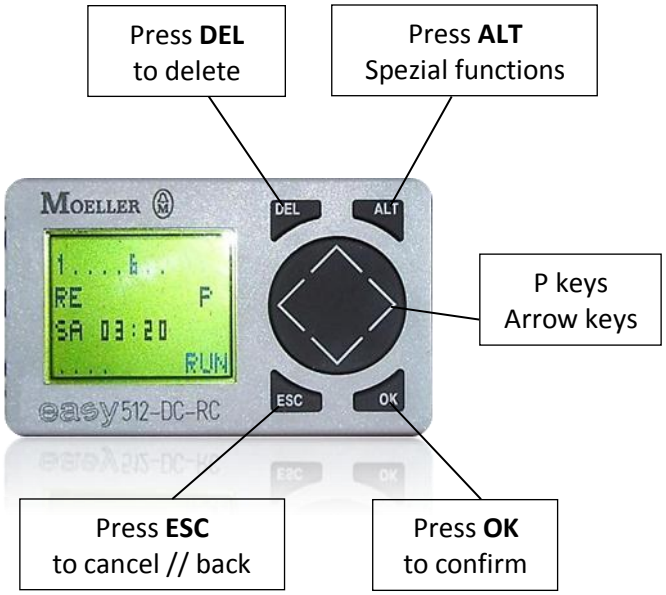
2 different PLC control systems are used depending on the year of construction and type of the control box. Either control system EATON (MOELLER) - easy or control system SCHNEIDER – ZELIO. The parameter setting can be found in the following chapters.

3.2 Programmable logic controller (PLC)

3.2.1 PLC made by Moeller (EATON)SPS Type easy 512-DC-RC and easy 719-DC-R

Keys:

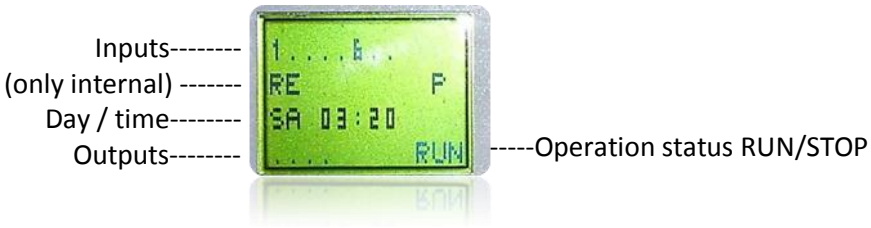
DEL: delete in the circuit diagram
ALT: call up special functions
OK: continue, save
ESC: cancel
move to the previous menu level
undo an entry
DEL+ALT: call up a special menu



Cursor keys **< >v ^**
move the cursor
select menu items
set, change values.

Functions of P-keys:
< input P1
> input P3
^ input P2
v input P4

Status indicators on the display



Inputs: if a number is visible, this input is currently active, if only a point is visible, this input is inactive.
Outputs: if a number is visible, this output is currently active, if only a point is visible, this output is inactive.
Operating mode: RUN means that the PLC is active, STOP means that the PLC is inactive.
Settings on the PLC can be performed only when operation status STOP is displayed.

Please refer to the current circuit diagram for functions of inputs and outputs.

Access to the PLC is secured by a password. Please refer to 3.2.1.2, Runtime settings, for explications on how to make an entry.

3.2.1.1 Changing parameters in the PLC MOELLER (EATON) easy

The different machine parameters can be changed in menu item Parameters. Use the arrow keys to go to menu item "Parameters". Then press the OK button to open the Parameter menu. Use the arrow keys up / down to select the corresponding parameter.

Only the following parameters may be changed by a service technician:

- T1 Duration of the work cycle (default = 3 min), adjustable between 0 and 12 minutes.
- T2 Time in seconds how long the start button must be held down to restore the standard compactor runtime (default = 6 sec). Required if the run time of the compactor was automatically reduced due to a maintenance exceeded (see section 3.2.1.4).
- T3 Delay time for pressure switch Fill status 75%. Period during which pressure must be applied on the pressure switch to activate Fill status 75%, the value can be set between 1 and 3 seconds (default = 3 sec).
- T4 (option) Delay time for pressure switch Fill status 100%. Period during which pressure must be applied on the pressure switch to activate Fill status 100%, the value can be set between 1 and e.g. 3 seconds (default = 3 sec).
- The setting value for fill status T3 and T4 depends on the material to be processed and the type of filling.
- T7 (option) Delay time for a light sensor = interruption time of light sensor for the START signal. (default = 10 sec)

All other parameters must not be changed as this may cause a malfunction.

3.2.1.2 Changing the compactor's run time on the PLC MOELLER easy (EATON)

- The compactor must be switched on and the screen on the PLC must be active
- Press OK to enter the main menu.
- Use the arrow keys ↕ to navigate to "PASSWORD"
- Press the OK button to confirm
- To enter the password, press OK again.

Enter the password:

- Press right / left ↔ navigate to the corresponding position, press arrow keys ↕ to select the numbers.
- Confirm with OK.
- Press OK again to enter the main menu.

.

Use the arrow keys to navigate to menu item PARAMETERS

- Press OK for activation.

- The display shows the parameters T1 to T4.
- T1 is the parameter for the run time of the waste compactor.
- Navigate to T1 and press OK to confirm
- You can now see the parameters I1 and I2 on the display. The currently set run time, e.g. 03:00 means a motor run time of 3 minutes, is displayed next to parameter I1.
- To change the run time, use the arrow keys ↕ ↔ to navigate to I1
- The admissible run time is between 00:10 sec and 12: 00 minutes, format 00:00 (min: sec.)
- Press OK when the desired value is set.
- Press 3x ESC to access the main menu.
- Switch off the main switch on the waste compactor to activate the password and the change.
- The setting is complete.

3.2.1.3 Display of maintenance information by pressing the control buttons P1 – P4

Press the appropriate control buttons P1 – P4 to display the following information.

EST151-24V V2.01
Bt: xxxx

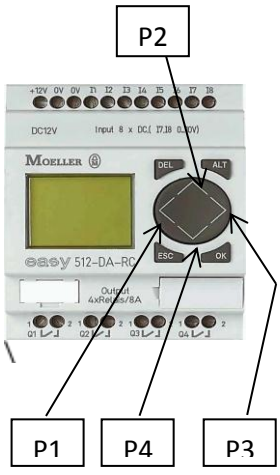
Press the P1 cursor key to display the name of the control system and the hours of operation (BT).

Wartung
W-F: xxxx
W-Oel: xxxx
Service

Press the P2 cursor key to display the hours of operation after the last maintenance, guide (W-F) and maintenance, oil (W-Oel).

Wartung
WUE-H: xxxx
WUE-F: xxxx
Service

Any counted maintenance exceeded is displayed by pressing the P3 cursor key: hydraulic system (H) and guide (F).



Betriebsstun
OT1: xxxx
OT2: xxxx
Operating h

Press the cursor keys P1 and P2 to display normal hours of operation (OT1) and hours of operation in case of a pending maintenance (OT2).

Wartung
O-ab: xxxx

Press the cursor keys P1 and P4 to display the hours of operation after oil change exceeded (O-ab).

3.2.1.4 Warning notes with respect to the maintenance of the PLC MOELLER (EATON) easy

The PLC displays 3 different maintenance messages.

W-H	Maintenance, hydraulic system
W-F	Maintenance, guiding
W-Oel	Maintenance, oil

Note maintenance, hydraulic system W-H

This means that the hydraulic system has to be checked for leaks.
When the message appears on the screen, press P4 (= down arrow key) to confirm it. This message is displayed every 600 hours of operation. The value specified in W-H indicates the operating hours during which the waste compactor was in service after the period of 600 hours without having carried out a maintenance.
If you carry out maintenance work before the warning message is displayed, you can reset the internal counter to 0 by pressing P4 + P1 simultaneously (down arrow + left arrow).

Note Maintenance, guide W-F

This means that the guides have to be adjusted
When the message appears on the screen, press P4 (= down arrow key) to confirm it. This message is displayed every 300 hours of operation. The value specified in W-F indicates the operating hours during which the waste compactor was in service after the period of 300 hours without having carried out a maintenance.
If you carry out maintenance work before the maintenance message is displayed, you can reset the internal counter to 0 by pressing P4 + P2 simultaneously (down arrow + up arrow).

Maintenance, oil W-Oel

This means that an oil change, including replacement of the return filter and intake filter, has to be performed
When the message appears on the screen, press P4 (= down arrow key) to confirm it.
This message is displayed every 2000 hours of operation. The value specified in W-Oel indicates the operating hours during which the waste compactor was in service after the period of 3000 hours without having carried out a maintenance.
If you carry out maintenance work before the warning note is displayed, you can reset the internal counter to 0 by pressing P4 + P3 simultaneously (down arrow + right arrow).

Runtime reduction because of missing maintenance

If the oil change was exceeded by 1000 hours of operation (after a total of 3000 hours of operation), the compactor's runtime is automatically set to 1 minute. This is also the case if the displayed maintenances were performed but not acknowledged to the PLC (none of the P-keys pressed).

If various maintenances are displayed (different screens one after another), the entry P4 must be made for each individual maintenance. If runtime reduction is activated for a compactor, you have to press 3x P4 to confirm all 3 maintenances.

ATTENTION: When a maintenance is performed, the process must be confirmed in the PLC and saved by pressing the cursor button P4.

If the PLC has no information on a maintenance performed, the compactor's runtime is automatically reduced from 3 to 1 minute.

Immediate measure to disable the runtime reduction

Hold the start button for more than 6 seconds to cancel the runtime reduction without opening the switch cabinet. If several maintenance messages are already displayed, this process must be repeated 3 times to confirm all maintenances.

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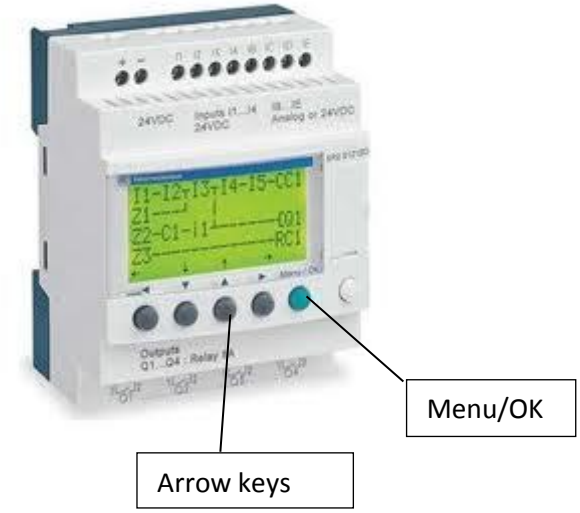
3.2.2 PLC made by Schneider ZELIO SR2A101BD, optional: SR2A201BD



3.2.2.1 Enter the password

- Switch on the main switch
- Press Menu/OK to enter the main menu.
- Select menu item RUN/STOP with the arrow keys,
- confirm with Menu/OK
- Select “Stop” mode
- Confirm Menu/OK,
  if a YES-NO query is displayed, select YES and confirm with Menu/OK
- Select menu item Password and confirm.
- Use the arrow keys to enter the password (arrow keys right/left for the position and arrow keys up/down for the value)
- Once the password has been entered, confirm with Menu/OK.

If a wrong password has been input, the PLC is disabled for a certain time. To activate the input menu again, the power supply to the PLC has to be interrupted for a short time (press main switch) and then perform a restart.
The language of the menu entries depends on the preset language on the PLC. (can be changed)

3.2.2.2 Changing parameters in the PLC Schneider ZELIO

The different machine parameters can be changed in menu item Parameters. Use the arrow keys to go to menu item "Parameters". Then press the Menu/OK button to open the Parameter menu. Use the arrow keys up / down to select the corresponding parameter.

Only the following parameters may be changed by a service technician:

- T1 Duration of the work cycle (default = 3 min), adjustable between 0 and 12 minutes.
- T3 Delay time for pressure switch Fill status 75%. Period during which pressure must be applied on the pressure switch to activate Fill status 75%, the value can be set between 1 and 3 seconds (default = 3 sec).

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- T4 (option) Delay time for pressure switch Fill status 100%. Period during which pressure must be applied on the pressure switch to activate Fill status 100%, the value can be set between 1 and 10 seconds (default = 3 sec).
- The setting value for fill status T3 and T4 depends on the material to be processed and the type of filling.
- T7 (option) Delay time for a light sensor = interruption time of light sensor for the START signal. (default = 10 sec)

All other parameters must not be changed as this may cause a malfunction.

3.2.2.3 Changing the compactor's run time on the PLC Schneider ZELIO

- Switch on the main switch
- Select Menu/OK to enter the main menu.
- Select menu item RUN/STOP with the arrow keys,
- confirm with Menu/OK
- Select "Stop" mode
- Confirm Menu/OK,
- Use the arrow keys to navigate to menu item Parameters
- Press the Menü/OK button to open the Parameter menu.
- Press the arrow keys up/down to select and change the corresponding parameter.
- Press the arrow key "RIGHT" to reach the value to be set.
- For parameter T3, the setting shown in this example t=03.00 (minutes) means that the compactor's runtime is 3 minutes.
- Press the arrow keys "up / down" to change the values. Once the change is complete, they can be saved by pressing the Menu/OK button.
- To confirm and save the values, use the arrow keys "up / down" to select YES and press the Menu/Ok button.
- Press the Menu/OK button to return to the main menu and the text messages.
- Once all the changes have been made, the RUN mode must be activated again and confirmed in menu item "RUN/STOP".

It is essential to ensure that the settings are within the specified range, otherwise this may result in malfunctions and the warranty becomes void.

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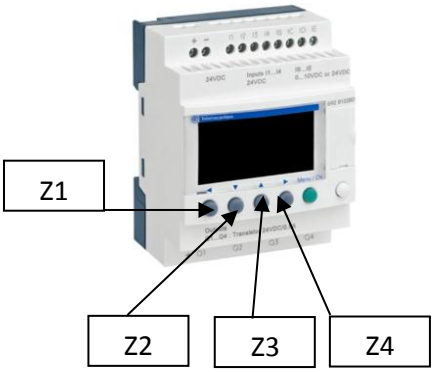
3.2.2.4 Display of maintenance instructions by pressing the control buttons Z1 – Z4

Press the appropriate control buttons Z1 – Z4 to display the following information.

EST151-24V V2.01
Bt: xxxx

The name of the control system and the hours of operation (BT) are displayed by pressing the „Z1“ key



W-F : xxxx
W-Oel: xxxx
3 /4 : xxxx
4/4 : xxxx

The hours of operation after the last maintenance, guide (W-F) and maintenance, oil (W-Oel) are displayed by pressing the „Z2“ key. ‚3/4‘ and ‚4/4‘ counts the number of displayed 75% and 100% fill statuses.

Si: xxxx
WUE-H: xxxx
WUE-F: xxxx
WUE-O: xxxx

Any counted maintenance exceeded is displayed by pressing the „Z1“ and „Z2“ keys: Low oil level or oil temperature (Si), hydraulic system (H), guide (F) and oil (O).

3.2.2.5 Warning notes with respect to the maintenance of the PLC Schneider ZELIO

The PLC displays the following maintenance notes:

Hydraulik prüfen
check Hydraulic

Every 600 hours of operation
Check the hydraulic system for leaks and check the hydraulic fittings

Führung einstellen
/ schmieren
Adjust/grease
Guidings

Every 300 hours of operation
Check, adjust and/or lubricate guidings

Oel Wechsel/prüfen
Change/check oil

Every 2000 hours of operation
Change hydraulic oil and intake filter

ATTENTION: When a maintenance is performed, the process must be confirmed in the PLC and saved by pressing the button Z4.

If maintenance work is not acknowledged in the PLC or if one of the maintenance intervals has been exceeded, the display shows the following message:

Laufzeit reduziert
WARTUNG !!
On-time reduced
SERVICE!!

If the PLC has no information on a maintenance performed, the compactor's runtime is automatically reduced from 3 to 1 minute.

Immediate measure to disable the runtime reduction

Hold the start button for more than 6 seconds to cancel the runtime reduction without opening the switch cabinet. If several maintenance messages are already displayed, this process must be repeated 3 times to confirm all maintenances.

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4. Troubleshooting

4.1 Frequently Asked Questions (FAQ)

Fault	Cause	Remedy
A E-motor does not run	a) Power supply	▪ Check the mains voltage ▪ Make sure that all three phases (L1, L2, and L3) are connected correctly ▪ Check the power supply's residual current circuit breaker ▪ Check cables for damage ▪ Switch on the main switch ▪ Check the fuse and the motor circuit breaker ▪ Unlock all EMERGENCY STOP mushroom pushbuttons ▪ Check oil level or oil temperature switch
	b) Pressure switch RELEASE BF/BZ is defective	▪ Install a bridge in the electrical control between terminals -X2-12 (-X2-21) and -X2-13 (-X2-22). If the compactor is running, the BF/BZ pressure switch is defective and has to be replaced
	c) Safety contacts *(optional)	▪ Check safety contact, inspection hatch, compacting chamber *(optional)
B Motor does not start - residual current circuit breaker is always triggered	a) Short circuit due to isolation defect in the electric motor	▪ Replace electric motor
	b) Short circuit on power supply cable	▪ Check all cables and replace if necessary
C Motor does not start when the ON button is pressed - but release button works	a) Control voltage interrupted	▪ Unlock all EMERGENCY STOP pushbuttons (min. 2 buttons) ▪ Close inspection hatch/lid of compacting chamber (cylinder chamber door) securely, check safety limit switch -S6 ▪ Check fuse F1 in the control system
	b) Low oil switch has triggered *(optional)	▪ Defective control transformer - check LED and replace if necessary
	c) Oil temperature switch has tripped*(optional)	▪ Check switch for any malfunction, refill oil. ▪ Check switch for any malfunction, stop the machine and allow to cool down.

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Fault	Cause	Remedy
D Motor is running but the press piston does not move. Motor is running but the press piston does not move.	a) Electrical poles b) Lack of hydraulic oil c) Hydraulic system leaking d) Press piston frozen on compacting chamber floor	▪ Reverse power supply poles in the CEE plug or the supply cable. ▪ Check hydraulic oil level and fill as necessary. Once the hydraulic cylinder is retracted, the level should approximately reach the top of the sight glass. ▪ Replace defective hose or tighten screws. ▪ Set up the compactor in the hall, let it defrost and remove the water from the compacting chamber. Make sure that water or snow cannot penetrate into the compacting chamber on the setup location
E Motor is running and makes a humming sound. However, the press piston does not perform any movement	a) Supply line failure - only two phases are connected b) Motor winding connected differently (e.g. after motor replacement) c) Winding short circuit in motor	▪ Check the supply cable whether the wires are connected correctly (pay attention to the order) at both ends (in the plug). ▪ Make sure that all three phases (L1, L2, and L3) are connected. ▪ Connect the windings properly ▪ Replace electric motor
F Motor is running and press piston moves approx. 1-2 minutes; then the compactor stops unexpectedly.	a) Motor circuit breaker Q1 was triggered because L1 and L2 are connected correctly in the power cable; but L3 was connected to N.	▪ Correct the connection of the cable
G The compactor switches off after a running time of only 1 minute.	Maintenance interval exceeded, maintenance not acknowledged.	▪ Perform the maintenance and acknowledge it in the PLC, see chapter 3.2.

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Fault	Cause	Remedy
F The hydraulic system does not build up pressure	a) (SV1) is dirty b) Lack of hydraulic oil in the tank c) Burst oil line or hose. d) Hydraulic pump is defective.	▪ Replace control block ▪ Check hydraulic oil level and refill if necessary. Once the hydraulic cylinder is retracted, the oil level should approximately be visible at the top edge of the sight glass. ▪ Replace hose / line ▪ Replace pump
G Compactor running without interruption and does not switch off.	a) Pressure switch for end stop control is misadjusted or defective.	▪ Readjust or replace pressure switch
H Press is running but the power contactor switches frequently between ON / OFF	Pressure switch for end position cut off incorrectly adjusted or defective.	▪ Adjust or replace pressure switch.
I Compactor switches off immediately after the start But the compactor runs if you always hold down the ON button.	PLC program is defective	▪ Check program, re-install if necessary. ▪ Replace the PLC.
J Press piston makes a forward stroke after the start rather than the cylinders are retracted.	a) Hydraulic connections A and B on the hydraulic cylinder are mixed up b) Return filter is dirty (in systems with return filter)	▪ Connect hydraulic hoses properly to the cylinder. ▪ Replace filter
K The press piston does not move completely to the rear end position and switches over before reaching the end position	a) Press piston is stuck; guides are adjusted too firmly b) Cylinder chamber is dirty, material prevents the press piston from reaching the end position	▪ Adjust guidings ▪ Remove any dirt in the cylinder chamber behind the press piston.

Fault	Cause	Remedy
L The press piston only makes a short forward stroke. Then the control block switches back to return stroke	Disc spring in control block is broken	▪ Replace control block.
N Press piston stops at rear end position (cylinder retracted) and does not switch to forward stroke	a) Pressure valve - the pressure value set for the forward stroke (SV2) is too high. b) Pressure valve - forward stroke (SV2) is defective c) Foreign particle between throttle piston and main piston in the valve d) Nozzle in the housing or nozzle in the throttle piston is dirty e) Disc spring in valve is broken f) The pressure cut-off valve for the differential circuit is blocked in open position g) Hydraulic pump is worn out; i.e. it supplies less than approx. 3-4 l/min.	▪ Replace control block ▪ Replace control block ▪ Replace control block ▪ Clean nozzle, see section 4.2 ▪ Replace control block ▪ Replace control block ▪ Replace pump
M Press piston stops at front end position (cylinder extended) and does not switch to return stroke	a) Nozzle in the housing or nozzle in the throttle piston is dirty b) The seal of the cylinder piston is leaking; if more than approx. 3 - 6 l/min. flows to the annular face of the cylinder, the valve piston is held in switching position "forward stroke" c) Blocking valve (SV3) not closed.	▪ Clean nozzle, see section 4.2 or replace valve. ▪ Readjust PSV valve or replace both cylinders. ▪ Close the blocking valve.
O Press piston twists during operation b	Loose press piston guidings	▪ Adjust guidings

Fault	Cause	Remedy
P The cylinders briefly switch to return/forward stroke in end position and then immediately back in the other direction	Temperature below -10° C. Oil is too cold during start of the machine and causes a faulty switching in the valve	▪ Heat the oil, let the machine run at least 20 minutes continuously ▪ Retrofit an oil heater
Q Text message on PLC display	No display – screen is dark Motorschutz gefallen Motor-protective – Switch off Ölmangel oder Öltemperatur Oillevel or Oiltemperature Druckschalter End-lage defect pressure-switch limit-stop failure Hydraulik prüfen check Hydraulik Führung einstellen / schmieren Adjust/grease Guiding's Oel Wechsel/prüfen Change/check oil	▪ EMERGENCY STOP pressed, power supply interrupted, inspection hatch open ▪ Motor protective switch has tripped ▪ Oil temperature switch has tripped, or ▪ low oil switch has triggered ▪ End stop pressure switch, press piston open/closed defective ▪ Check hydraulic system for leaks, check oil level. Tighten screws. Then confirm, see chapter 3.2 ▪ Check, adjust and/or lubricate guidings. Then confirm, see chapter 3.2 ▪ Change hydraulic oil. Then confirm, see chapter 3.2

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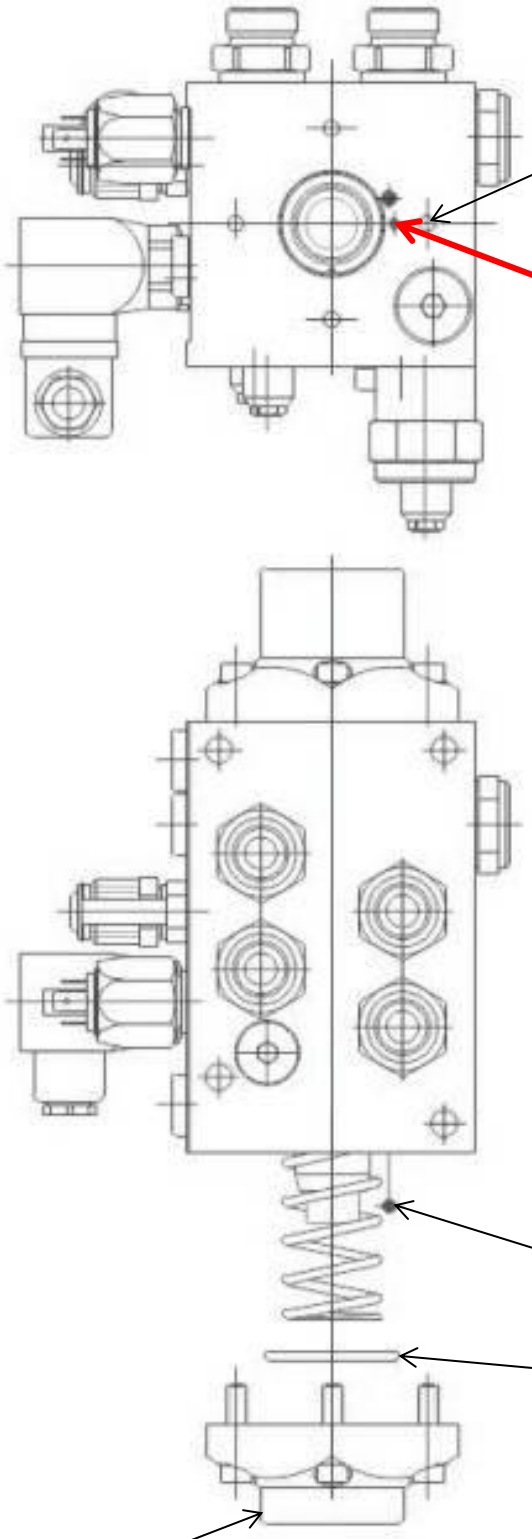
4.2 Cleaning the nozzle in the control block if it is dirty



CAUTION:
Position ball
Ø 4,0mm

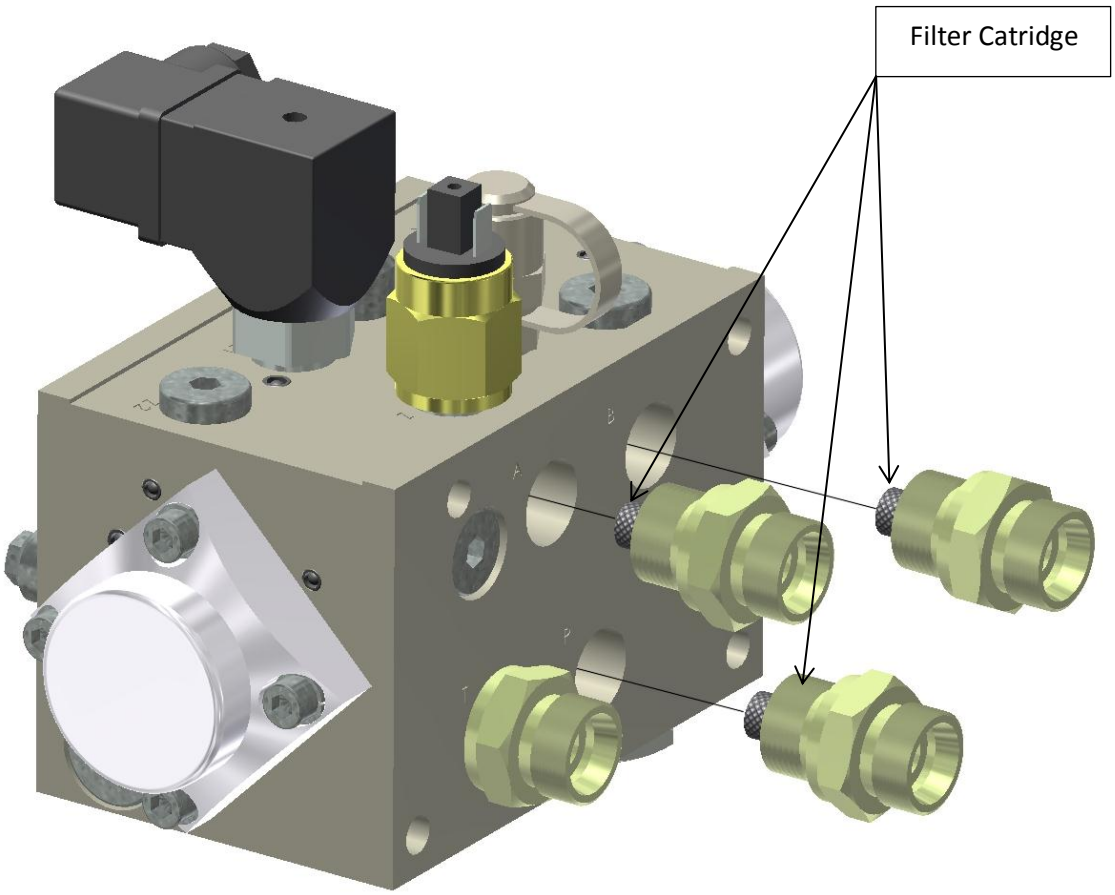
The aperture hole (Ø0,4mm or Ø0,9mm) is located here.
Pierce with wire pin ⍰0,4mm or ⍰0,9mm with a min. length of 40 mm and remove impurities

CAUTION:
Mount the Ø4mm ball again during assembly!

O ring

Unscrew short lid

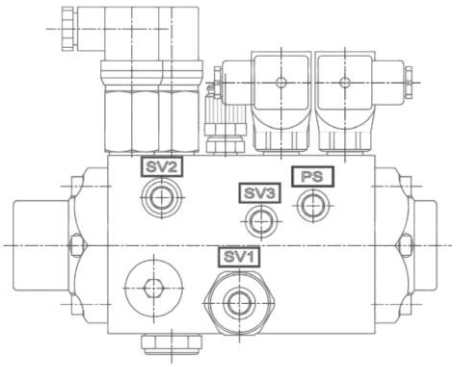
4.3 Cleaning the filter cartridges in the control block if they are dirty

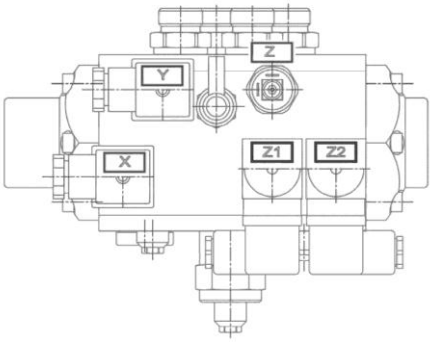


ATTENTION:
When you notice that the filter cartridges at the fittings are broken or burst, replace the fittings with fittings without a filter or remove the filter residues completely and replace the fittings without filter“

5. Hydraulic circuit diagrams

5.1 Setting values of all pressure switches and pressure relief valves





PORT	DESIGNATION	FUNCTION	FACTORY SETTING	TYPE	CONTACTS	SWITCHING MODE	PLC SIGNAL	ERMINAL CONNECTION IN CONTROL BOX
X	Pressure switch Elektrotec	End position, cylinder retracted	20bar	NC/NO	3+2	NO	Input 6	X2-27 to X2-28
	HERION	-"-	35bar	NC/NO	1+3	NO	Input 6	X2-27 to X2-28
Y	Pressure switch Elektrotec	End position, cylinder extended	20bar	NC/NO	3+1	NC	Input 6	X2-27 to X2-28
	HERION	-"-	20bar	NC/NO	1+2	NC	Input 6	X2-27 to X2-28
Z	Pressure switch	Release	2bar	NC		NC	none	X2-21 to X2-22
Z1	Pressure switch	Fill status 75%	180bar*	NC/NO	1+3	NO	Input 4	X2-25 to X2-26
Z2	Pressure switch	Fill status 100%	230bar*	NC/NO	1+3	NO	Input 5	X2-23 to X2-24
SV1	Pressure relief valve	System pressure	240bar*					
SV2	Pressure relief valve	Switchover pressure Cylinder retracted	130bar*					
SV3	Blocking valve	To set the pressures	CLOSED					
PS	Sealing valve	To synchronize the compactor	230bar*					

***Exemplary values which may vary according to the compactor type**

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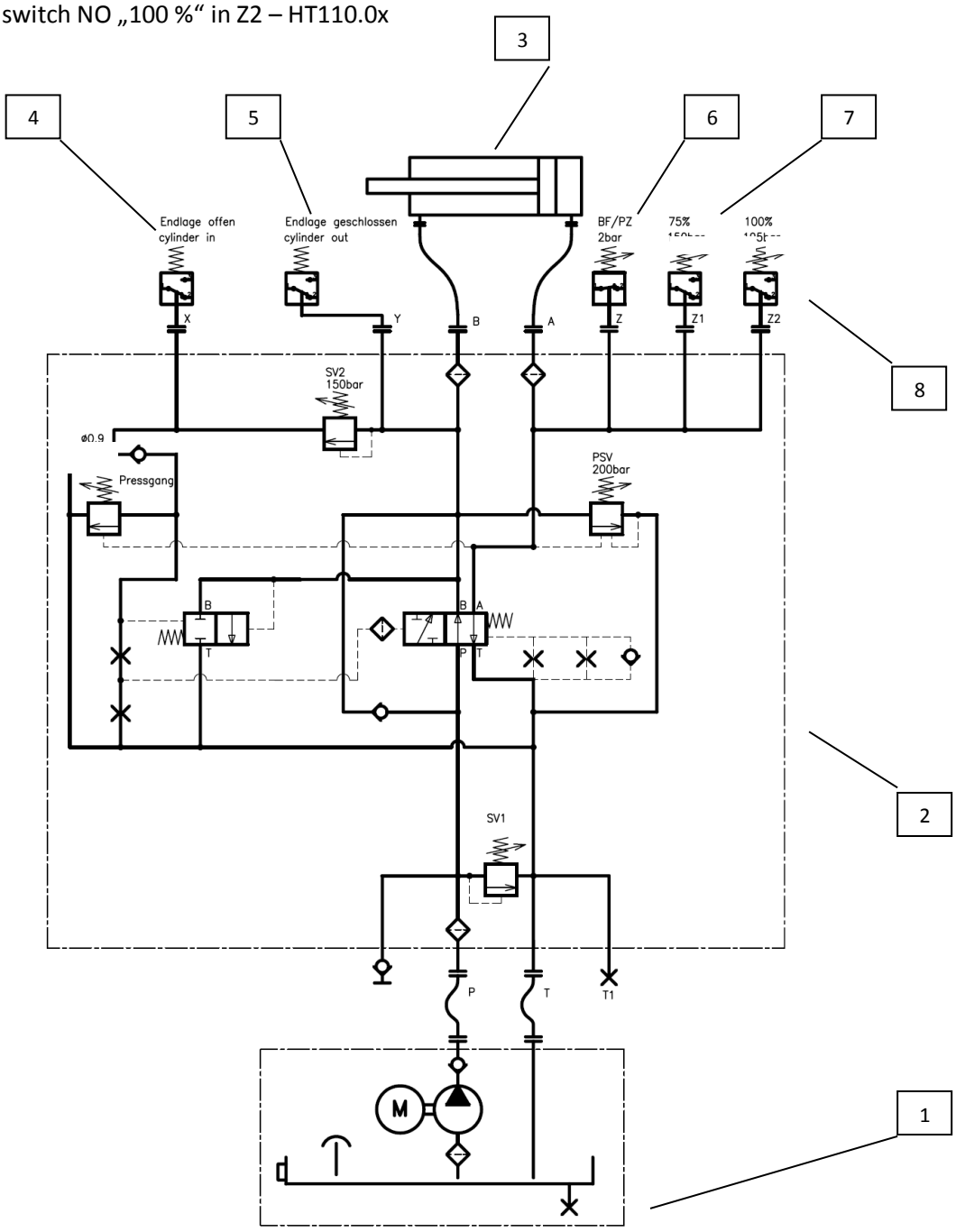
5.2 Series MPC and SKPC with control block HST001-ALU

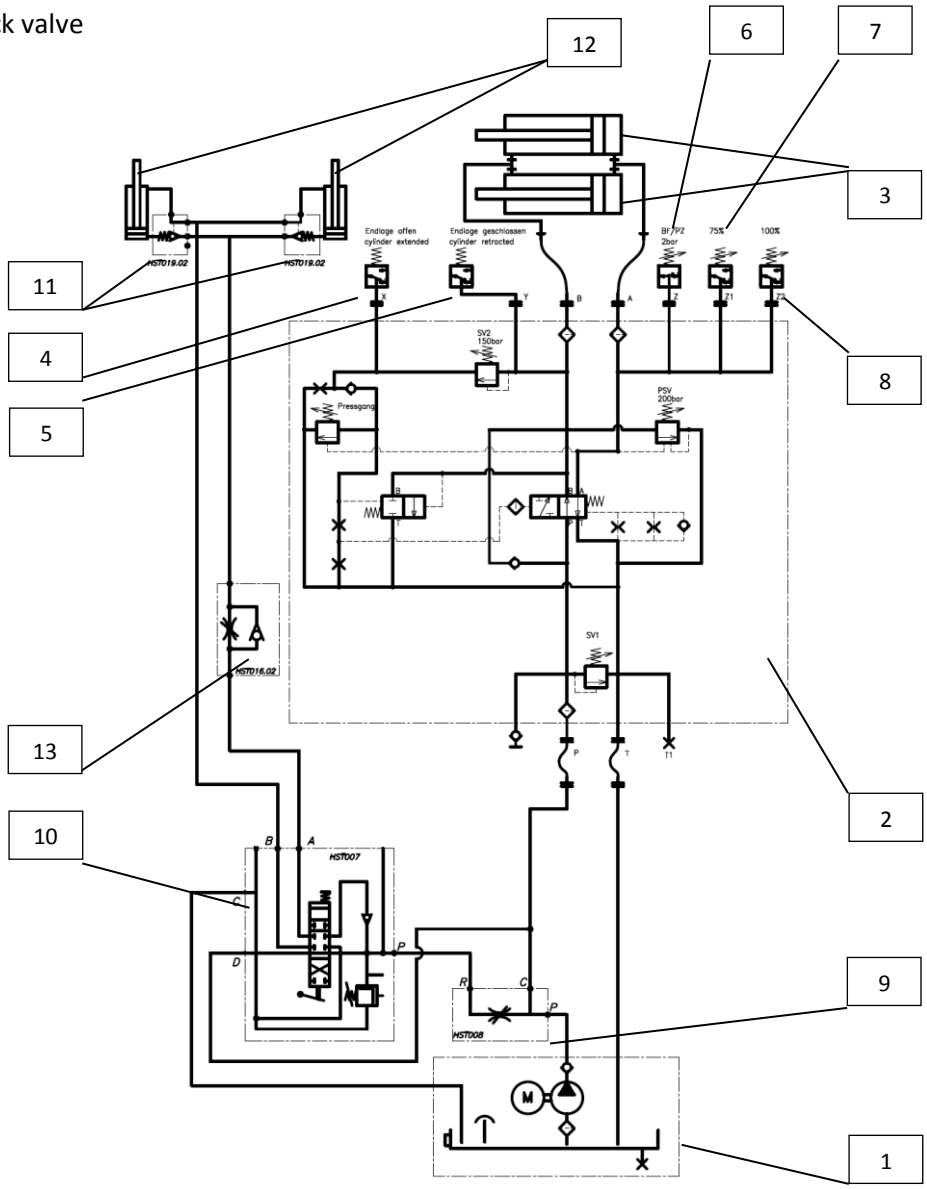
1 … drive unit
2 … control block
3 … hydraulic cylinder
4 …pressure switch, NC “End stop open” in the connection X – HT111.02
5 … pressure switch NO „End stop closed“ in the connection Y – HT111.02
6 … pressure switch NC „Release BF/BZ“ – HT112.01
7 … pressure switch NO „75 %“ in Z1 – HT110.0x
8 … pressure switch NO „100 %“ in Z2 – HT110.0x



5.3 Series MPC and SKPC with control block HST001-ALU with container - tipping mechanism

Series MPC/SKPC + HKV with control block HST001-ALU-02

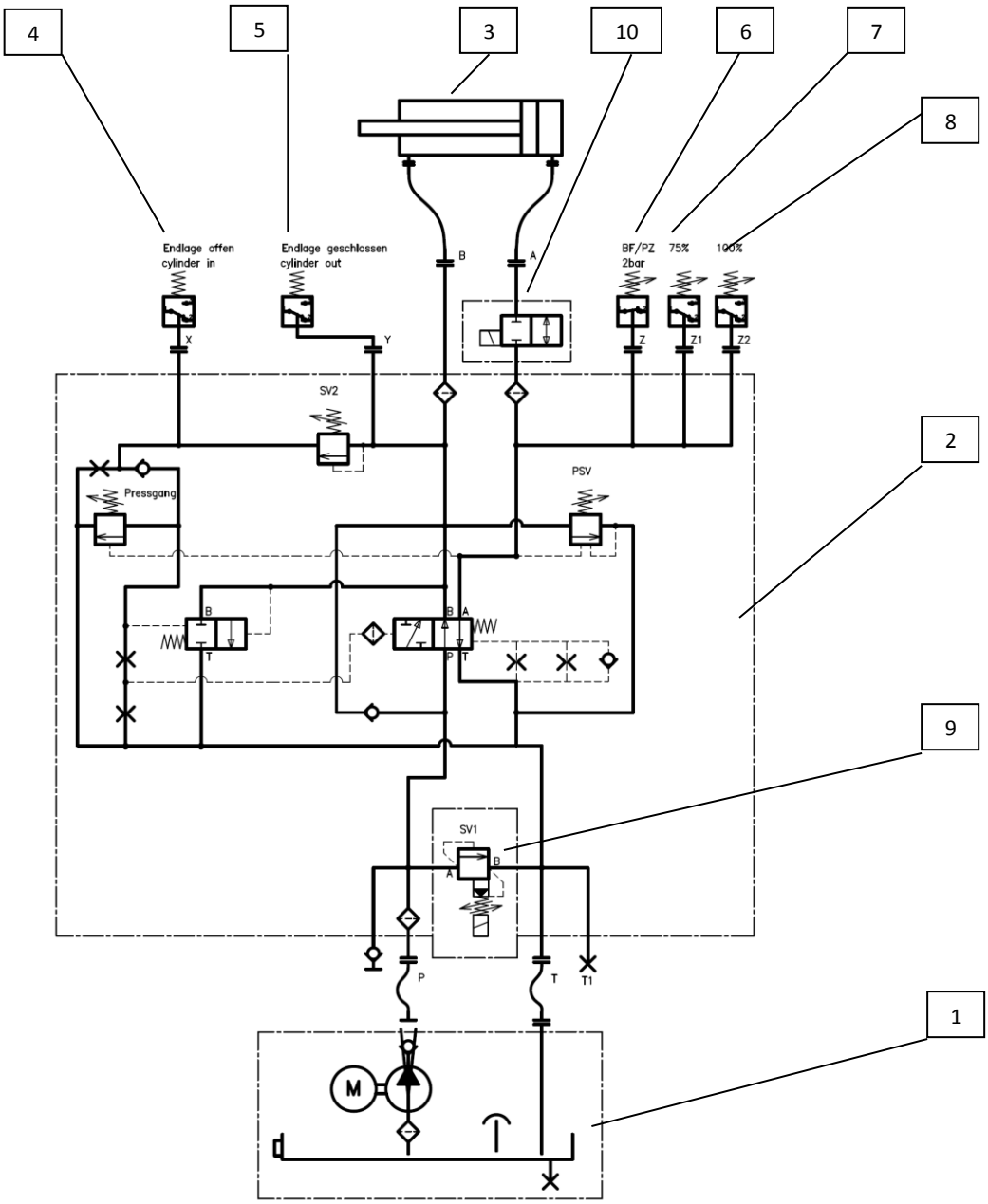
1 …. drive unit
2 …. control block
3 …. hydraulic cylinder – waste compactor
4 …. pressure switch NC „End stop open" in the connection X – HT111.02
5 …. pressure switch NO „End stop closed" in the connection Y – HT111.02
6 …. pressure switch NC „Release BF/BZ" – HT112.01
7 …. pressure switch NO „75 %" in Z1 – HT110.0x
8 …. pressure switch NO „100 %" in Z2 – HT110.0x
9 …. current divider – HST008
10 …hand lever valve – HST007
11 …hydraulically operated check valve – HST019.02
12 …hydraulic cylinder – lifter-tilter HZ009.07
13 …throttle check valve



5.4 Stationary compactors Series STP-CA/CK/CL/CL.75 and STP1600/1800 with unit 7.5KW

Series STP-CA/CK/CL/CL.75 with control block HST001-ALU-03 (04)

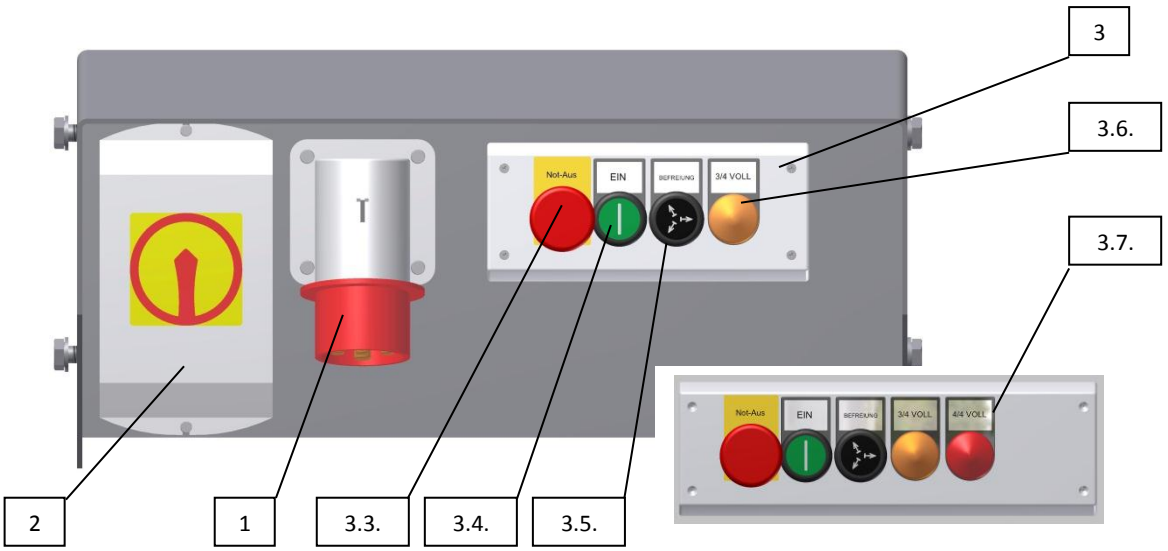
1…. drive unit
2 …. control block
3 …. hydraulic cylinder
4 …. pressure switch NC „End stop open" in the connection X – HT111.02
5 …. pressure switch NO „End stop closed" in the connection Y – HT111.02
6 …. pressure switch NC „Release BF/BZ" – HT112.01
7 …. pressure switch NO „75 %" in Z1 – HT110.0x
8 …. pressure switch NO „100 %" in Z2 – HT110.0x
9 …. pressure relief valve for two pressure stages – HST011.01-24V
10 .. blocking valve 2/2-way valve– HST005.08-24V

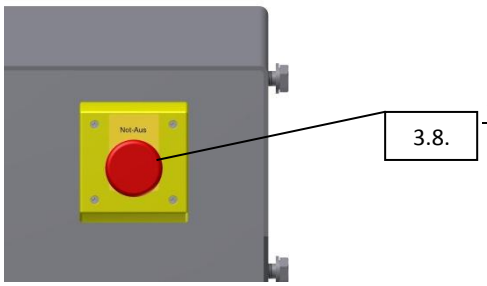


6. Electrical circuit diagrams

6.1 Terminal assignment of pressure switches

for Werner & Weber waste compactors with PLC control for electrical circuit diagram EST151-24V





Legend for electrical circuit diagram EST151-24V				
Item no.:	**Designation**	**Name**	**Contact no.:**	**Symbol no.:**
1.	Electrical connection - socket			
2.	Main switch ON - OFF			
3.	Operating box			
3.3.		EMERGENCY STOP mushroom pushbutton	-4S3	4S3
3.4.		ON pushbutton	-4S4	4S4
3.5.		RELEASE pushbutton	-4S5.1	4S5.1
3.5.		RELEASE pushbutton	-4S5.2	4S5.2
3.6.		Indicator lamp, container is 75% full	-6H1	8H1
3.7.	optional	Indicator lamp, container is 100% full	-6H2	8H2
3.8.	2nd operating box EMERGENCY STOP	EMERGENCY STOP mushroom pushbutton	-4S1	4S1
	Inspection hatch	Position switch	-4S2	4S2
	Pressure switch	Release BF/BZ	-4B1	4B1
		75 % full	-4B3	4B3
	optional	100% full	-4B2	4B2
	optional	End stop	-4B4	4B4
	optional	Low oil	-4B5	4B5
	optional	Oil temperature	-4B6	4B6

7. Security check / annual inspection according to AM-VO / BGR 186

Customer: _____

Setup location: _____

Machine type || serial number: _____II_____II_P_____

ELECTRICAL SYSTEM functional test										
Main supply line										
Plug of power supply cable										
CEE plug, phase changer										
Main switch										
EMERGENCY STOP all										
Release button										
Safety limit switch, inspection hatch										
Safety limit switch, other										
Check buttons and lamps										
Restart protection after power failure										

MECHANICAL SYSTEM functional test										
Lifting bolts and hooks / wear										
Lock, clean-out door										
Door stay										
Lid springs - suspensions										
Lid lockings										
Tilter function										
Safety devices HKV										
Test run, PS moves back										

Labeling										
Warning notes										
Type plate										
Date:										
Name:										

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