

Green ship Waste Handling Systems

Model:

DT-120S

(STANDARD VERSION)



User-/service manual



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IMPORTANT SAFETY INSTRUCTIONS:

Please follow these precautions when using this product:

1. Read carefully through and follow the instructions given in this manual
2. Pay attention to all warnings.
3. Installation must be done in accordance with this manual.
4. Protect and avoid the power cable from being walked on, driven over etc. Do not bend the power cable close to the connections.
5. Use only original spare parts approved and recommended by Delitek AS.
6. Qualified personnel must perform repairs and services.
7. **WARNING:** Do not expose the el-locker or el-engine with direct spurt of flushing water.
8. The compactor must be placed in an environment that has an operating temperature between minimums –25 degrees Celsius to maximum 40 degrees Celsius.
9. **WARNING:** The compactor is usually transported horizontally, packed in a wooden transport frame (ISPM#15). The transport frame is lifted/ relocated by using a forklift or a jack-trolley by the indicated lifting pockets. If the compactor needs to be lifted after the compactor is unpacked, this must be done with certified lifting straps around compactor house.
10. **WARNING:** Do not lift the compactor by using holes on the compactor house or other parts of the compactor that is not suited for a lifting operation.
11. The compactor is designed to compress oil filters, paint buckets and larger cans.
12. **WARNING:** Waste that is considered as "hazardous" or "special category waste" must never be deployed or compressed in the container. Because of fire and explosion hazard, never deploy hot ashes or any type of gas domes into the waste compactor.
13. Ensure that the control panel and the area around the compactor have sufficient lighting according to working environment law at site.
14. Qualified personnel must perform a function test of the security switch in the loading door at regular intervals. See chapter 6 for service/maintenance of the compactor. If a malfunction appears when the system is running and pressurized, contact Delitek AS to get a description on how to get the pressure balanced.
15. The placing of the waste compactor to be such that:
 - a) Escape routes are adequate and do not impede escape from hazards which are described in the vessel/ offshore facility manual.
 - b) Place for operating the compactor gives adequate attention towards alarm signals and PA announcements.
 - c) Necessary information, training and signboards to be provided by the responsible officer onboard.

WARNING!

The standard versions of DT-120S must be installed in an unclassified zone onboard ships or offshore rigs. Only Ex-proof versions of the Delitek compactors can be used in hazardous areas.

Note: All following dimensions are in metric millimetres.

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1.0 INSTALLATION INSTRUCTIONS

1.1 Installation of the compactor to steel or wooden deck.

Before installation: Note that the compactor must be placed in an environment with operating temperatures between minimum –25 degrees Celsius to maximum 60 degrees Celsius (minimum -13 to maximum 140 degrees Fahrenheit). Ensure that the control panel and the area around the compactor have sufficient lighting according to working environment law at site. In addition, each country's legislation and Health, Environment & Safety regulations regarding operation of this kind of products must be followed.

Installation:

If the compactor is installed on board a ship or offshore installation, the mounting brackets must be welded to a steel surface or alternatively mounted to wooden deck with 8mm bolts.

WARNING: It is very important to cover up the stainless steel surface on the waste compactor in order to avoid spatter from the welding onto the steel. Welding and work with angle grinders nearby the waste compactor must always be avoided as this will damage the protective oxidizing coating on the waste compactor. This again will cause surface corrosion.

Lifting of the waste compactor must be done with certified lifting straps around the compactor house only. Do not attempt to lift the compactor by using holes on the compactor house or other parts of the compactor that is not suited for a lifting operation.

We recommend the following mounting procedure:

- 1) Place the waste compactor exactly where it is planned to be installed.
- 2) Align the mounting brackets to the corners of the waste compactor. The mounting brackets are then spot welded onto deck.
- 3) Remove the upper nuts on mounting brackets (see fig. 1)
- 4) The waste compactor is lifted aside and covered to avoid spatter from welding etc.
- 5) The mounting brackets are all welded to the steel surface.
- 6) The waste compactor is then lifted in position again and carefully placed upon the mounting brackets.
- 7) Please check that the waste compactor is levelled to the deck. If necessary adjust the waste compactor by turning the lower nuts on the mounting brackets.
- 8) Replace the upper nuts on the mounting brackets.

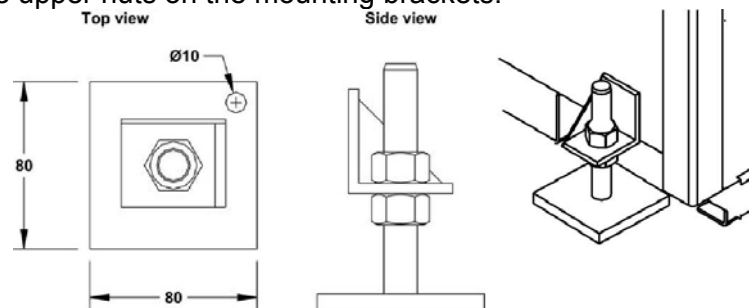


Figure 1. Mounting brackets

1.2 Connection to electric supply

Connection of el-supply must be done by a qualified electrician. Be sure to check that the voltage specified for the compactor complies with the el-supply at site.

Note: guide tubes, nipples, bushings, gaskets and sealing on the el-locker are controlled during installation. This equipment should also be checked during maintenance and function tests of the compactor. Check for damages on door gasket or water leakages into the el-locker. The el-locker must always be closed (except from maintenance purposes).

1.3 Changing the electric configuration

Normally, the oil filter compactor is configured for 380~480VAC/ 50~60Hz/ 3 Phase. However, if 220~240V are the only option available, the electric configurations must be changed according to this by your electrician:

1. Be sure to disconnect the el-supply from the compactor.
2. The el-motor must be rewired from "Y" to " Δ " configuration, according to fig.12.
3. The transformer (located inside the el-panel, see fig 11) must be bypassed.
4. Connect the compactor to el-supply (220~240V).

1.4 Final preparation

IMPORTANT INFORMATION!

The hydraulic power pack is delivered with an airtight temporary filling cap. To avoid damages or breakdown of the hydraulic system, it is very important to replace this temporary filling cap before the compactor is made operational.

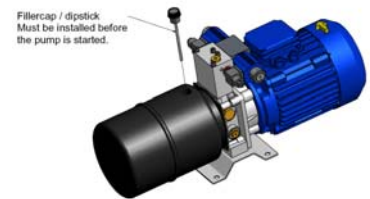


Figure 2A. DT-120s

The temporary airtight filling cap must be replaced with the dipstick that you will find enclosed in the el- locker. The temporary filling cap is located on the hydraulic oil tank on the el- motor (see figure 2A).

Open the lower door on the DT-120 and locate the tank for the hydraulic oil (see figure 2B). Replace the airtight filling cap with the enclosed standard dipstick.



1. The compactor is equipped with a draining outlet for waste oil. Be sure to connect a container for the waste oil to the outlet found on the left side of the compactor before compacting of oil filters starts.
2. Check the oil level in the hydraulic oil tank. Remove the filling cap. The oil level should be all the way up to the filling hole (2/3 full) when the piston is in its upper position.

Warning!

The piston must be in its upper position, before you attempt to fill oil on the hydraulic oil-tank.

3. Replace the filling cap on the hydraulic tank. Start the hydraulic system and run the piston to its outer (lowest) position and back again. Check the oil level again and refill if necessary. Oil with specifications similar to Nuto H32/Esso Univis N32 or equivalent to these must be used.

Note: When refilling hydraulic oil, we recommend using an oil funnel with tube to in order to avoid spill of oil.



Figure 2B. DT-120s

WARNING!

Avoid spill of hydraulic oil and also avoid the hydraulic system to be exposed for dust and dirt during maintenance of the hydraulic system. Use certified protective clothing and equipment according to working environment law at site. In addition, each country's legislation regarding operation of this kind of products and Health, Environment & Safety regulations must be followed.

Note! The pressure is preset from the factory. The pressure should be 100 Bar max for the DT-120S.

1.5 Installation procedure for detachable manometer

A detachable manometer for service/ controls of the hydraulic pressure is enclosed with the delivery. Hydraulic pressure is preset to 100Bar for the DT-120s model and should not be altered without authorization from Delitek AS. The manometer is enclosed inside the el-panel.

Note:

Figures 3 and 4 shows the principle for attaching the manometer, but will appear different on the DT-120s because of vertical placement of power pack and that the screw coupling for the manometer is facing directly towards you instead on the DT-120s. See highlighted part in the illustration photo at the bottom of this page.

Installation procedure for checking the hydraulic pressure:

1. Locate the detachable manometer inside the el-panel.
2. Switch off the main power supply to the compactor.
3. Locate and detach the protection cap on the hydraulic power pack (see fig. 3).
4. Attach the manometer firmly on the screw thread coupling (see fig. 4).
5. Run a few compacting tests with a container fully loaded with waste. Read out the manometer when the waste compactor reaches full pressure during the compaction. If the hydraulic pressure for some reason not conforming to the preset value from the factory, please contact Delitek AS. Do not attempt to adjust the pressure without authorization from Delitek AS.

IMPORTANT INFORMATION:

To prevent from damages on the manometer, it must be detached again after the testing procedure and stored in an appropriate place.



Figure 3. Protection Cap



Figure 4. Manometer

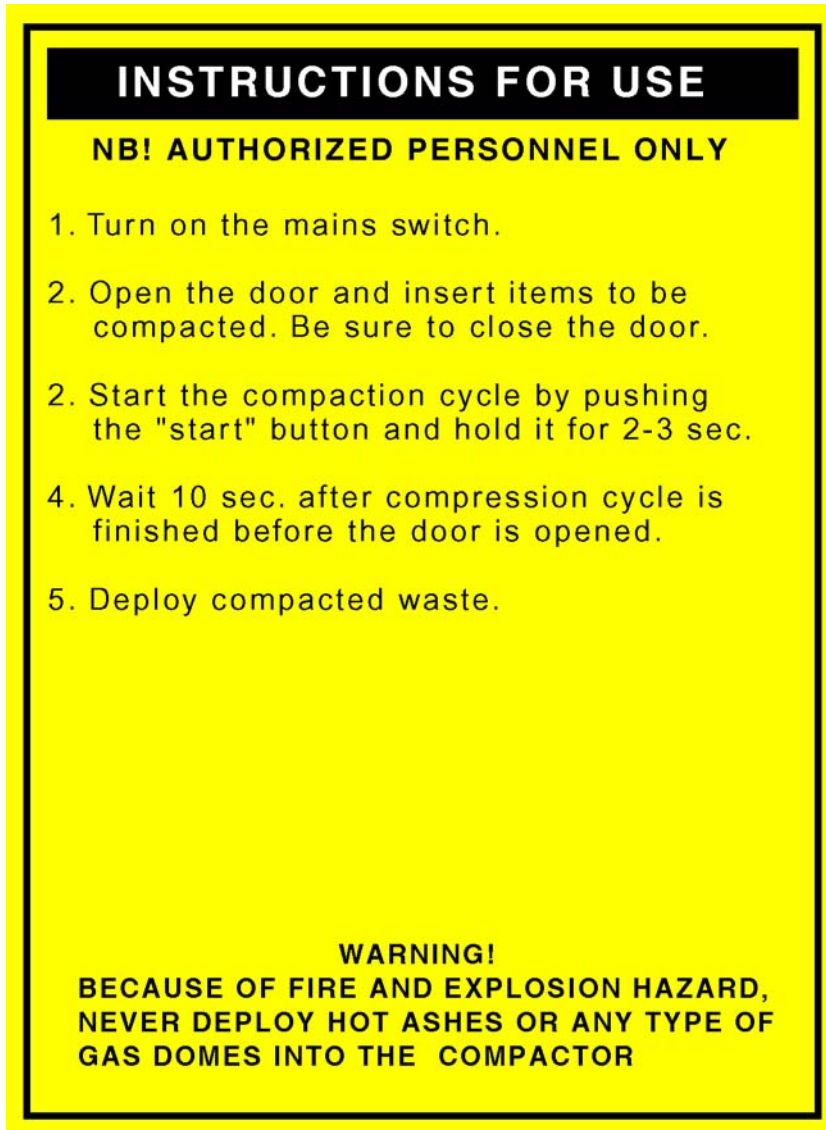
1.6 Pre- installation checklist

- ❑ Place the compactor package as close as possible to the mounting area.
- ❑ The compactor is normally packed on a wooden transport frame and covered in plastic. Unpack the compactor and remove all crating and plastics. Check for damages.
- ❑ The compactor must be raised into vertical position by either manpower or with use of lifting equipment such as a hoist or crane. Only certified lifting straps around the compactor house must be used. Do not lift the compactor by using holes on the compactor house or other parts of the compactor that is not suited for a lifting operation.
- ❑ Place the compactor on the exact mounting position. See section 1.1 for mounting details.
- ❑ Open the el-panel and check that it contains the standard dipstick for the hydraulic oil tank. Contact Delitek AS if this is missing. See sections 1.3 for installation procedures for dipstick.
- ❑ An authorized electrician must connect the compactor to the onboard el-supply. See section 1.2.
- ❑ The temporary transport cap on the tank for the hydraulic oil must be replaced with standard dipstick found in the el-locker. See section 1.4 for this procedure.
- ❑ Open the lower door and check the rotating direction on the el-motor. If the el-supply is correctly connected, the el-motor will rotate counter clockwise according to the arrow symbol on the el-motor.

CONGRATULATIONS WITH YOUR NEW OIL FILTER & BUCKET COMPACTOR!

2.0 OPERATING INSTRUCTIONS

2.1 Instructions for use, DT-120S



INSTRUCTIONS FOR USE

NB! AUTHORIZED PERSONNEL ONLY

1. Turn on the mains switch.
2. Open the door and insert items to be compacted. Be sure to close the door.
2. Start the compaction cycle by pushing the "start" button and hold it for 2-3 sec.
4. Wait 10 sec. after compression cycle is finished before the door is opened.
5. Deploy compacted waste.

WARNING!
**BECAUSE OF FIRE AND EXPLOSION HAZARD,
NEVER DEPLOY HOT ASHES OR ANY TYPE OF
GAS DOMES INTO THE COMPACTOR**

Figure 5. Instructions for use (as shown on the compactor).

2.2 List of components DT-120s

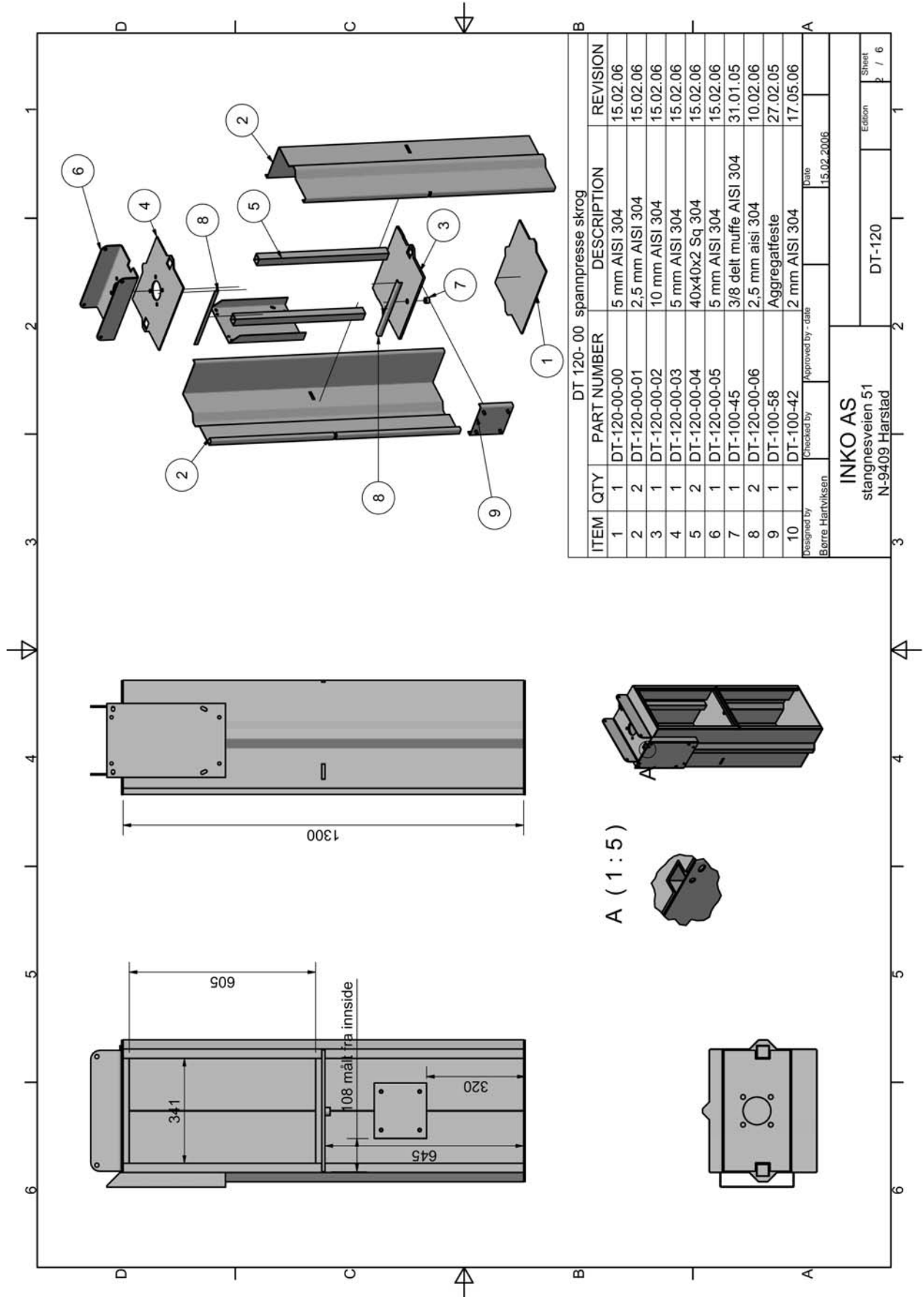


Figure 6. Delitek DT-120s oil-filter & bucket compactor, list of components

2.3 Operating the compactor.

Note:

The compactor is equipped with a draining outlet for waste oil. Be sure to connect a container for waste oil to the drainage found on the left side of the compactor before compacting.

1. Place the oil-filter or paint-bucket/ cans to be compacted in the compaction chamber. Be sure to close the door firmly.
3. Press the **start** button on the el-panel and hold it for 2-3 sec. (see fig. 7). The compactor will now run through the compaction cycle (40-70 sec. depending on timer settings). If the compactor is stopped by using the **emergency** switch, **stop** button, or if the safety switch in the loading door is triggered, the press plate will return to its upper position and the system will reset. The control lamp (voltage on) is lit whenever there is voltage coming into the el-panel.
4. Wait approximately 10 sec. After the compaction cycle is finished before the door is opened.
5. Open the door and deploy the compacted waste



Figure7. El-panel

NOTE!

In case of an accident, the emergency switch must be pushed immediately. In order to let the hydraulic piston return to its upper position, reset the unit by pushing the start button again.

3.0 HYDRAULIC SYSTEM

3.1 Hydraulic system DT-120S

INCO 5L Mini aggregate, Electric motor: Bevi 90-4

Insulation class	F- IP 55 / 56
Guaranteed output	1,5 kW (2hk)
Rotation speed	1415 rpm
Rated current	220V-6,5A. 380V-3,7A. 440V-2,8A.
Starting torque	2,4M/A
Starting current	5,3 I/A
Net weight	15.3 Kg

Pump HPI 2 ccm, Gear Pump

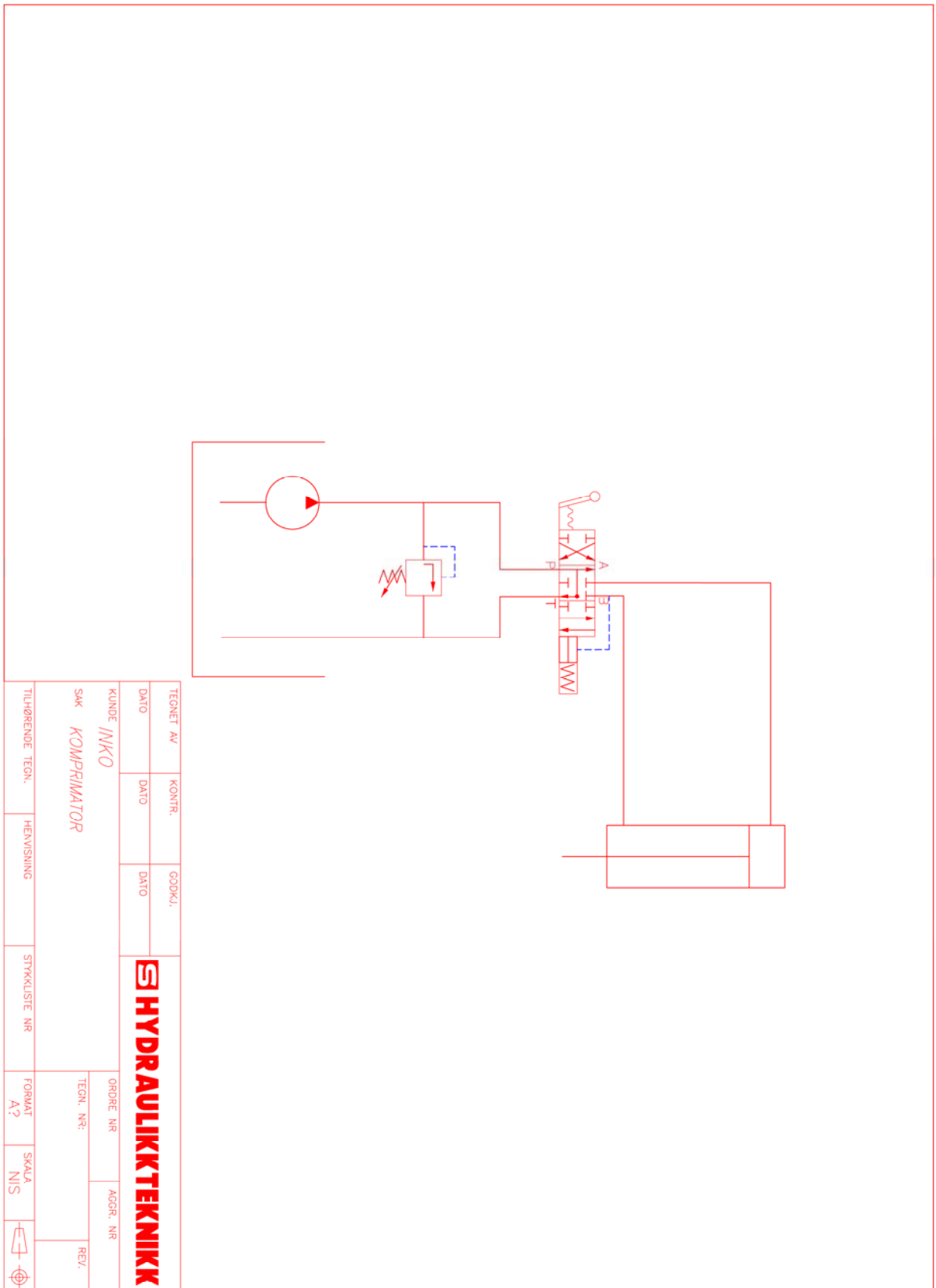
Adjustable safety valve:	0-315 Bar
Hydraulic oil reservoir tank:	5 liters
Flow factor:	3L/min
Two way valve:	Borch
Hydraulic oil:	UNIVIS N32 / Nuto H32 or similar

Cylinder DT-120S - 60/40-600. 250bar.

All cylinders with flange in front. External threads M24x2 on piston rod.

60/40-600 =	60mm piston head 40mm piston rod 600mm cylinder stroke
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3.2 Hydraulic piping diagram



4.0 ELECTRIC DIAGRAMS

4.1 400-480V

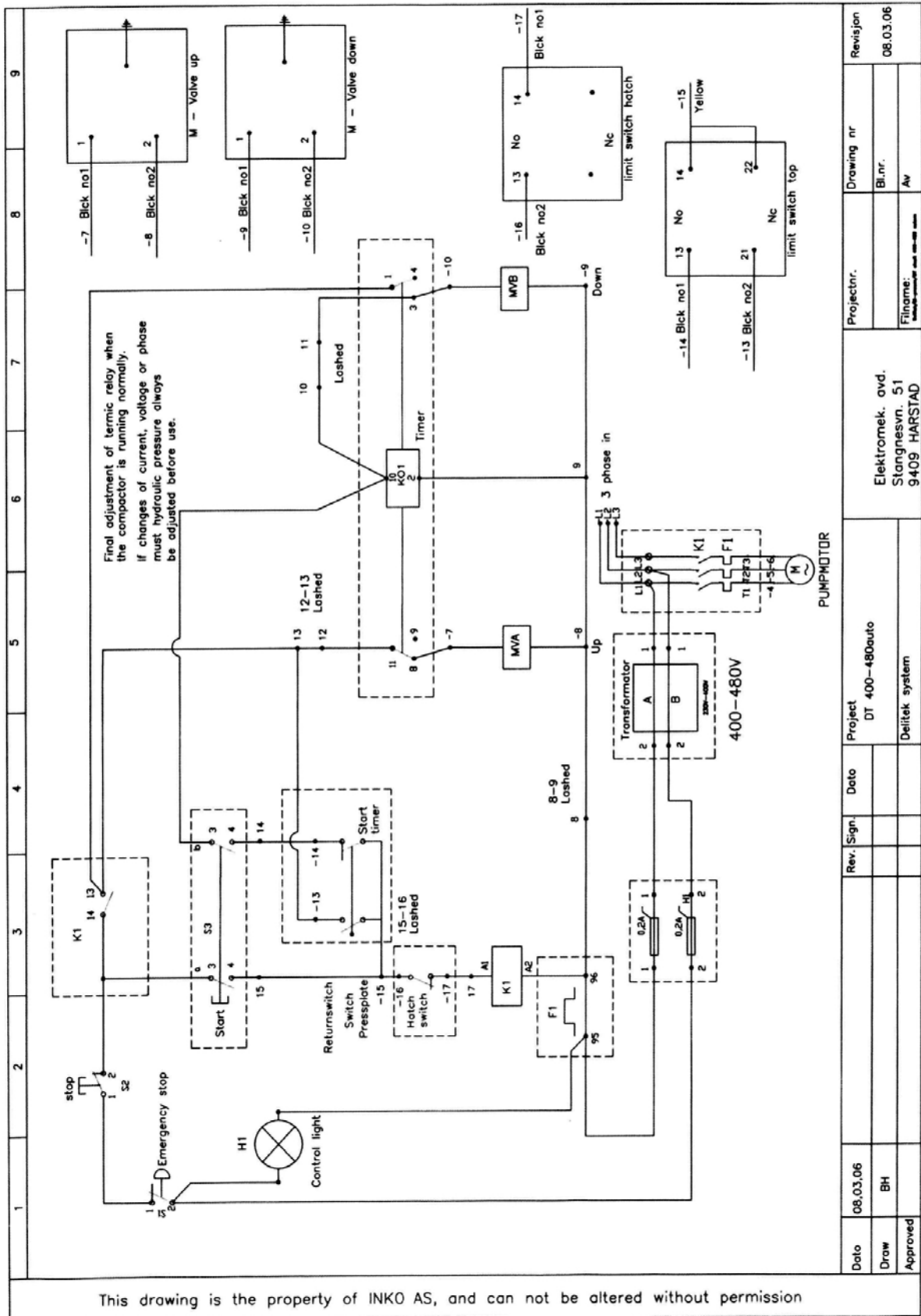


Figure 8. Electric diagram 400-480V

4.2 220-240V

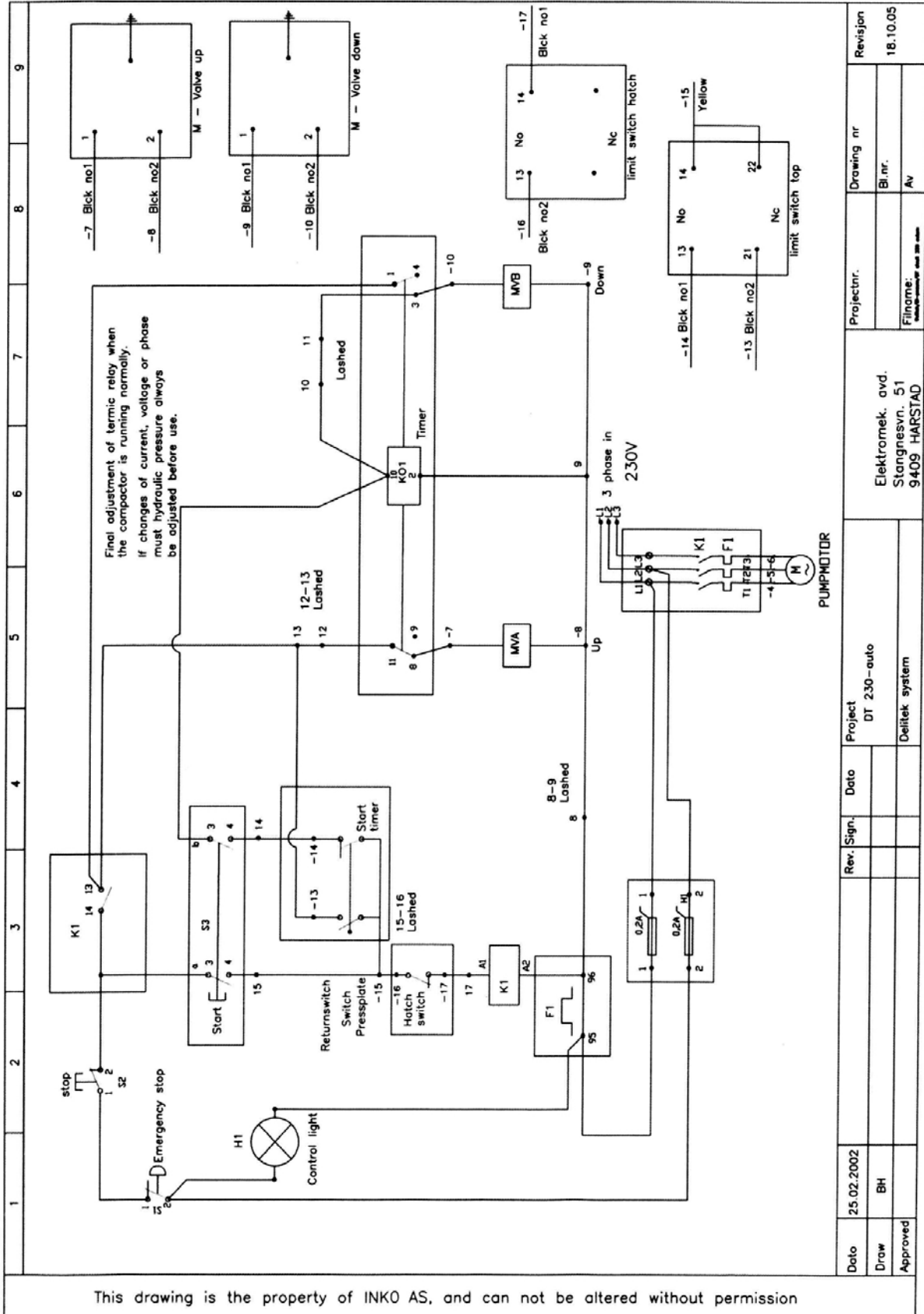


Figure 9. Electric Diagram 220-240V

4.3 Electric panel, part 1

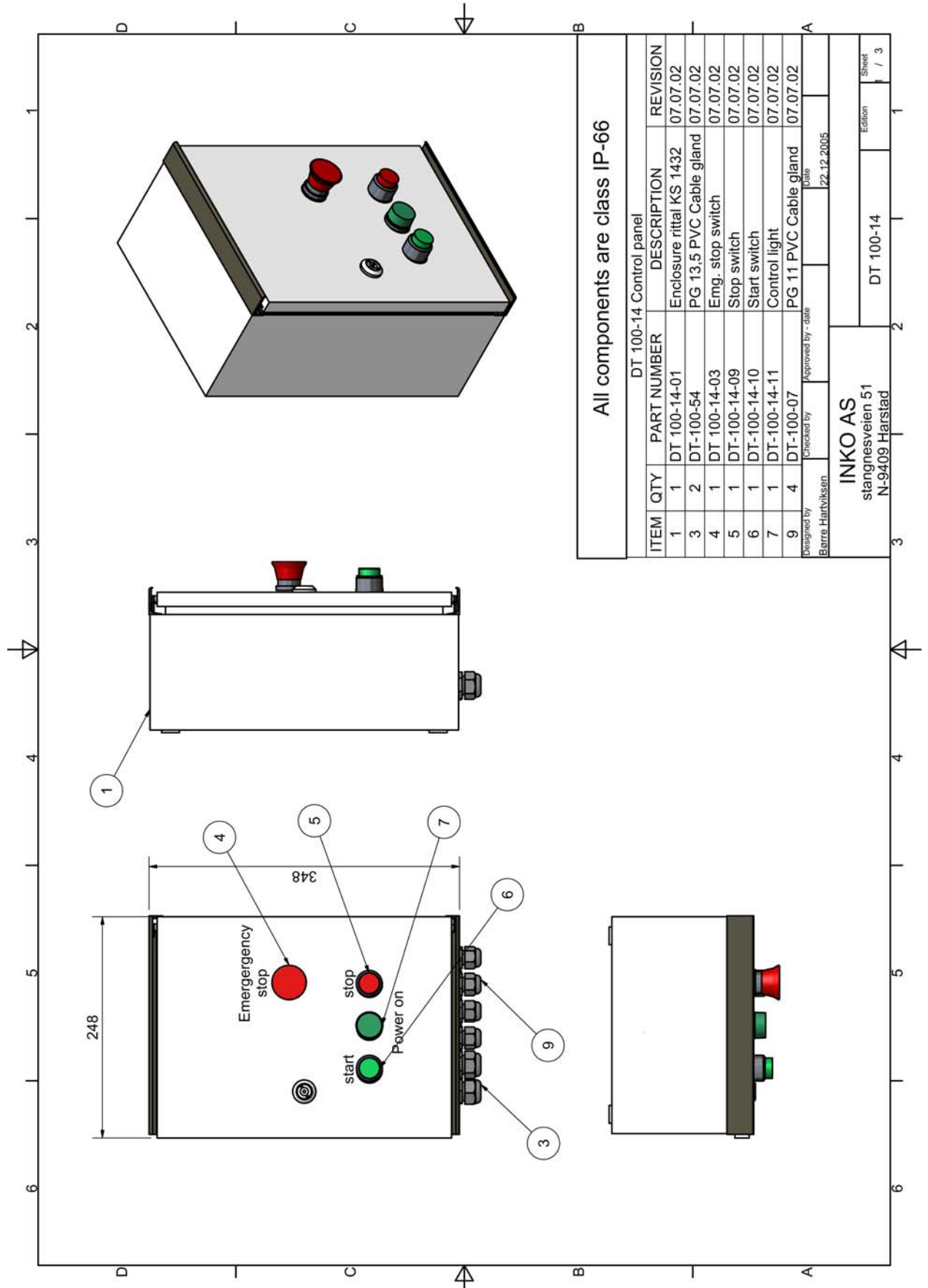


Figure 10. Electric panel, part 1

4.5 Wiring diagram 400V / 230V (“Y” or “Δ” configuration)

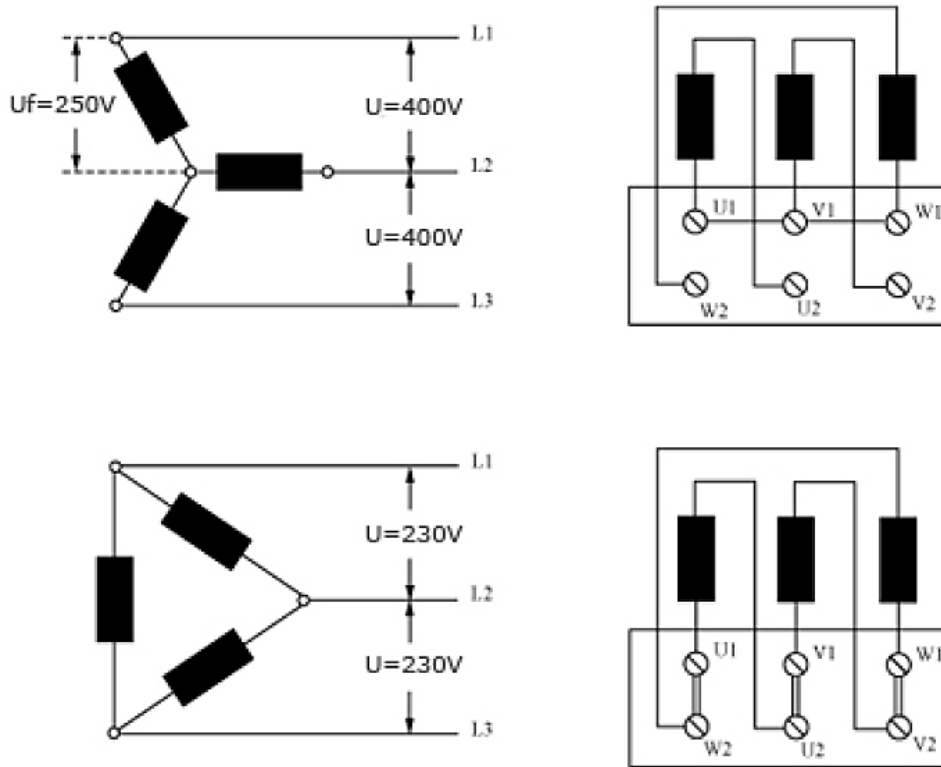


Figure 12. Wiring diagram for el-motor.

5.0 SERVICE/MAINTENANCE

5.1 Service/Maintenance plan

NOTE: For every service interval and other regular controls: function test of safety switches and emergency stop function must be performed by qualified personnel only.

After the first 4-6 weeks :

- Check the oil level in the hydraulic oil tank. The oil level should normally be between 55mm and 65mm up on the dipstick.
- Check the el-panel for damages or leaks inside.
- Cables, hydraulic hoses, guide pistons, gaskets and sealing on el-panel and motor are checked and tightened up if necessary
- Check the hydraulic pressure by reading the manometer. See section 1.4 for installation procedure of the manometer and the preset pressure value.

After 12 months (Main service every 12 months):

- Repeat the service points for the initial 4-6 months service.
- Disconnect electricity and remove the hydraulic power pack cover and piston cover. See also section 1.5 for this procedure.
- Inspect the hydraulic oil from the hydraulic unit (take a sample). If there are signs of pollution, please change the oil. Use a hydraulic oil similar or in conformance with Nuto Nuto H32/Esso Univis N32.
- Check the hydraulic pump while in operation. Observe whether there are any unusual sounds, vibrations, problems or leaks.
- Check the hydraulic piston and compactor for cracks or damages.
- Check hydraulic hoses for cracks and leaks.
- Function tests of safety switches in hatch and emergency stop function are performed. The compaction cycle is supposed to stop immediately after the hatch is opened.
- Let a certified electrician check all el-connections inside el-panel and on the motor.
- The guide pistons may be lubricated with silicone spray.
Note: Do not use lubrication oil or grease.
- Check the functionality of the gas pistons on the hatch and wheels on container(s).

5.2 Surface treatment

In order to keep a nice and shining surface, it is very important that the waste compactor is washed and cleaned with regular intervals, and at least once every second month. This is to avoid discolouring and corrosion.

Wash the compactor with a strong neutral detergent (for industrial use). Acid washing of extra exposed parts may also be done. Be sure to take all necessary precautions and read the data sheet for the detergent and any acid wash very carefully before use. It is recommended to use a high-pressure washer in order to flush the compactor after washing.

Note: Avoid flushing directly on the el-locker and el-motor.

6.0 TECHNICAL SPECIFICATIONS

6.1 DT-120S

Volume	0,07 m ³
Loading opening	300 mm x 600 mm
Total height, incl. plunger	2380 mm
External dimensions (W x D x H)	673 mm x 375 mm x 2380 mm
Length of stroke	700 mm
Compression force	9 ton
El. Motor	1,5 kW
El. Power	220V/ 380~440V/ 480V/ 690V, 50~60Hz, 16A, 3 phase
Weight	100 Kg

7.0 SPARE PARTS

7.1 Ordering information

Spare parts for the Delitek DT-120S Oil Filter & Bucket Compactor can be ordered from Delitek AS or any of our agents:

Address:

Delitek AS, Moloveien, N-8432 ALSVAAG, NORWAY

Tel.: + 47 76 13 47 00
Fax: + 47 76 13 42 77
E -mail : mail@delitek.no
URL: <http://www.delitek.no>

7.2 Service and technical information

INKO AS, Stangnesveien 51, N-9408 HARSTAD, NORWAY
Tel.: +47 77 00 26 70,
Fax: +47 77 00 26 90
Contact: Mr. Leif Andersen
E-mail: technical.delitek@inkoas.no

8.0 WARRANTY

8.1 General conditions

Delitek AS guarantees that this product is without defects regarding materials and workmanship, for a period of 12 months from original retail purchase date. To obtain warranty service, the purchaser must first contact Delitek AS within the warranty period, in order to obtain information and replacement of parts or unit. All inquiries must be accompanied by a description of the problem and the serial number of the unit (this is engraved on the nameplate found on the right side of the waste compactor). Proof of purchase must be presented in the form of an original invoice or other documentation, which shows that the product is within the warranty period. The warranty does not cover claims for damages due to abuse, neglected maintenance, modifications or attempt of repairs by unauthorized personnel. Delitek AS will not be liable for and denies any responsibility for accidental, indirectly or other damages on amongst other property or personal injuries as the result of wrong use or neglected maintenance of the product.

See section 7.2 for contact information.

9.0 TROUBLESHOOTING GUIDE

9.1 Troubleshooting

If you experience problems while operating the compactor, please use the following table to check for possible causes and solution before contacting Delitek AS/ Service for assistance.


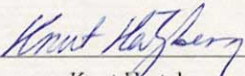
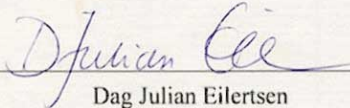
Symptoms	Cause	Solution
The indicator light for "VOLTAGE ON" on the el-panel is not lit and the compactor does not respond when the "down" or "up" buttons are pressed	No voltage to the unit.	Check if the main el-cable has been unplugged. Check if external fuses may be blown.
	Failure or breaches in main electric cable.	An authorized electrician must inspect the cable and plugs for breaches or failure.
The indicator light for "VOLTAGE ON" on the el-panel does not light, but the compactor starts when the start button is pressed.	The indicator lamp for "VOLTAGE ON" is defect.	Replace the lamp.
The indicator light for "VOLTAGE ON" on the el-panel is lit, but compaction does not start after pressing the "down" or "up" buttons on the el-panel.	The press-chamber door is not closed properly and the security switch in the hatch is activated.	Close the loading hatch properly.
	Solenoid valve or coils on the hydraulic aggregate may be defect.	An authorized electrician must inspect and measure the coils on the solenoid valve block on the hydraulic aggregate in order to verify if the coils or solenoid valves are defect. Contact Delitek AS for spare parts. See chapter. 8.
The compaction force seems to be insufficient or very low.	Problems with the source for the el-supply.	Check that the electricity output connection conforms to the waste compactors specification. For instance (440V/60Hz/3 Phase).
	The electric connection in the el-panel is wrong or out of phase.	An authorized electrician must inspect the compactor and make sure that the el-motor rotates counter clockwise when operating. Open the door (lower) and visually check the el-motor when operating. If the el-motor turns clockwise, the electricity connection is wrongly connected. The compactor will seemingly operate as normal, but will not be able to build up sufficient pressure to do normal compaction. Please re-wire el-connection according to electricity diagram found in the user manual. A qualified electrician must do this. If the el-motor turns counter-clockwise and as indicated by the arrow symbol on the motor, the el-connection is correct.

Delitek Oil-filter & Bucket Compactor – user-/service manual-Ver. 2.3

Symptoms	Cause	Solution
The compaction force seems to be insufficient or very low (continued).	Blocked air-vent/ wrong filler cap.	On the hydraulic oil tank: Please check that the air vent/airing on the filling cap is not blocked. A blocked air vent can eventually cause the hydraulic system to malfunction. Alternatively, if the hydraulic oil tank was delivered with an airtight temporary filling cap; replace this with the original dipstick (normally enclosed in the el-locker).
	Hydraulic oil level is to low	Please ensure that the waste compactor contains sufficient hydraulic oil in the hydraulic oil tank found on the hydraulic aggregate. See section 1 in this manual for filling procedure.
	Air pockets in the hydraulic system	If the compactor/hydraulic system has been forced to operate with insufficient hydraulic oil level, air pockets may have occurred in the system. Check and refill oil as described above. Start the waste compactor and run a few compactions in order to automatically empty the system for entrapped air.
The piston does not return to its upper position (0-position)	Solenoid valve(s) or coils may be defect	Coils or solenoid valves must be replaced. Contact Delitek AS.

10. APPENDIX 1

10.1 DnV Certification

	
<hr/> DET NORSKE VERITAS <hr/> STATEMENT OF CONFORMITY <hr/>	
<p><i>Application of:</i> Council Directive 98/37/EC of 22 June 1998, issued as “Forskrift for Maskiner” by the Norwegian Directorate of Labour Inspection.</p>	
<p>Statement no.: AACAAJHI</p>	
<p>This is to certify that the technical documentation for the product:</p>	
<p>Avfallskomprimatorer og emballasjepresser</p>	
<p>Identification : DT-80, DT-100, DT-500, DT-1500, DT-1000B, Dt-1500B, DT-500 COMBI, DT-2000</p>	
<p><i>Responsible manufacturer</i></p>	
<p>DELITEK AS Havnegata 7, 8430 Myre, Norway Manufactured by INKO AS PB 772, 9487 Harstad, Norway</p>	
<p>complies with the requirements applicable to it</p>	
<p>The manufacturer’s Technical Construction File (TCF) and the product has been reviewed and found to comply with the requirements in Annex V, section 3.</p>	
<p>Limitations:</p>	
<p>Any modifications made to the machine shall immediately be reported to Det Norske Veritas AS in order to examine whether this Certificate remains valid.</p>	
<p><i>Harstad, 13. November 2002</i></p> <hr/> <p>for Det Norske Veritas AS Harstad Maritime</p>  <hr/> <p>Knut Hertzberg <i>District Manager</i></p>	<hr/>  <hr/> <p>Dag Julian Eilertsen</p>
<p><small>Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this receipt invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 85/374/EEC.</small></p>	

11. APPENDIX 2

11.1 Spare part list

Part Number	Description
DT 100 - 56	Limit switch, press plate
DT 100 - 19	Hinge AISI 304 complete
DT 100 - 600 - 65	Hydraulic piston, 600mm stroke
DT 100 -06 - Rev. A	Pipe bushing nylon, for cylinder guides Ø 48,3
DT 100 - 06	Pipe bushing nylon, for cylinder guides Ø 50
DT - 100 - 14 -10	limpulse switch start
DT - 100 - 14 -09	limpulse switch Stop
DT 100 - 14	EL panel 90 VA trafo complete
DT 100 - 05 - 04	Contact magnetic coils
DT 100 - 14 - 12 -00	Contacto LCID09P99A
DT 100 - 14 - 11	Control lamp
DT 100 - 01 - 05 -06	Magnetic coil ATOS Ø 17,7
DT 100 - 01 - 05 -02	Magnetic coil Diplomatic Ø 20,5
DT 100 - 01	Hydraulic acregate, complete
DT 100 - 01 -05 -00	Bracket for magnetic valve block
DT 100 - 01 - 00	EI- motor IP 55 1,8 KW
DT -100 -03 -00	EI-motor IP 56
FR60B - 400230	Noratel Trafo 40 VA 400 - 415 - 440/230 V
FR60B - 460230	Noratel Trafo 90 VA 460 - 480 - 500/231 V
FR60B - 660230	Noratel Trafo 90 VA 660- 690/230V
DT 100 - 14 - 03	Emergency switch complete with socket
DT 100 - 01 - 01	Pump 2 ccm incl.. tank 5 liter
DT 100 - 55	Safety switch for hatch
DT 100 - 29	Covering for 600 cylinder
DT 100 - 01 - 02	Hydraulic oil tank, 5l
DT 100 - 14 -12 - 06	Timer relay
DT 100 - 01 - 05	Valve block complete with magnetic coils

