

METUSAN

**METUSAN YAPI ELEMANLARI
SANAYİ ve TİCARET LTD. ŞTİ.**

INSTRUCTIONS FOR INSTALLATION, OPERATION & MAINTENANCE

**Above Ground Polyethylene (HDPE)
Grease Water Separator Full Automatic**

NS 3,7,13 and 20

(For set-up in frost-free rooms)



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1 Introduction

Automatic grease water separator according to EN 1825, produced of high-density polyethylene (HDPE) with integrated sludge trap. It is free standing and suitable for installation on floor or in floor type applications, at the places free from frost.

Inlet and outlet pipes are suitable to connect to the appropriate size (EN 877) SML Centrifugally cast drain or plastic pipes. Inspection covers are easily removable, gasketed and hermetically sealed to avoid smell. A Storz coupling connection is included for vacuum suction of the waste.

The operation of grease separators relies on the principle of gravity: the varying densities of water, grease, and dirt particles (sludge) cause these materials to separate naturally within the separator tank.

The automatic grease separator is equipped with an electric system control, pumps, sensors etc. according to your needs. Manual check of the amount of grease is available via the optional observation glass.

All Gravity Grease Separators require periodic maintenance to remove the fats, oils and grease together with sludge deposits that have been separated from the waste water. Such maintenance is usually undertaken by a specialist waste contractor. The frequency of maintenance will depend on the volume of FOGs and the volume of sludge that is generated in the process. Sludge volume can be significantly reduced by effective use of strainers on sink outlets.

1.1 Use

Only waste water containing organic FOGs should be discharged to a grease separator.

Effluent from the following should not be connected to the separator:

- Toilets
- Rainwater
- Oil of mineral origin
- Macerators

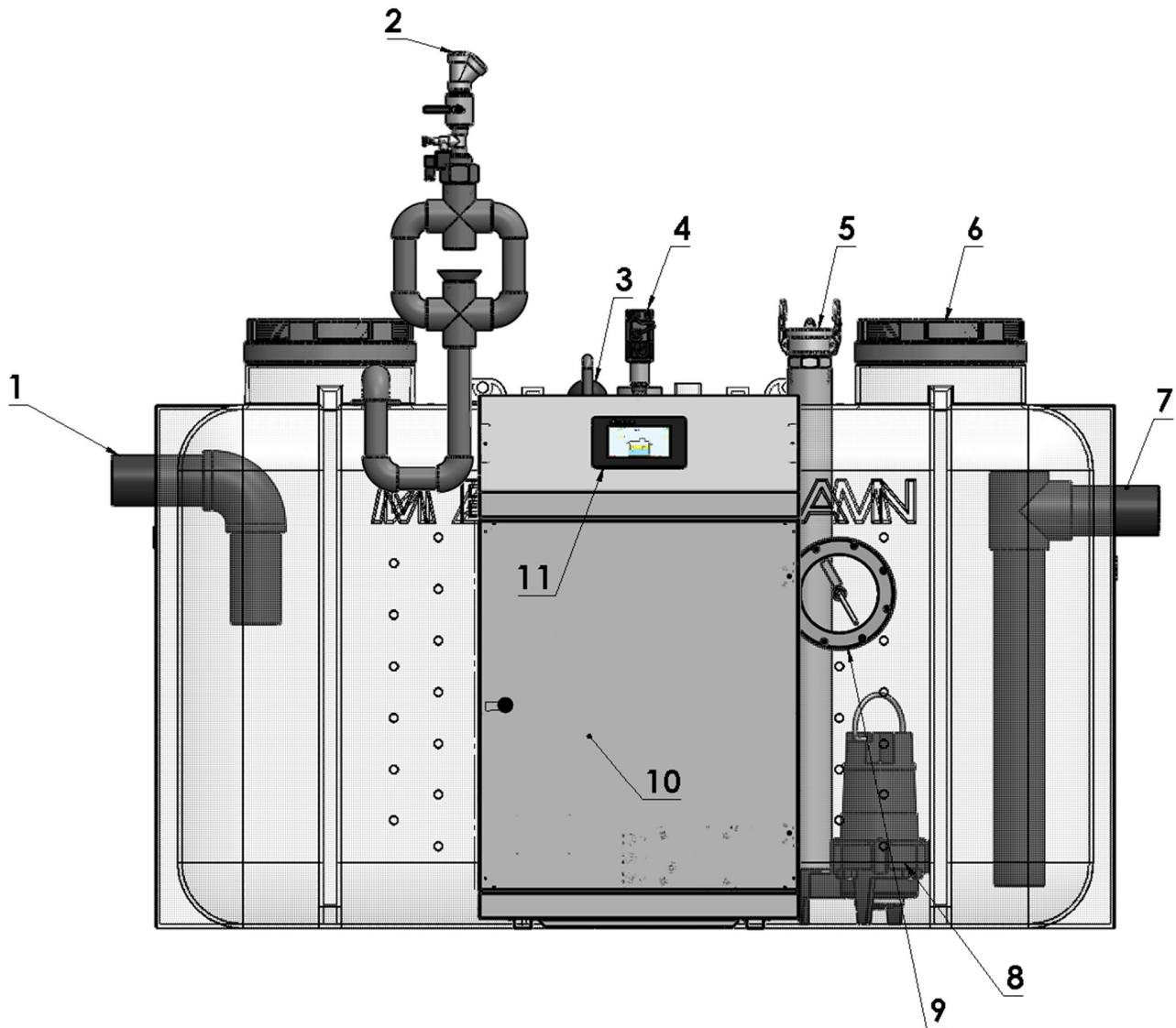
1.2 Type Plate

Critical information is available on the plate of the grease separator system.



Make sure to record the serial number of your product for future service demands.

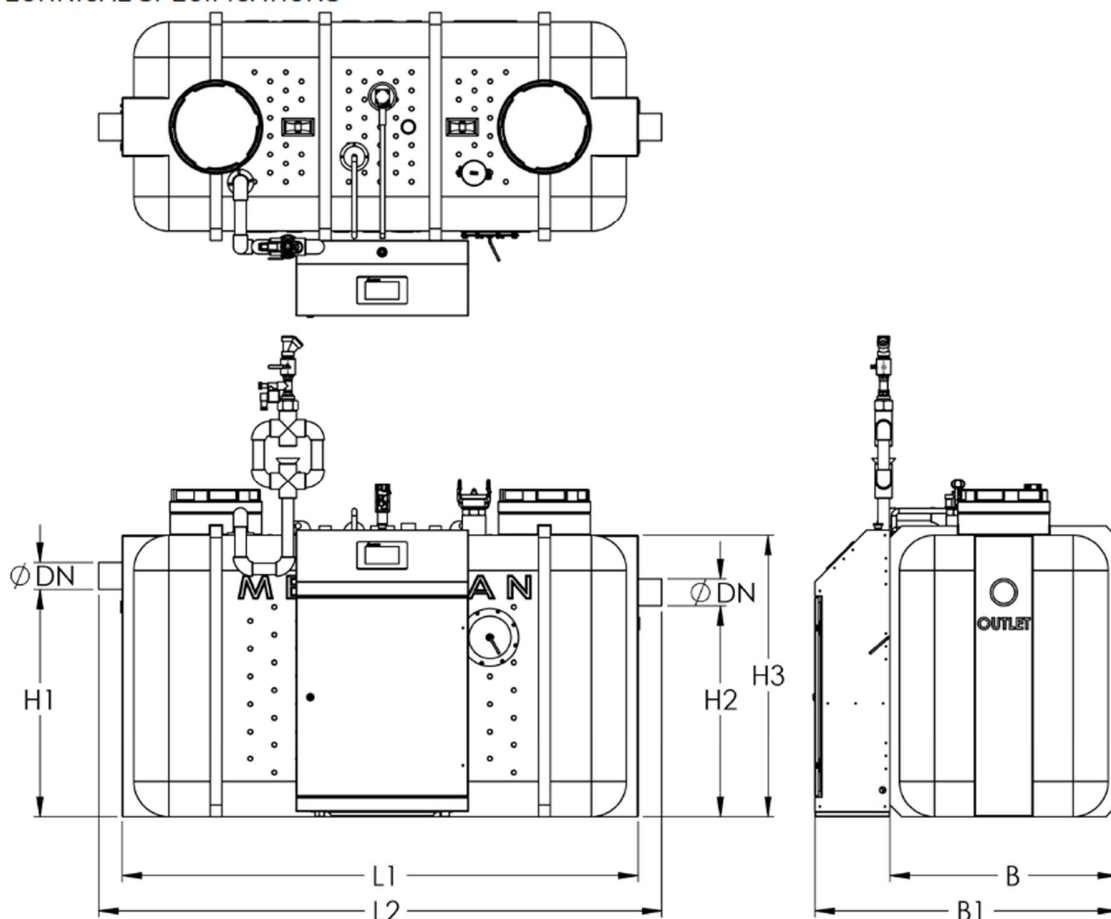
1.3 Assemblies and Functional Characteristics



- | | | |
|---------------------------------------|--|---------------------------------|
| 1. Inlet | 5. Storz Coupling (Flush out) | 9. Observation Glass (optional) |
| 2. Refill Inlet (with Solenoid Valve) | 6. Inspection Cover | 10. Control Unit (BMS) |
| 3. Grease Sensors | 7. Outlet | 11. Control Screen |
| 4. Internal Washing System (Optional) | 8. Submerged Pump (Flush out) (Optional) | |

1.4 Illustrations and Dimensions

TECHNICAL SPECIFICATIONS



PRODUCT DIMENSIONS

Code	NS (lt/sec)	DN	Total Volume (lt)	Grease Volume (lt)	Sludge Trap (lt)	L1	L2	H1	H2	H3	B	B1
31313	3	100	995	150	330	1360	1540	970	900	1390	890	1290
31317	7	100	1685	300	725	2200	2380	970	900	1390	890	1290
313113	13	150	3150	500	1560	2700	3100	1470	1400	1600	950	1350
313120	20	200	4960	1000	2220	2900	3300	1470	1400	1800	1300	1700

Dimensions are in mm.

2 Safety

Pay attention to the following while working:

2.1 Intended Use

- The product is a system for intercepting oil from the influent wastewater according to EN 1825-1. Disposal and maintenance cycles as well as requirements concerning the installation site must be complied with for proper operation.
- All modifications or attachments, use of non-genuine spare parts, repairs carried out by companies or persons not authorized by the manufacturer without the express and written approval of the manufacturer can lead to a loss of warranty.

2.2 General safety notes

- Isolate the interceptor.
- The system is not to be used in a potentially explosive environment.
- Perform only the actions explained in this manual.
- Make sure the system is grounded.
- The national and local regulations concerning general and electrical safety apply to all work to be done.
- The relevant operational safety regulations and the hazardous substances ordinance or local equivalents apply for the operation of the system.
- Check the weight of the system / system components.
- Pay attention to correct lifting and ergonomic factors.
- Standing under overhead loads is prohibited at all times.
- Make sure the system is adequately ventilated. There is a risk of a hazardous atmosphere occurring in the chamber system during work. Use safety equipment such as e.g., a multi-gas warning device if necessary.
- Inadequate ventilation in connected systems can cause the gas released by the separated material to spread into downstream systems where it can cause an explosive mixture of gases.
- Ensure proper ventilation of the downstream drainage system (especially lifting stations or pumping stations) while installing an interceptor system,
- The cover(s) may only be transported tightly lashed down on the pallet to avoid possible risk of serious injury.

2.3 Personnel Selection and Qualification

- Must be at least 18 years old with sufficient training for the respective tasks
- Must be qualified to apply all the operations detailed in this manual.
- The owner-operator must ensure that only qualified staff work on the grease interceptor.
- Work on electrical components may only be carried out by specially trained personnel and in compliance with all applicable accident prevention regulations.
- The operator of the system must: Prepare a risk assessment, identify and indicate danger zones, give safety instruction to personnel, secure the system against unauthorized use.

2.4 Organizational Safety Measures

- Operating and maintenance instructions must always be kept available by the product.

2.5 Prescribed personal protective equipment

Always use personal protective equipment (as detailed below) during installation, maintenance and disposal work on the system.

- Protective clothing
- Protective gloves
- Safety footwear
- Face protection (eye goggles, earplugs, etc.)

Operating company: Visual check.

Competent expert / inspector (familiar with, understands operating instructions): Emptying, cleaning (inside), functional check.

Competent skilled person (specialist craftsman, in accordance with installation instructions and execution standards): Installation, replacement, maintenance of components, commissioning.

General inspector (in accordance with EN 1825-1): Leak test, checking on correct design and proper assembly before initial commissioning.

Qualified Electrician (According to national regulations for electrical safety): Work on electrical installation.

2.6 Hazards Caused by Electric Current and Cables

- All housing covers, plugs and cables must be switched off (voltage free) before opening
- The electrical components of the system are not protected against flooding.
- A (minimum) 30mA residual current protection relay must be included in the system.

Only qualified electricians may carry out work on electrical equipment.

2.7 Hazards Caused by Heat Development

- Pump bodies and their drive motors can become extremely hot during operation. Do not touch them without wearing protective gloves or allow them to cool down before touching.

2.8 Danger of Slipping

- The floor can be slippery with oily liquid during cleaning or disposal. Remove liquid spills, wear suitable footwear.

2.9 Risk of Infection

- The wastewater might contain several bacteria that are dangerous for human health. Avoid contact of any part human body with the wastewater at all times. Clean with water and cleaning agent if contact occurs. Wear protective clothing while doing maintenance work.

3 Installation

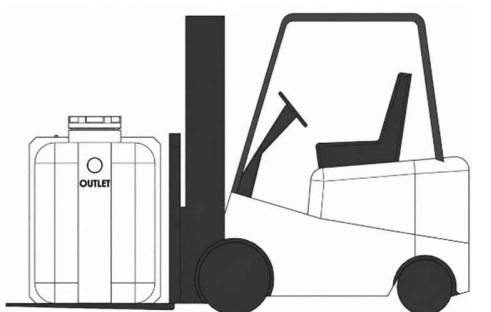
3.1 Selecting the Right Location for Your Interceptor

- Ventilation must be sufficient
- The floor must be straight and without slopes. (the input subcode is 7 cm. above the output subcode)
- Surface must have sufficient load-bearing capacity (the system is considerably heavy when full)
- Room temperature must be at least 15 °C. This product is not suitable for outdoor use.
- There must be a sealed floor covering with an integrated drain.
- Clean water supply is needed.
- Room height must be at least 60 centimeters higher than the top height of the interceptor for cleaning purposes.
- There must be at least 100 centimeters of space in both front and back sides of the interceptor.
- The oil interceptor must be placed on a perfectly horizontal surface during installation. It should be checked with appropriate hardware (preferably a spirit level) during installation.
- Only waste water containing organic fat, oil, grease should be discharged to a grease interceptor. Effluent from the toilets, macerator, rainwater, light liquids oil of mineral should not be connected to the interceptor.

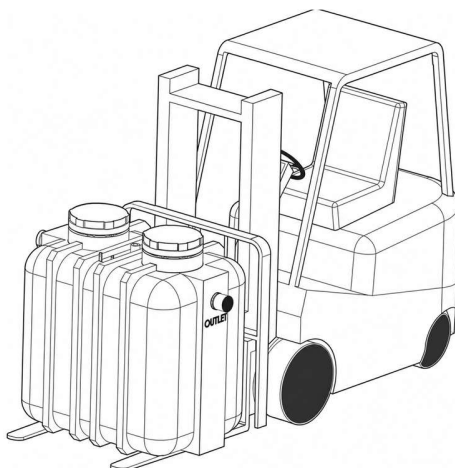
3.2 Transport information

- Gently unload and transport with a forklift truck.
- Only use the eye bolts provided on the body of the product for lifting.
- Protect the inlet and outlet connections while transporting.
- Never use the inlet and outlet pipes for lifting the product; this may cause serious damage and disable functionality.
- Do not transport the interceptor while it's filled with water.

Below for Models **without** Eye Bolts

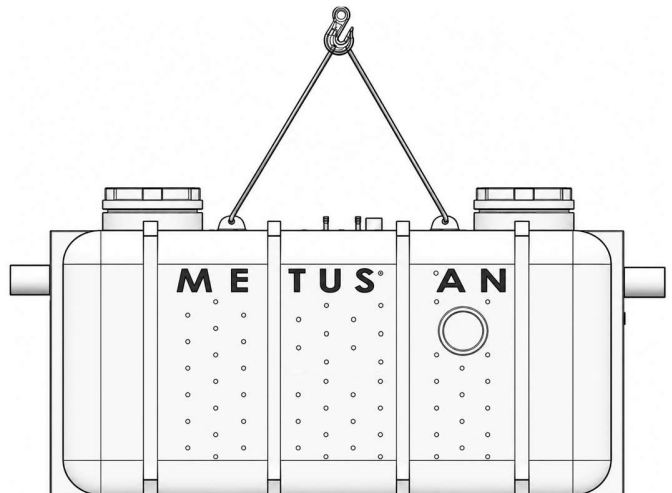


Correct



Correct

Below for Models **with** Eye Bolts



Correct



Wrong

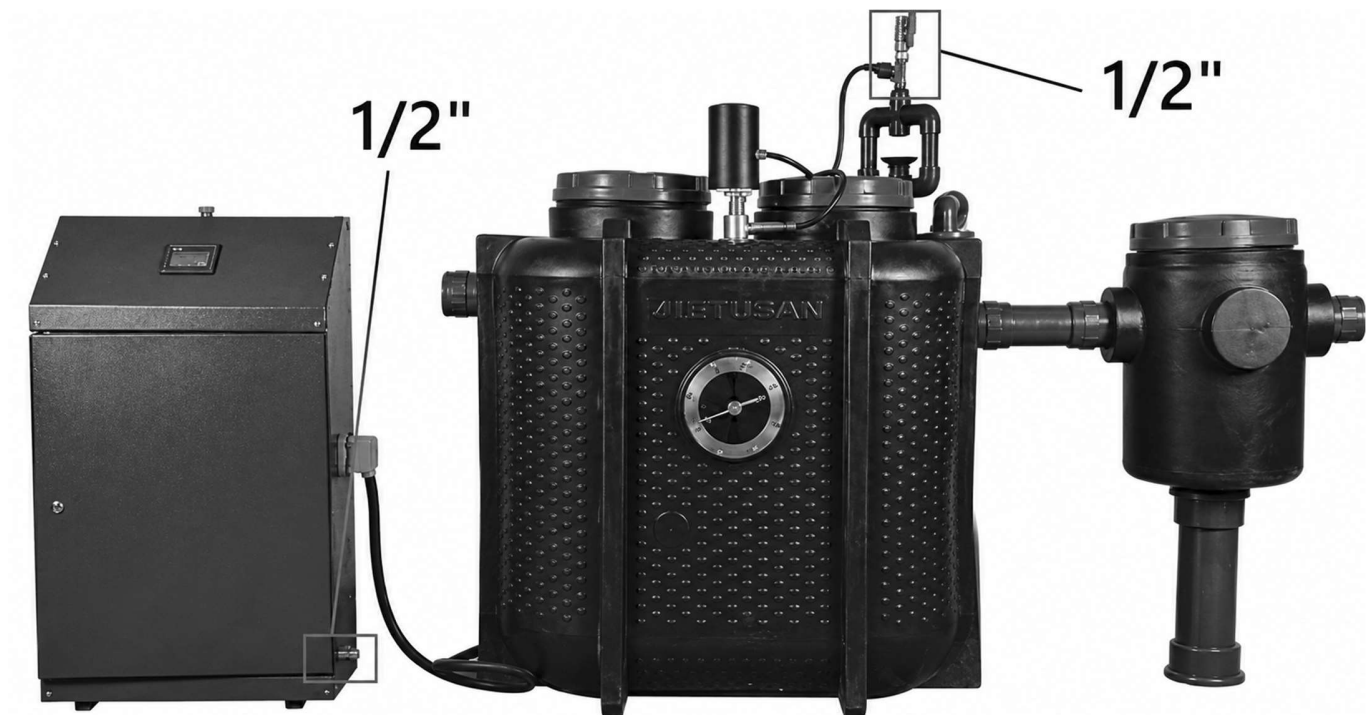


Wrong

Consider inlet and outlet pipe locations and invert level heights
Prepare a sound concrete base for setup.

3.3 Installing the pipes

Align the inlet, outlet and ventilation pipes to required positions. Connect the inlet pipe and outlet pipe. Connect vent pipe (not included in the package) and attach handhole pipes. Inlet with calming section of at least 1 m (gradient 1: 50). If the inlet pipe is longer than 10 m horizontally, it must be vented separately.



3.4 Finishing

Suitable materials for further pipe laying include PVC-U, PP, or PE, all of which must comply with EN 124 and EN 476 standards.

A stilling section, which is at least ten times the length of the inlet pipe's cross-section, must be installed directly before the interceptor. When transitioning from a downpipe to a horizontal pipe, use two 45° bends with a 250 mm. section of pipe between them.

The pump and the pipes can be dismantled for easier installation. A leak test must be performed after reattachment of the pump and the pipes. Use 1/2" connections for both clean water and internal washing systems (as seen in picture above)

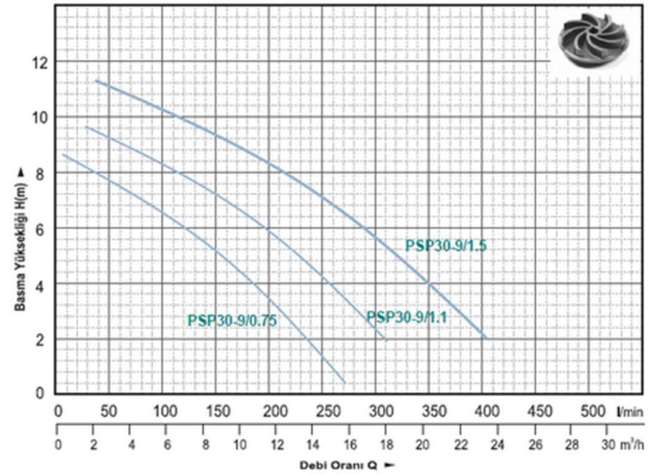
A hydraulic hose with male connections (available with the product) must be used to assemble the female ends of both the pump (located inside the control panel box) and the internal washing apparatus (located on top of the separator) for the internal washing system to function properly. Check the pictures below for details.



The submersible pump is included only if your system has auto drain capability. The pump will be located at the bottom of the separator. Below are the electrical values and pressure vs. flow graph for the submersible pump.

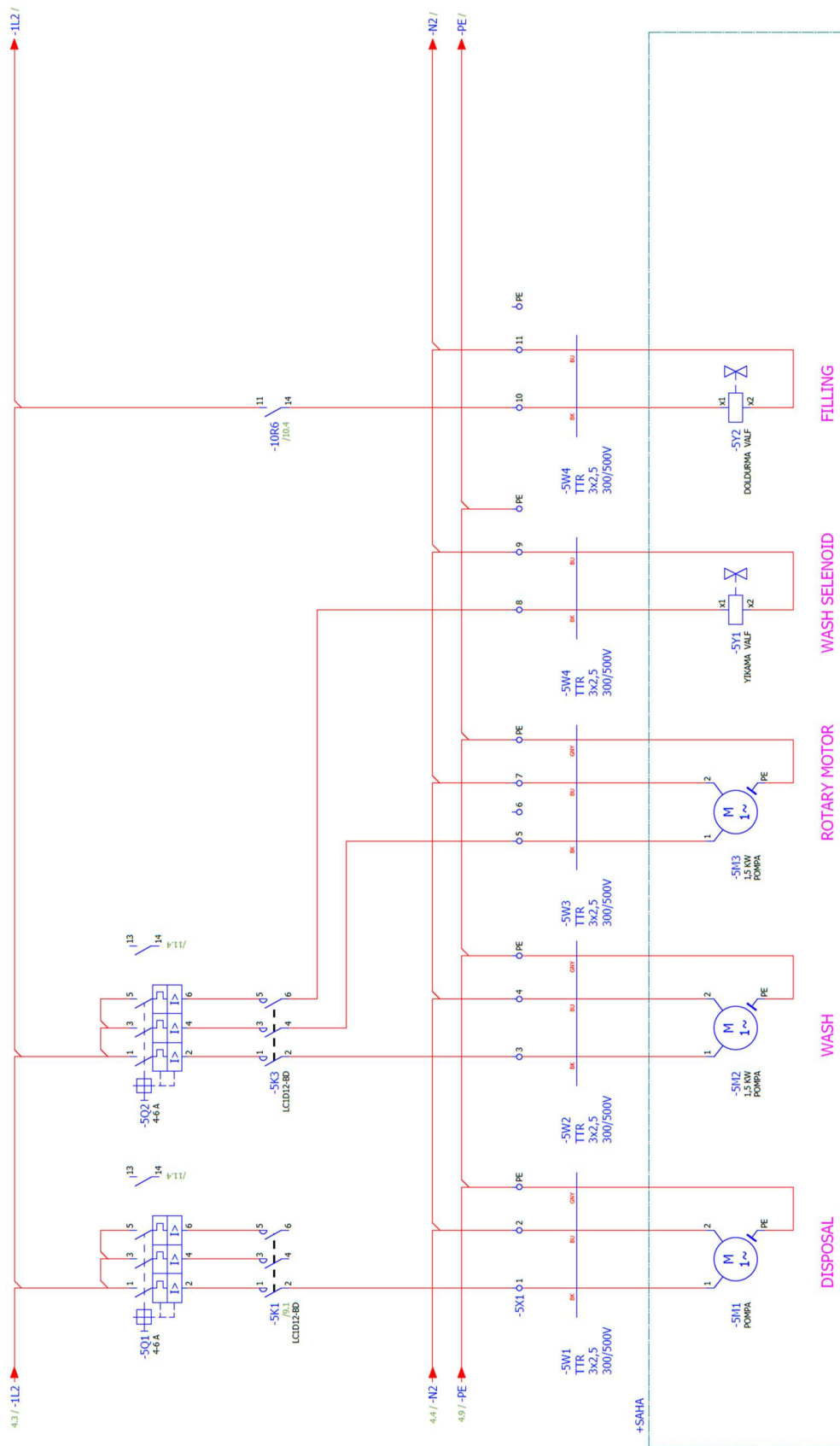
Electrical Connection Values

415 V
50 Hz
Direct connection 6,6 kW
16A
IP54
IP55
C 25A
I 30 mA

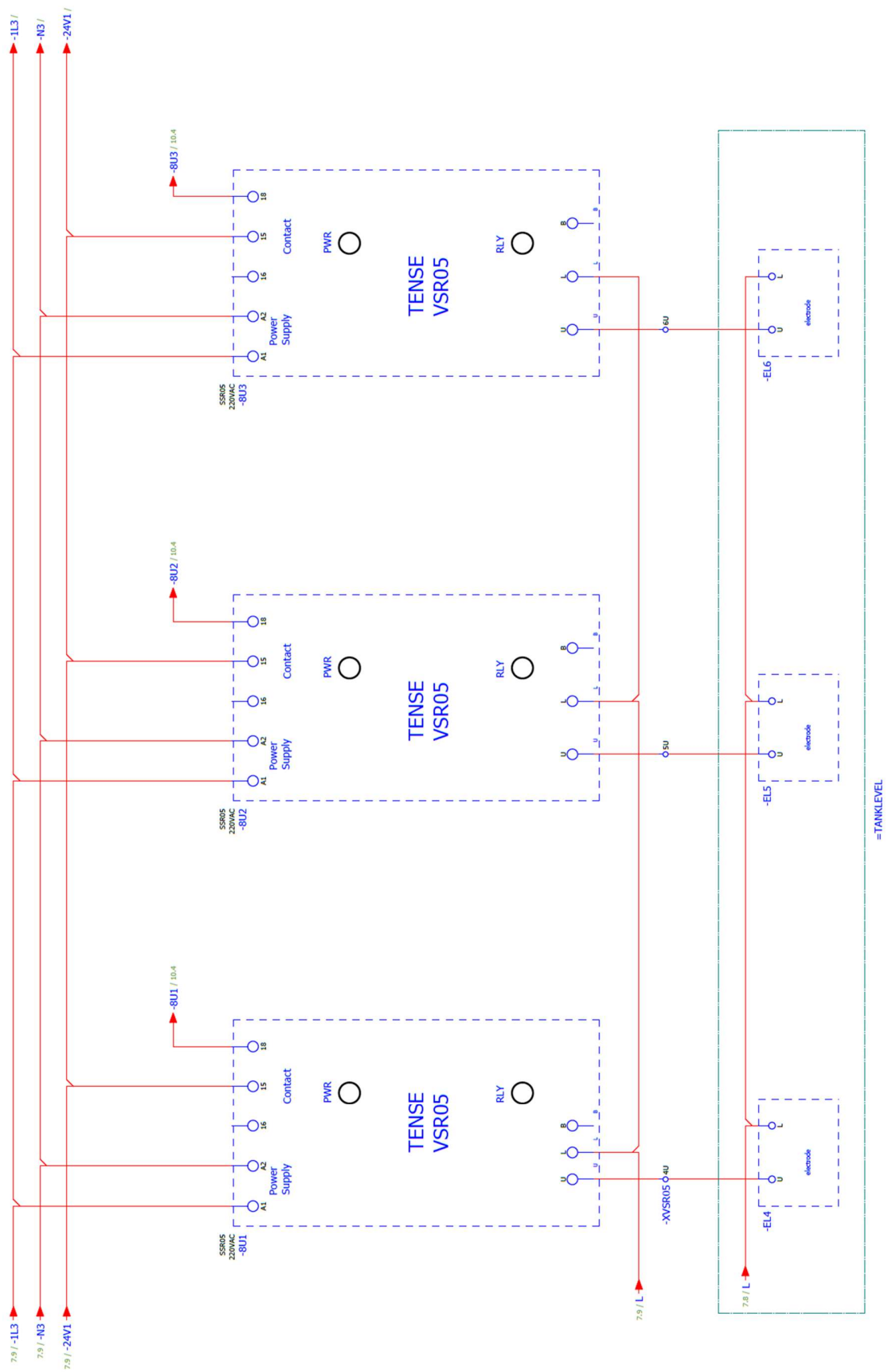


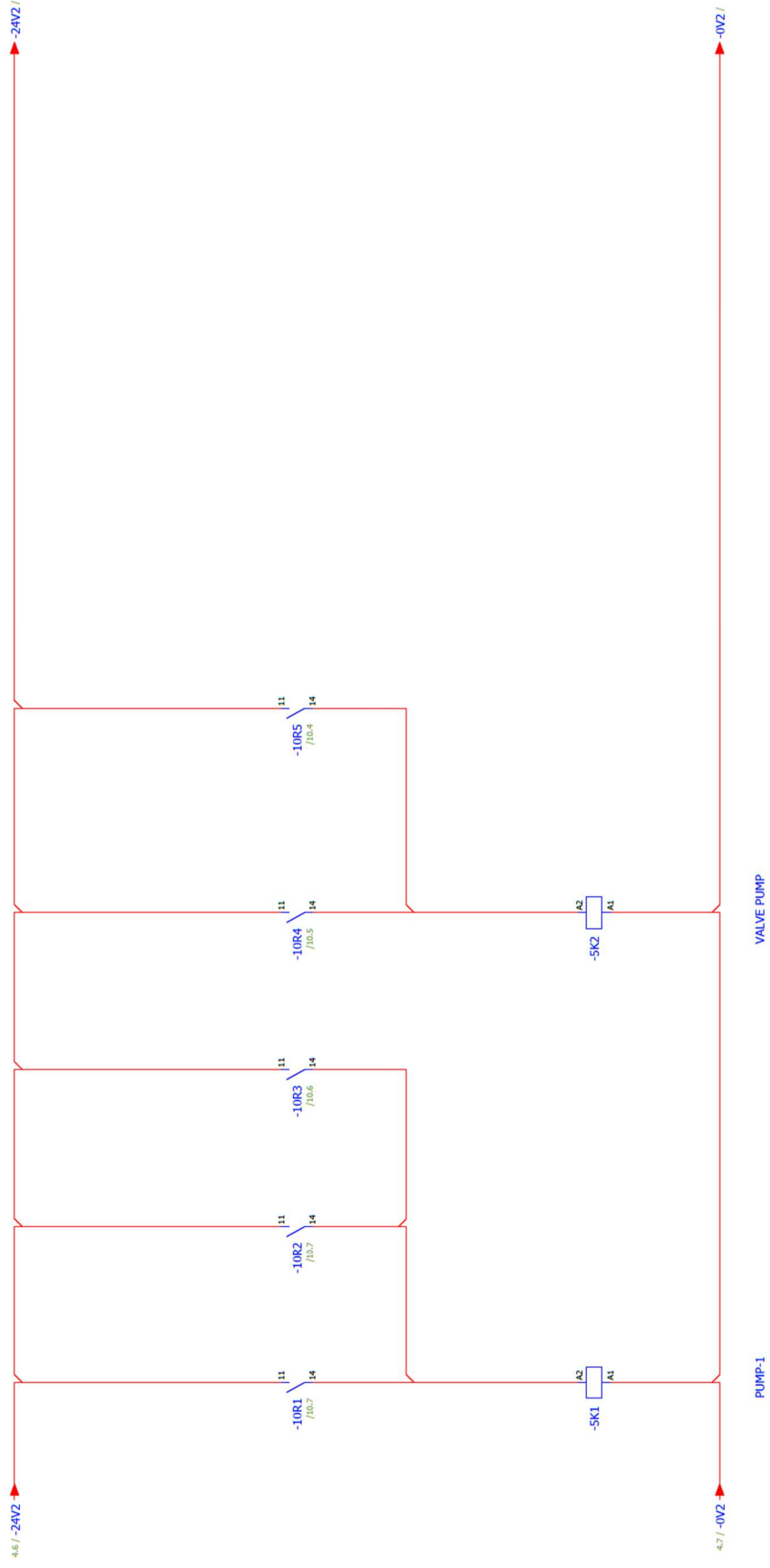
Pressure vs Flow Graph for Submersible Pump



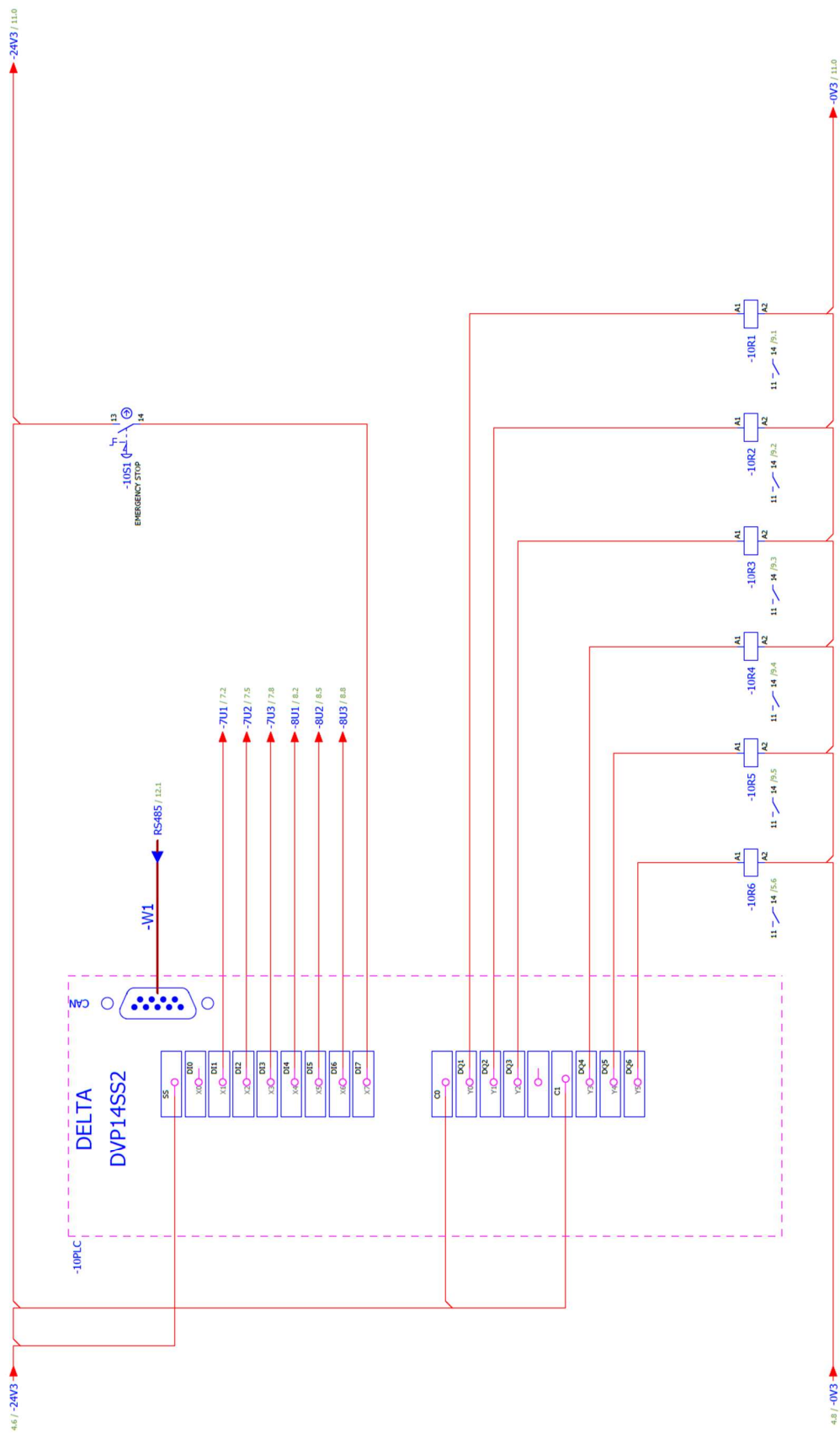


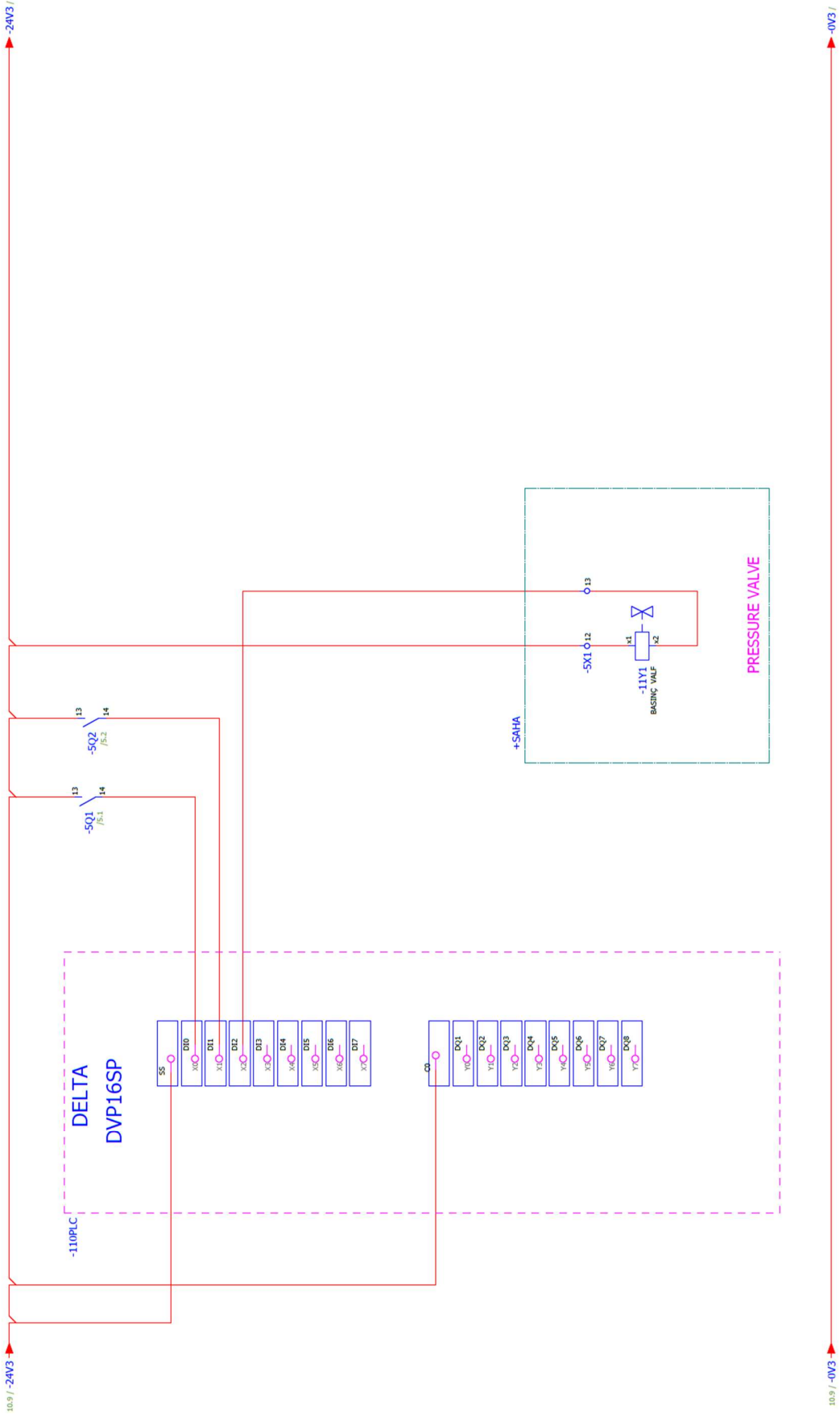


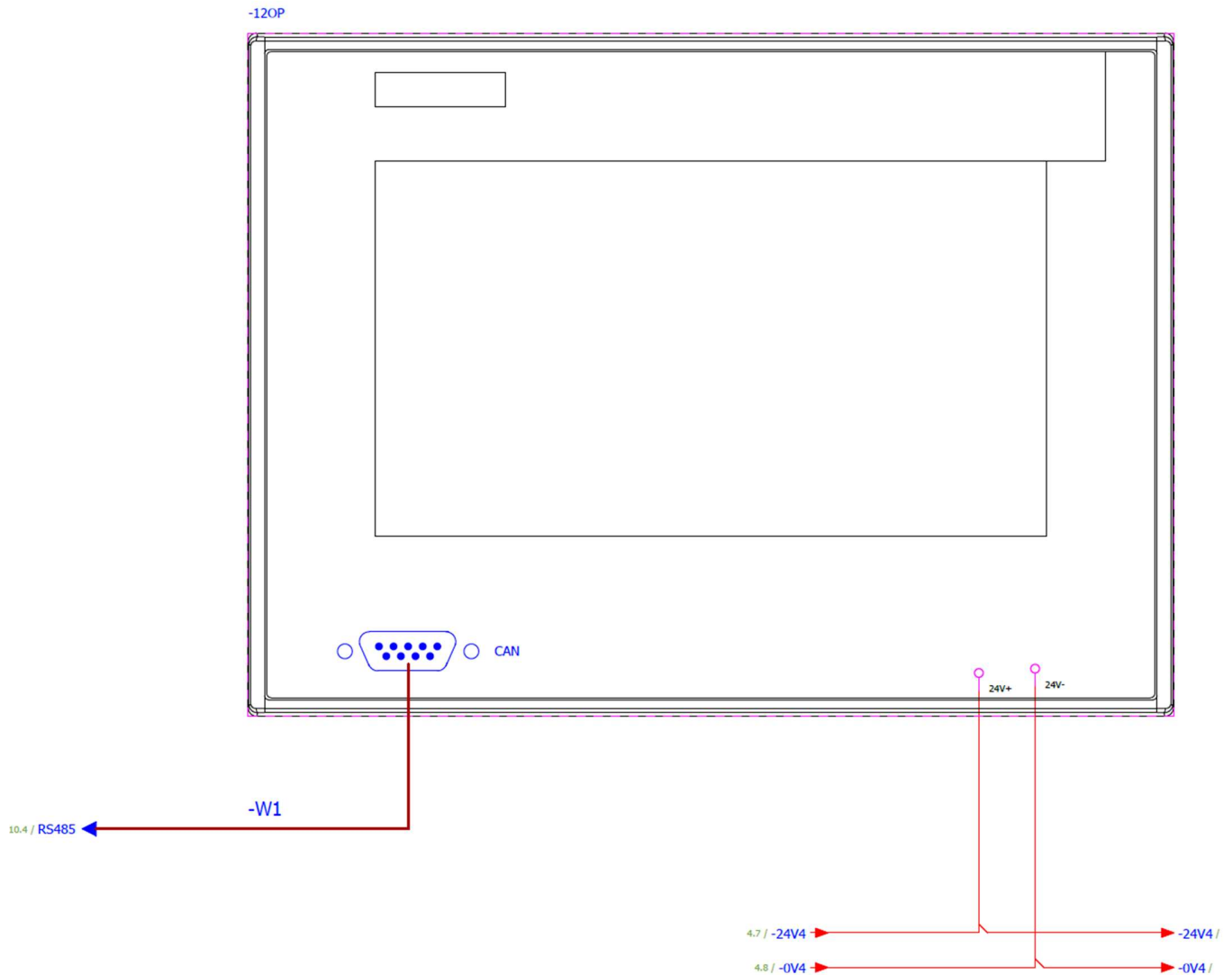




1 2 10.1
3 4 10.1
5 6 10.1



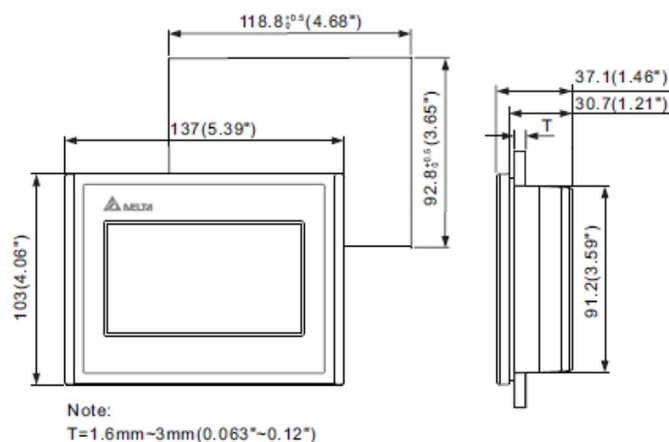




3.5 Setting Up the Control Unit (Delta DOP-103BQ)

- Use the product in an indoor location, which is free of vapor, corrosive and inflammable gas and liquids.
- Ensure your HMI is correctly grounded. The grounding method must comply with the national electrical standard.
- Do not disassemble the HMI or change the wiring when power is on.
- Do not touch the power supply when power is on, or it may cause electric shock.
- When the HMI displays a low power notification and requires a battery change, please contact your local distributor or Delta Customer Service Center for the replacement. Do not change the batteries by yourself.
- Cleaning method: please use a dry cloth to clean the product.
- This product must be used at an altitude below 2,000 m.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For repair and maintenance, please contact Delta Electronics, Inc. Address: No.18, Xinglong Rd., Taoyuan City, Taiwan. TEL: +886-3-3626301.
- Refer to the manufacturer's manuals for further information.

DOP-103BQ



Operation temperature: 0°C to 50°C (32°F to 122°F)

Storage temperature: -20°C to 60°C (-4°F to 140°F)

4 Commissioning

4.1 The Basics

Preparing commissioning

- Be sure that the separator is full with cold water up to the static level (invert level of the outlet pipe).
- Have a general inspection carried out (during initial commissioning and then every year).
- Give safety instructions.
- File all records in the log book and document required disposal cycle.
- All documents must be kept available at the system.
- The local supervisory authority may want to examine the documents.
- Suggested pipe coupling leakage test for inlet/outlet, vent (if any).
- Make sure the power source is linked to the separator and turn the circuit breaker to "ON"

4.2 Function Test

- Leak testing of pipes
- Completing the automatic cycle

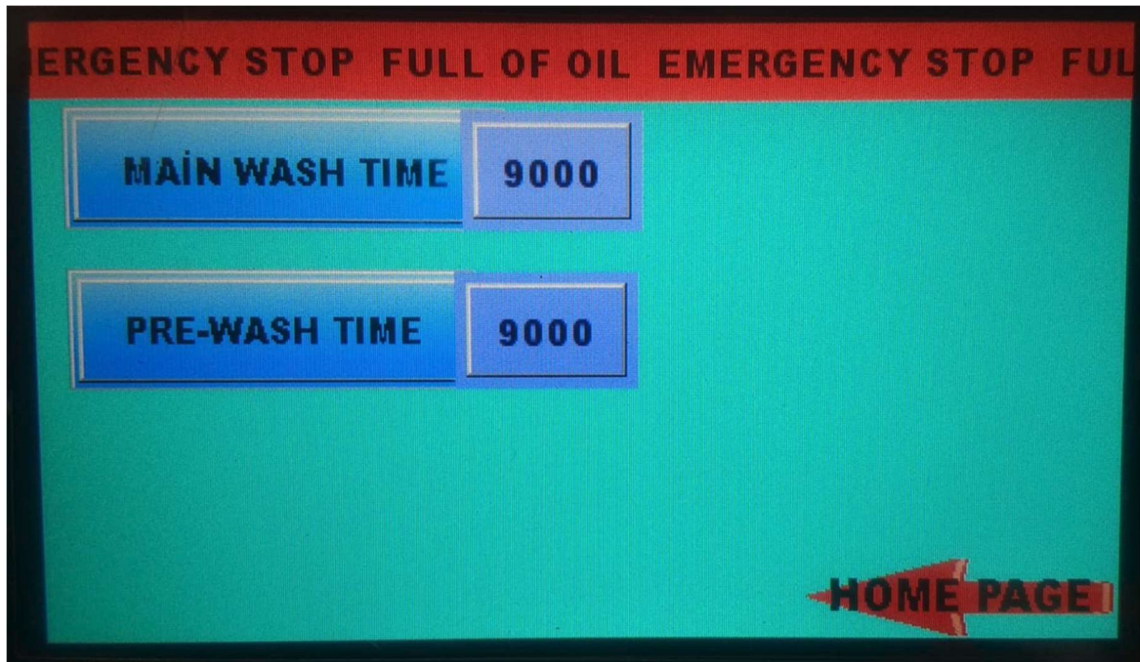
4.3 Using The Touch Sensitive Control Panel

4.3.1 The Main Screen

Message	Explanation
Full of Oil	Perform the cycle
Emergency Stop	The physical emergency stop button is active. De-activate it only if all is OK.
START	Starts the cycle explained below.
RESET	Factory settings are activated.
%25-%50-%75-%100	Oil Levels (Indicates how much oil is in the system. If the %100 flashes; it means the oil capacity is at maximum)
Water Pressure	This green button turns into red when the system is completely empty.
SETUP	Opens up the screen to adjust pre and main washing times.

4.3.2 Setting Up the Washing Times

Touch the "Main Wash Time" and "Pre-Wash Time" buttons to set the washing times desired. You can adjust the washing times by multiplying the desired time in seconds with 100 and entering from the digital keypad. The factory settings for these values are both "9000" which indicates 90 seconds.

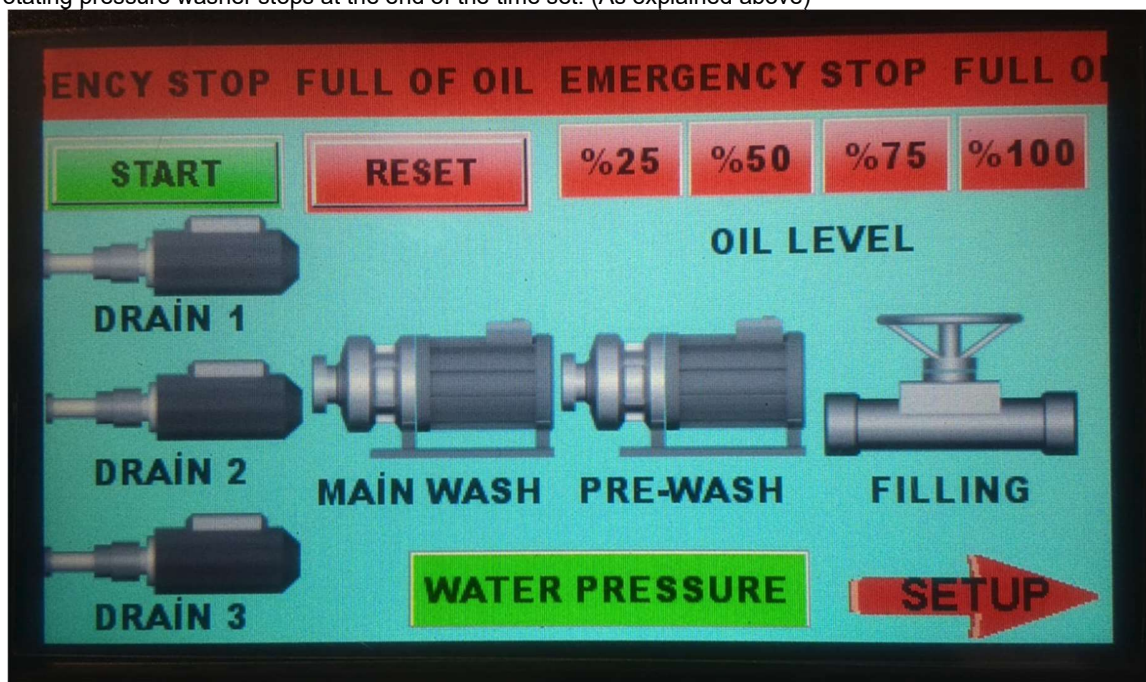


4.3.3 The Cycle

The system begins the cycle when you touch the "START" button. The steps explained below take place automatically. Please note that a disposal method should be ready at site (Sewage tank etc.) before starting the cycle.

Pre-Wash

The rotating pressure washer stops at the end of the time set. (As explained above)



First Disposal Cycle (Discharging into a sewer truck)

The pump automatically stops when the disposal phase is over.

Main Wash

The rotating pressure washer stops at the end of the specified interval. (As explained above)

Second Disposal Cycle (Discharging into a sewer truck)

The pump automatically stops when the disposal phase is over.

Filling (Filling with Clean Water)

The filling ends when the system is full with clean water.

The cycle is complete. The interceptor is ready for use.

4.4 Oil Warning

The oil inside the device accumulates within a certain period depending on usage, you can track the progress from the screen. The cycle should be started when the 100% oil level indicator is activated.

5 Disposal

Perform the cycle when the oil level is at 100%

6 Maintenance

6.1 Interval for general inspection

A general inspection must be carried out on the system every year.

The maintenance interval for an oil interceptor system depends on its installation location and operating conditions. The most suitable interval will emerge during use. Therefore, the system should be constantly monitored, and the most appropriate schedule should be determined by this monitoring.

The owner-operator of an interceptor system is obliged according to valid legal principles as well as according to EN 1825 to subject the system to a general inspection with leak test before commissioning and re-check at every 5 years. This test may only be carried out by a technical specialist. We will be happy to send you a quotation for the general inspection by an independent expert.

6.2 Maintenance interval and tasks

A general inspection (including leakage check) must be carried out on this system every 5 years according to EN 1825-1. The system must be maintained once a year by authorized personnel / experts.

During maintenance, the following work should be carried out:

- Carry out the automatic cycle.
- Check the inside of the tank.
- Check the leakage of the pipe connections.
- Use a gripper and scraper to remove objects and deposits inside the tank if necessary.
- Clean the exterior of the system if necessary.
- Record the maintenance in the logbook.

6.3 Troubleshooting

DEFINITION	ROOT CAUSE	SOLUTION
Rotary field error	Wrong rotary field for mains connection	Connect rotary field correctly
Motor Protection	Motor protection switch has triggered	Switch motor protection off again after identifying the root cause
	Motor current too high due to faulty or blocked pump	Carry out pump maintenance
	Increased current due to phase failure	Check the voltage for phase failure
Temperature Fault	Winding temperature switch has triggered	Self-reset when the motor cools down. Acknowledge fault message with alarm button
Undercurrent	Unable to reach the min. current required. The electrical cable could be damaged.	Check cable and repair if necessary. Replace the pump if it got defective.
Overcurrent	Unable to work in maximum current	Remove blockage (follow the safety instructions). Replace pump if it got defective
Relay Error	Power contactor is no longer switching	Switch off the voltage supply for the control unit and have the power contactor replaced
Pump Does Not Start, Power too Low	Motor protection switch has triggered	Identify root cause, solve the problem. Wait for the pump to cool down and switch off.
	Motor is blocked	Remove blockage. Perform maintenance on the pump. (follow the safety instructions)
	Motor runs sluggish	Check the voltage for phase failure
	Fault in the power supply; one or more phases are missing and there are heavy fluctuations in the current flow	
	Pump capacity reduced	Remove blockage. Perform maintenance on the pump. (follow the safety instructions)
	Pump rotates in the wrong direction	Connect rotary field correctly. Make sure that the counter-clockwise function is not activated. (Only on systems with corresponding control unit)
Loud and unusual voices	Motor / Pump components are blocked	Remove blockage. Perform maintenance on the pump. (follow the safety instructions)
Odor pollution	Wastewater pipes leaking	Check the pipes and gaskets, repair if necessary
	No ventilation pipe; cross-section too small	Retrofit on-site
	System parts are leaking	Eliminate the leak
	Closed room with no air exchange	Create ventilation options.



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