CONTENTS

* Further referred to as WWTP TOPLOS.
** Please, pay attention to fill out pages 20 – 22 correctly.

Dear customer,

Thank you very much for choosing TOPOL-ECO company as your supplier of wastewater treatment equipment.
We are sure that purchased product will meet your expectations. All our products are manufactured using high-quality materials and parts to ensure perfect quality and long-term service of the equipment.
The products chosen by you will contribute in reducing environmental pollution and improving ecological situation.
We are always eager to render you our assistance in servicing purchased equipment, to answer all your questions, and to consider all your requests.
We are hoping for mutually beneficial and fruitful development of our relations with regard to wastewater treatment and prevention of further environmental pollution!

Technical Specifications and Application Area of Wastewater Treatment Plants TOPLOS* Model Line Produced by TOPOL-ECO

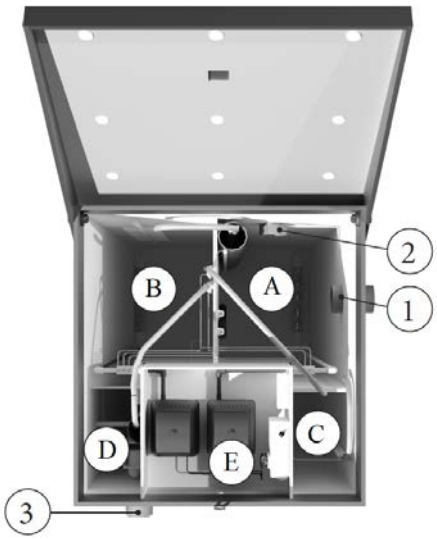
WWTPs TOPLOS are designed for sewage purification by biological oxidation.
Specifications of WWTP TOPLOS product line are presented in Annex No.1.

Principal of Operation of WWTP TOPLOS

Wastewater treatment plants performs treatment but not accumulation of sewage. Operation of WWTP TOPLOS is based on biological purification combined with fine bubble aeration (artificial air supply) to oxidize sewage components.

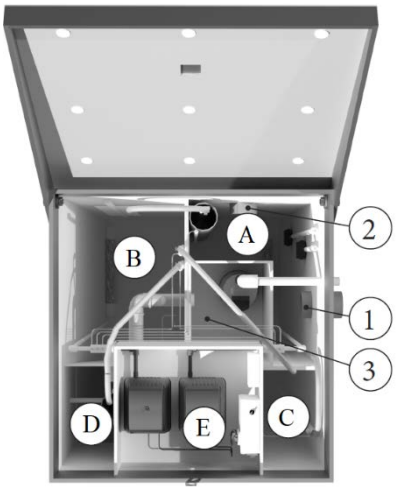
WWTP TOPLOS with Gravity Drainage

A - Inlet chamber;
B - Aerotank chamber;
C - Sludge sedimentation chamber (stabilizer);
D - Secondary sedimentation chamber;
E - Compressor equipment compartment;
1, 2 - Variants of sewer inlets;
3 - Purified wastewater outlet



WWTP TOPLOS with Forced Discharge

A - Inlet chamber;
B - Aerotank chamber;
C - Sludge sedimentation chamber (stabilizer);
D - Secondary sedimentation chamber;
E - Compressor equipment compartment;
1, 2 - Variants of sewer inlets;
3 – Accumulating tank to install pump equipment for arranging the outlet of biologically purified wastewater on any of WWTP's sides



The process of biological purification represents biochemical destruction (oxidation) of organic substances by microorganisms. Wastewater lose its tendency to decay, becomes transparent, the concentration of bacterial contamination is reduced considerably.

Wastewater from the building flows through sewer line to the inlet chamber (A) where the flow becomes more uniform and the wastewater goes through preliminary biological and mechanical treatment. Further, preliminary treated wastewater is evenly pumped into the aerotank (B) where final destruction of organic compounds through oxidation by activated sludge takes place. Activated sludge presents biologically active medium suspended in water which performs wastewater purification in aerobic bio-oxidants.

Then the mixture of activated sludge and clear water is transferred to the secondary sedimentation chamber (D) where activated sludge and clear water are separated. Purified water flows out by gravity or pumped out (depending on the model of WWTP TOPLOS) through the clear water outlet. Separated sludge is accumulated in the sludge stabilizer (C) and is periodically returned back by the user (see page 8 in Maintenance of WWTP TOPLOS section).

Completing of WWTP TOPLOS with Parts and Accessories

WWTPs TOPLOS are completed with all necessary parts and accessories ready for operation. WWTPs TOPLOS are completed with parts and accessories depending on the models and modifications.

WWTPs of TOPLOS 4 and TOPLOS 75 model line are manufactured and supplied in a single casing. WWTPs TOPLOS 100 presents double casing while WWTPs TOPLOS 150 presents double-casing plants with distribution tank.

WWTPs are completed with parts and accessories depending on the models as follows:

TOPLOS 4- TOPLOS 9 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.1 m;
2. Polypropylene welding rod, 7 mm-1 m;
3 Compressor 60 W - 2 pieces.

TOPLOS 10 - TOPLOS 12 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.1 m;
2. Polypropylene welding rod, 7 mm-1 m;
3. Compressor 80 W - 2 pieces.

TOPLOS 15 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.1 m;
2. Polypropylene welding rod, 7 mm -1 m;
3. Compressor 120 W - 2 pieces.

TOPLOS 20 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 120 W - 2 pieces.

TOPLOS 30 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 150 W - 2 pieces.

TOPLOS 40 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 120 W - 2 pieces.

TOPLOS 50 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 150 W - 2 pieces.

TOPLOS 75 of all modifications
1. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 150 W - 3 pieces.

TOPLOS 100
1. Polypropylene pipe PN 110 x 10 L=0.8 m - 2 pieces (for connecting casings);
2. Polypropylene welding rod, 7 mm -3 m;
3. Compressor 150 W - 4 pieces;
4. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m.

TOPLOS 150 with forced drainage
1. Polypropylene pipe PN 110 x 10 L=0.8 m - 2 pieces (for connecting casings);
2. Polypropylene welding rod, 7 mm -3 m; Compressor 150 W - 4 pieces;
3. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.5 m;
4. Polypropylene sewer inserted-joint pipe, 110 x 2.7 L=0.9 m.

All reinforced TOPLOS models and all TOPLOS models starting from TOPLOS 20 are completed with propylene board 10 mm-0.04 m^2 or propylene board 10 mm - 0.08 m^2, depending on the model.

Completing with auxiliary equipment

WWTPs with forced drainage of biologically purified water further referred to as “forced WWTP”) of entire TOPOLOS model line are completed with the following auxiliary equipment:
1. Drainage pump with float switch - 1 piece;
2. Set of fittings and hosepipes for pump connection;
3. Polypropylene sewer inserted-joint pipe 160 x 4.9 L=150 mm is available on request.

All WWTPs of “TOPLOS model line can be optionally completed with emergency light alarm or emergency alarm of other kind:
Emergency light alarm consists of:
1. Waterproof lamp – 1 piece;
2. Assembled float-level gauge – 1 piece;
3. Cable gland for cable input – 1 piece.
4. Stranded flexible connecting cable PVC 2 x 0.75 2 m.

Transportation, Storage and Packing of WWTP TOPLOS

The following requirements should be observed in order to avoid WWTP damaging or human injuries during transportation:

- Only persons who have technical proficiency, operating skills and strictly observe safety regulations, are allowed to perform transportation operations.
- The plant can be hooked to hoists using specially marked lifting points only.
  - Figure 1 (a) shows lifting points for WWTPs TOPLOS 4 -TOPLOS-15 of all modifications, except modifications Long,
  - Figure 1 (b) shows lifting points for WWTPs TOPLOS 5 Long -TOPLOS-15 Long,
  - Figure 1 (c) shows lifting points for WWTPs TOPLOS 20 -TOPLOS-150 of all
- The plants can be transported by means of transport meeting requirements of current rules of transportations of cargos,
- The plant (either in packing or without packing) should be fixed in the vehicle so that to exclude any movements of the plant during transportations.
- Any tanks should not be exposed to impacts or direct sunlight during transportations and storage.
- Storage conditions shall be 1 (L) according to GOST 15150-69.

As local conditions and possibilities can vary to large extent, it is not possible to present exact information as for transportation of WWTPs to the sites.

This task should be delegated to skilled and trained personnel.

Assembled WWTP TOPLOS can be packed in polyethylene packaging film (according to GOST 10354-82 or GOST 25951-83). Also, other packaging materials featuring adequate strength can be used. The WWTPs can be transported without packaging provided the plants are securely fixed in the vehicle. Compressors, pumps, UV disinfection units are supplied in the manufacturers' packaging. The pants are supplied together with packing list, operation documents, and shipping documents placed in polyethylene envelope.

Shelf life shall be in accordance with GOST 26996-86 provided storage conditions are met.

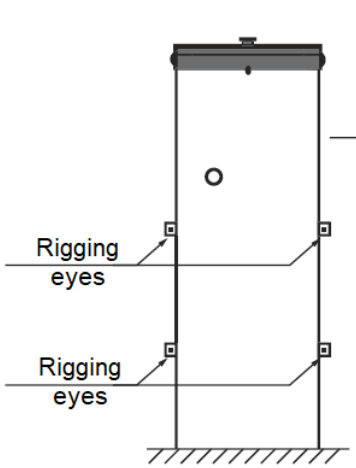


Figure 1 (a)

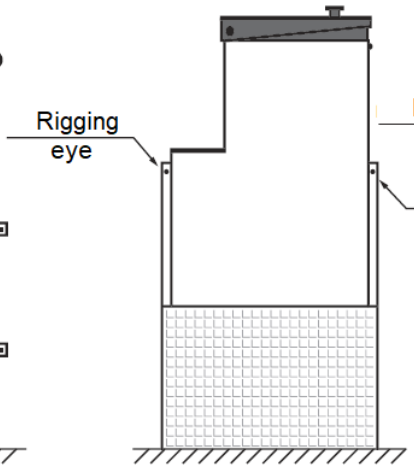


Figure 1 (b)

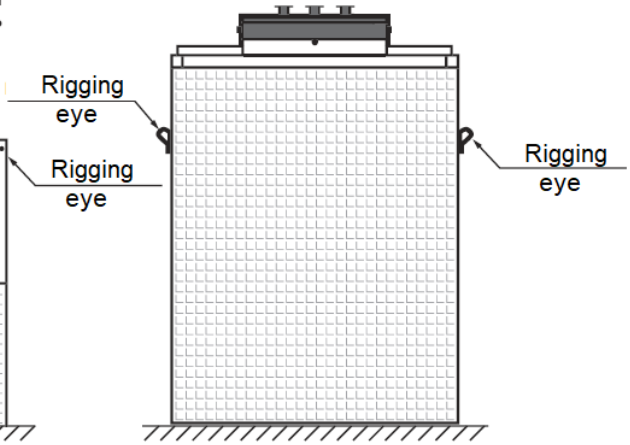


Figure 1 (c)

Marking of WWTP TOPLOS

Metal factory nameplate riveted to the crossbar is situated inside WWTP casing. The nameplate contains the following information: manufacturer name, plant model, serial number, specifications, trademarks (printed in color), month and year of production.

Installation and Mounting Instructions

When installing WWTP TOPLOS, please, pay special attention to the following items:

- Carefully read installation and mounting instructions, assembly diagram supplied with your WWTP.
- WWTP TOPLOS has no available opening for connecting sewer inlet pipe (or sewer outlet pipe in “forced WWTPs”).
- It is necessary to observe the following conditions: inlet pipe should be introduced into the inlet chamber of WWTP TOPLOS according to sizes specified in the assembly diagram. The opening in the WWTP TOPLOS inlet chamber wall should be cut out exactly along the contour of the inlet pipe.
- The opening for the inlet pipe shall be cut out and sealed when assembling plant. Soldering by means of hot air gun using 7 mm polypropylene welding rod presents the best sealing technique for the inlet pipe recommended by the manufacturer.
- All WWTP TOPLOS models with gravity drainage feature the branch tube of Ø110 mm intended for purified water drainage. Forced models possess outlet pipe (of Ø25 mm or Ø 32 mm) which can be arranged any side of the casing according to the assembly diagram attached to your WWTP at the depth of 2150 mm from WWTP bottom minimum (depending on the model).
- WWTP TOPLOS top cover/covers, including fasteners, should be located 150-180 mm above the ground level. This parameter should be considered when conducting possible, planned landscape activities on site.
- Ventilation of exhaust gases from WWTP “TOPLOS” is performed through the inlet sewer pipe and further through the vent stack riser.
- Vent stack riser should be led directly to the building roof or to the topmost point of sewer net, in accordance with Set of Rules SP 30.13330.2012. Combination of sewer stack riser and ventilation stack is prohibited.

Assembling and Putting into Operation of WWTP TOPLOS

WWTP TOPLOS presents single self-supporting container with casing made of hard plastic material: polypropylene. Durability of the casing is achieved due to special sheet polypropylene. The usage of this material makes wall concreting not necessary and also reduces costs of installation.

Installation works and earthworks should be performed in accordance with Set of Rules SP 129.13330.2011 External Networks and Structures of Water Supply and Sewer Systems.

WWTP TOPLOS is installed into ready-made pit (according to the assembly diagram of purchased WWTP).

Stiffening plates on WWTP outer wall make additional resistance to avoid re-surfacing.

Foundation pit shall be filled with sand with simultaneous filling the WWPT with water to guarantee equal outside and inside pressures.

ATTENTION!

In case of WWTP TOPLOS 30 – TOPLOS 150 it is necessary to prepare reinforced concrete base with a sand cushion of 50 – 100 mm atop. Installation of WWTP should be performed in accordance with attached diagram. The foundation pit should be filled with sand while the aerotank chamber of the secondary sedimentation chamber should be filled with water to the level of purified water outlet. Sludge stabilizer should be filled with water to the height of 1400 mm from the bottom of WWTP. Then WWTP can be put into operation.

Installation of WWTP TOPLOS includes the following stages:
1. Prepare the pit according to the assembly diagram and place wooden form work for your WWTP model.

2. Make even sand cushion 150 mm minimum.

3. Lay inlet/outlet pipeline supply main to WWTP entry point in accordance with building regulations.

4. Connect electric cables to compressor compartment of WWTP. When choosing electric cable and circuit breaker use Table 1. Electric cable should be connected according to Annex 3.

5. Ensure necessary volume of pure water directly at WWTP installation site to fill the plant with water.

Table 1

No.	Name	
1	WWTP TOPLOS 4 – TOPLOS 40 (individual circuit breaker)	10 A
2	WWTP TOPLOS 50 – TOPLOS 150 (individual circuit breaker)	16 A
3	Recommended cable for length up to 30 m	VBbSHvng 4 x 1.5 kV
4	Recommended cable for length from 30 m to 80 m	VBbSHvng 4 x 2.5 kV
5	Recommended cable for length exceeding 80 m	VBbSHvng 4 x 4 kV

6. Lower WWTP onto the foundation and further level it horizontally and vertically (maximum deviation is 5 mm).

7. Fill the pit with sand at all external sides of WWTP for the height of 300 – 400 mm (GOST 8736-2014).

8. At the same time fill WWTP with water to the same level.

9. Evenly fill the pit with sand at all sides and simultaneously fill WWTP with water for the height of 1000 mm from WWTP bottom.

10. Make inlet opening:

a) Mark the outline of the inlet pipeline within planned area in accordance with assembly diagram;

b) Make opening for the inlet pipeline;

c) Install attached branch pipe and weld it along the contour using welding rod;

d) Connect the inlet pipeline through connecting or compensating coupling.

11. Lay purified water pipeline to purified water discharge point.

12. In case of gravity WWTP connect the outlet pipe to the purified water pipeline.
In case of forced WWTP make opening Ø25 or Ø32 (depending on WWTP model) at any side of the casing in accordance with planned direction of the outlet pipeline. Insert attached branch pipe and weld it along the contour using welding rod. Install the pump into the reservoir for purified water and assemble outlet pipeline in accordance with the attached diagram. Connect the pump in accordance with Annex No. 4.

13. Install compressors into the WWTP and connect power supply in accordance with Annex No. 4.

14. Fill the pit with sand to the ground level.

When assembling WWTP, fill aerotank chamber, secondary sedimentation chamber and activated sludge stabilizer with pure water to the level of the purified water outlet; fill inlet chamber with pure water to lower level of the inlet pipeline. Check wiring of compressor equipment and pumping equipment (if provided in the WWTP model). Turn on power supply. Turn toggle-switch into ON position. The WWTP is ready for operation.

Regular mode of operation is reached within 30 days of continuous operation with nominal number of the users. After regular mode of operation has been reached, the WWTP should produce visually pure and flavorless purified water.

During activated sludge formation (first 14 to 30 days), foaming is significant. This phenomenon is primarily caused by synthetic surfactants used in the household (common washing and cleaning products). The foam gradually vanishes as sludge concentration in the aerotank increases.

It is recommended to reduce the usage of chemical compounds in first 14-30 days of WWTP operation.

Reaching regular mode of operation can be detected by sampling activation mixture from the aerotank chamber (in the mode of aeration). The samples shall be placed in a glass cylinder of approximately 1 liter. Allow the activation mixture to settle for 30 minutes. Within this period activated sludge shall sediment onto the bottom with a layer of clear water above. The boundary between the purified water and the sludge shall be clearly visible. The sludge shall occupy approximately 20% of the volume while the purified water shall occupy approximately the rest 80%. Thus, the WWTP has been put into operation and now features resistance to synthetic surfactants used in the household including detergents. If amount of the sludge is less than that specified, the process of reaching operation mode is not completed yet or the WWTP is not loaded enough with domestic wastewater.

Connection of WWTP to Sewage Network

Inlet sewage pipeline shall be laid on the sand cushion with a slope of 0.02 (2 centimeters per 1 meter) towards the plant.

When connecting the plant to the sewer network, it is necessary to take into account that WWTP is supplied without the opening for sewer pipeline inlet. The matter is that the opening should be made at different heights depending on the model. After the WWTP has been lowered into the pit with prepared bottom, the opening should be cut out in accordance with attached diagram. The opening for inlet pipeline should be cut out in the wall of the inlet chamber in accordance as indicated in the assembly diagram. To ensure sufficient accumulative volume (for volley of sewage) and to avoiding backwater effect in the inlet pipeline and also for optimal operation of the WWTP it is necessary to install the inlet pipeline 1500 mm above the bottom minimum.

The opening in the wall should be cut out exactly along the contour of the sewer pipeline and should be welded along the contour using welding rod.

The following conditions should be observed:
- The inlet pipe should enter the inlet chamber;
- The dimensions of the opening to be cut depend on the WWTP TOPLOS model;
- The inlet pipeline should be made from pipes intended for external sewer system of diameter 100 mm or 160 mm depending on the building sewer outlet.

Installation of Light Alarm

Indoors.

It is permissible to install light alarm in any other place according to normative regulations and documents.

On WWTP TOPLOS top cover.
1. Opening with the dimensions of 0.8-10 mm, situated below light indicator, is made in the top cover of the WWTP TOPLOS.
2. Waterproof lamp is installed on the top cover of the WWTP TOPLOS.
3. Waterproof lamp is connected to power supply via epy junction box. *

* Cable length shall not prevent the top cover from being opened

Maintenance of WWTP TOPLOS

WWTP operation is fully automatic and does not require any daily service. It is only necessary to perform periodic visual monitoring of WWTP operation through open top cover.

Once a week:
- Visual monitoring of WWTP “TOPLOS” service.

Once in 3 to 4 months:
- Removal of excessive activated sludge from activated sludge stabilizer (chamber C).

In order to find out if the operation is required, it is necessary to take a sample of the activated sludge. The sample shall be placed in a glass cylinder of approximately 1 liter. Allow the activation mixture to settle for 30 minutes. Within this period activated sludge shall sediment onto the bottom with a layer of clear water above. If the volume of the activated sludge exceeds 50% of the entire volume it is necessary to pump out of the excessive sludge as follows:

- In case of WWTP TOPLOS 4 – WWTP TOPLOS 20 using integrated pump for pumping out the sludge. *Switch off the WWTP TOPLOS using switch in the compressor compartment. Then loosen the clamp, remove the plug from the hose of the air-lift pump, and switch on the WWTP TOPLOS. The pump will start pumping out only when float sensor in the inlet chamber is in upper position (i.e. if water level in the inlet chamber is not high enough it is necessary to lift a bit the float sensor). Pump out 50% of liquid of entire volume of the stabilizer (chamber C). This is approximately 90 to 110 cm from the upper part of the partition between chamber A and C). Fill chamber C with pure water to initial liquid level.*
- In case of WWTP TOPLOS 4 – WWTP TOPLOS 20 using submersible sewage pump (to be purchased by the customer separately). *Carefully, avoiding any shocks and blows to the casing, immerse sewage pump onto the bottom of the stabilizer (chamber C). Pump out 50% of liquid of entire volume of the stabilizer (chamber C). This is approximately 90 to 110 cm from the upper part of the partition between chamber A and C). Fill chamber C with pure water to initial liquid level.*
- In case of WWTP TOPLOS 30 and higher models using submersible sewage pump (to be purchased by the customer separately)*. Carefully immerse sewage pump onto the bottom of the stabilizer (chamber C), avoiding any shocks and blows to the casing and taking into account the location of the aerator (aerator is situated between chambers A and C). Pump out 50% of liquid of entire volume of the stabilizer (chamber C). This is approximately 90 to 110 cm from the upper part of the partition between chamber A and C). Fill chamber C with pure water to initial liquid level.*
- In case of WWTP TOPLOS 150 (to be purchased by the customer separately)*. Immerse sewage pump onto the distribution chamber, avoiding any shocks and blows to the casing and taking into account the location of the inserted-joint pipes. Pump out the liquid, rinse the chamber, remove bottom sediments. Fill the chamber to the level of outlet pipes.*

- Cleaning of air-lift pumps and coarse-mesh filter in the inlet chamber (chamber A).
  Unclip the air-lift pump and the coarse-mesh filter in the inlet chamber (chamber A) from their supports. Disconnect Ø4 mm hoses of the air lines from the airlift pump adapter and the coarse-mesh filter. Remove the air-lift pump and the coarse-mesh filter and wash them with pressured water. Install the air-lift pump and the coarse-mesh in reverse sequence.
- Cleaning and flushing of WWTP "TOPLOS".
  Remove large insoluble matters from WWTP chambers using a scoop-net or a sieve. Wash off sludge coat from the WWTP chamber walls, the hoses of aerating system and air lines.
- Cleaning of the jets of the 1st and 2nd cycles.
  Disconnect Ø4 mm hose of air lines from air distributor jets (of the 1st and 2nd cycle). Clean internal openings from clogs, mud and deposits using mechanical or pneumatic method. Connect the air lines to the air distributor in reverse sequence.
- Cleaning of air filter of the compressor
  See Operational and Maintenance Manual AIR COMPRESSOR.

Once in 6 to 8 months:

- In order to extend service life of the compressors it is recommended to interchange them together with re-connection to power supply in accordance with Compressor Equipment and Electrical Systems Connection Manual.

Once a year:

- Cleaning of the bottom part of the inlet chamber (chamber A) from mineralized sediments.*
  *Cleaning is performed in several steps. Carefully immerse the sewer pump onto the bottom of chamber A, avoiding any shocks and blowers to the WWTP casing and aerator situated on the bottom of WWTP casing. Pump out 40% of liquid maximum from the entire chamber volume. Fill chamber A with pure water to the initial liquid level in chamber A. Perform those activities until complete liquid clarification is reached**. (Attention: Completely empty WWTP TOPLOS can be deformed or it may re-surface in presence of ground water).***

Once in 2 years:

- Compressor diaphragm replacement.
  See Operational and Maintenance Manual AIR COMPRESSOR.

Once in 3 years:

- Cleaning of the bottom part of the aerotank chamber (chamber B) from mineralized sediments.*

---

* In in order to avoid damages to WWTP and/or its components it is recommended to address an authorized service center to perform this procedure.

Cleaning is performed in several steps. Carefully immerse the sewer pump onto the bottom of chamber B, avoiding any shocks and blowers to the WWTP casing and aerator situated on the bottom of WWTP casing. Pump out 40% of liquid maximum from the entire chamber volume. Fill chamber A with pure water to the initial liquid level in chamber A. Perform those activities until complete liquid clarification is reached. ***(Attention: Completely empty WWTP TOPLOS can be deformed or it may re-surface in presence of ground water).***

Once in 10 years:
• Replacement of aeration elements in the aerators
This procedure is performed by an authorized service center.

Assessment of WWTP TOPLOS Operation Efficiency

If WWTP functions normally, treated water in the outlet is visually pure, without strong or offensive odor.
If treated water is muddy, the possible reasons are as follows:
• When putting the WWTP into operation the sufficient amount of sludge was not formed. It is permissible until the plant reaches its regular mode of operation.
• pH decreases, temperature drops or chemical pollution. For instance: in case of intensive linen wash with large amounts of washing agents, including chlorine bleachers, or in case of wastewaters from dishwasher. This is a self-rectifying problem; the problem will be solved automatically within short period of time.
• Large WWTP overload with contaminants or exceeding volley of sewage or shortage of oxygen which can be caused by seal failure of the air distribution system or by failure of the compressor equipment.

Sampling of biologically purified water should be done at the WWTP outlet.

Operation of WWTP TOPLOS

WWTP ensures purification of domestic wastewater all the year round.

WWTP TOPLOS is equipped with heat-insulated top cover. If ambient outside temperature does not drop below - 20°C and inlet flow of wastewater amounts to at least 20% of daily capacity, WWTP does not require any special winter preventive measures. In case the temperature drops sharply or in case of long-term severe frosts, it is recommended to ensure additional heat insulation of the top part of WWTP TOPLOS.*

*. When making heat insulation of the top part of WWTP TOPLOS it is essential to ensure air inflow through ventilation air intake. It is strictly forbidden to use open fire, to smoke in the vicinity of WWTP TOPLOS.

In case ambient outside temperature drops below -15 % it is not recommended to open WWTP unless you have to.

For normal operation of the WWTP the temperature of wastewater in the inlet chamber should be above +10°C.

The volume of wastewater flowing into the WWTP should correspond to capacity of the WWTP.

WWTP designed to perform treatment of uneven wastewater flow within the day.

Information, concerning WWTP preservation should be reflected in the service book.

Preservations (depreservation) operations, during WWTP seasonal operation, should be conducted in accordance with this document.

Manufacturer does not bear any responsibility for improper preservation of the WWTP performed by the customer.

Preservation of WWTP TOPLOS

ATTENTION!
It is prohibited to pump off liquid simultaneously from all WWTP chambers as it may result in its deformation or re-surfacing in presence of ground water.

Preservation for winter or long-term period should include the following procedures:
1. Switch off power supply;
2. Remove the compressors from the compressor compartment;
3. In turn (one chamber at a time) perform clarification of the liquids in all chambers of the WWTP. Clarification should be performed as follows: Pump out 40% of liquid maximum from the entire chamber volume and fill the chamber with pure water. Perform those activities until complete liquid clarification is reached. The sequence of the clarification is as follows: the sludge sedimentation chamber (stabilizer) → the aerotank chamber → the inlet chamber. The level of pure water should be as follows: in the aerotank chamber: 350 mm from the upper edge of the partition between the chambers; in the inlet chamber: 100 mm from the lower edge of the inlet pipeline yet not less than 100 mm from the bottom of accumulation reservoir (in WWTP with forced discharge of purified water); in the sludge sedimentation chamber (stabilizer): 150 mm from the upper edge of the partition between the chambers.
4. Rinse the WWTP;
5. Cleaning/unclogging air-lift pumps.
6. In case of forced WWTP perform sealing of purified water outlet (using clamp and plug of the pump for pumping out the sludge).
7. Perform heat insulation of the WWTP top cover in winter period.

Depreservation of WWTP TOPLOS

To perform depreservation it is necessary to perform the following procedures:
ATTENTION!
It is recommended to connect WWTP to power supply only on completing operations stipulated by Paragraph 2 in the list of the procedures to be performed for depreservation.

1. Visual inspection of the WWTP top cover for integrity and visible damages;
2. Make sure that the level of liquids in the chambers of the WWTP correspond to those ensured during preservation (see section Preservation of WWTP TOPLOS);
3. In case the treated water is discharged into a drainage well or into a cesspit check the levels of liquids in drainage wells. If the well is equipped with the pump, connect the pump to power supply;
4. Fill the chambers of the WWTP with pure water to the operation levels (when necessary).
5. Check the condition of the compressor filters.
6. Check operability of equipment to be installed.
7. Install compressor equipment in accordance with compressor equipment and electric systems connection instructions (see Compressor Equipment and Auxiliary Equipment Connection Manual).
8. In case of WWTP with drainage pump for forced discharge of treated water install pump equipment (see Pump connection diagram).
9. Check operability of float switches by means of switching WWTP cycles.
10. Check operability of alarm system (if available).
11. Check operability of air-lifts, aerators and air lines.
12. Check operability of the WWTP outlet pipeline.

In case of any problems with WWTP units see Troubleshooting Diagram (Annex No.2).

For further information, please, address the Seller or directly TOPOL-Eco Service Ltd. Tel.: 8 (495) 789 69 37; 8 (495) 789 84 37; 8 (495) 795 88 10; 8 (800) 333 69 37.

Telephone numbers of Customer Service can be found on website of the manufacturer www.topol-eco.ru. Please, have ready this Technical Certificate and individual number of WWTP.

Requirements to Electric Power Supply

WWTP TOPLOS can be connected to electric power supply only through switch-board with individual circuit breaker (see table No.1). It is prohibited to connect WWTP to wall outlet or connect it together with other electric power consumers.

WWTP TOPLOS can be operated with power supply voltage deviations within ±5%; short time variations (power surge) within ±10% are also permissible. Power outage for up to 4 hours does not affect the plant operation. However, longer power outages can cause anaerobic processes and may lead overflow of the system.

In case of power outage, it is necessary to stop water consumption as the inlet chamber of the WWTP may get overfilled and untreated waste can penetrate into the environment.

WWTP TOPLOS can be connected to an uninterrupted power supply (UPS). Operating voltage for WWTP is AC 220 V ± 5%.

Sanitary and Hygienic Requirements

WWTP TOPLOS may be installed in the vicinity of residential buildingы. Environmental air is delivered into WWTP interior space. Inner space is ventilated through inlet sewer pipeline. WWTP TOPLOS does not emit any smells as the operation of the plant is mostly based on aerobic processes. During operation WWTP produces minimum noise. Noise level of air pump located under heat-insulated top cover amounts to 37 dB maximum.

Network ventilation should be provided through vent stacks connected to the pipelines in their highest points in accordance with Set of Rules SP 30.13330.2012.

Service Life of WWTP TOPLOS

WWTP is made of polypropylene with service life amounting to 50 years minimum. Service life of aeration element amounts to 10 years.

Recycling

Polypropylene presents material which is not harmful for the environment. Neither processing the material nor its waste disposal produces ecologically harmful products. Moreover, polypropylene is suitable for recycling without adding any ecologically harmful products. Polypropylene products are grinded for recycling to produce granules which can be further used to manufacture polymeric materials and also can be used in other applications. Secondary polypropylene actually features the same physical and chemical properties as primary polypropylene and so is safe for human health.

Warranty Certificate

Attention! ***Please, make sure that the Seller who sold the product to you has accurately filled out the manufacturer warranty card with all serial numbers specified.***

Warranty is issued by the Seller and the Manufacturer in accordance with the current legislation of the Russian Federation.

The warranty period for WWTP amounts to 36 months and is calculated from the date of putting the plant into operation (in case the Technical Certificate does not contain any records on putting the plant into operation, installation or supervision, the warranty period shall be calculated from the date of sale yet cannot be longer than 48 months from the date of purchase from the Manufacturer) and shall be valid on the condition that WWTP TOPLOS has been purchased from the Manufacturer or from his authorized seller in strict adherence to the Technical Certificate.

Note: warranty period for compressors, pumps and other electrical equipment machinery is given by the equipment manufacturers and amounts to three years. Warranty period for control unit (as long as factory seal remains untouched), float switch is provided by TOPOL-ECO PA LLC and amounts to three years.

ATTENTION!
- Repair and maintenance of WWTP TOPLOS should be performed in accordance with operating rules.
- All WWTP electric equipment should be earthed.
- All faults of WWTP TOPLOS should be rectified with disconnected power supply only.
- Installation and operation of WWTP TOPLOS should be performed by persons who duly studied safety measures, WWTP TOPLOS Installation Manual, and taught to use safety methods of operation.
- Repair and maintenance of WWTP TOPLOS should be performed by specialists of service department or specially trained persons.
- When operation WWTP it is essential to avoid shocks, blows and mechanical impacts on WWPT.
- It is prohibited to use not original compressors, power supplies or detectors.
- When assembling WWTP TOPLOS it is necessary to follow annexes and assembly diagram, attached to your WWTP. It is required to redefine ground level considering possible landscape activities prior to earth excavation.
- It is prohibited to leave WWTP unattended with opened top cover.
- It is prohibited to let children or domestic animals to WWTP.

Warranty Terms and Conditions

• Warranty covers all defects caused by the manufacturer
• Warranty does not cover defects, caused by the customer and resulting from incorrect plant installation or operation.
• Any claims, after WWTP TOPLOS has been put into operation introduction, shall be accepted via by contractors who performed installation, supervised installation works, trading organizations or directly from WWTP users.
• When filing claim the following documents should be obligatory produced: product Technical Certificate, duly filled in warranty card indicating type, dimensions, date of sale, seller's stamp, signature of the seller or person in charge.
• It is prohibited to connect, disconnect or rearrange connectors inside WWTP TOPLOS, perform any other operations by the persons without proper skills in WWTP TOPLOS repairs and maintenance.
• During WWTP operation it is necessary to perform scheduled works in accordance with the manufacturer's recommendations.

ATTENTION!
Any design changes performed not by the manufacturer or performed without his prior consent in written may cause problems in further operation of purchased WWTP TOPLOS and may lead to warranty cancellation.

In order to avoid any faults in WWTP TOPLOS operation and sewerage system functioning **IT IS PROHIBITED TO FLUSH THE FOLLOWIN ITEMS INTO SEWER SYSTEM**:

- Mineral and organic matters that may clog WWTP inner parts, pipelines, sewage wells or make deposits on the walls. These matters include: calx, chalk, sand, alabaster, metal shavings, soil, construction waste, solid domestic waste (polymer films, plastic bags, condoms, sickness bags, cigarettes filters, films from packs of cigarettes, pets' hair, etc.) and so on.
- Kitchen solid waste (food remnants, peels from fruits, vegetables and mushrooms, food remnants for pets, etc.) in amounts which can significantly increase organic load for the activated sludge and cause decay processes with formation of toxic gases with offensive odors (methane, hydrogen sulphide, ammonia, etc.).
- Biologically hardly oxidizable chemical substances in concentrations which can impede wastewater purification, including: antibacterial agents, chlorine-containing disinfecting household chemicals ("persol", "belyzna", chlorine bleaches, etc.)
- Drainage sewage and surface waters (rain and meltwater). For this kind of sewage special sewer system should be provided.

- Wash water from the regeneration of drinking water purification systems and wash water from swimming pools filters. This kind of wastewater should be discharged into individual pressure sewage system (it is recommended to use rainwater drainage system or discharge wastewater into the ground through a filtering well or a drainage ditch).
- Chemically hazardous, explosive, toxic and flammable chemical substances, including: engine oils, resins, fuel oils, antifreezes, acids, alkali, pure alcohol, organic solvents (gasoline, kerosene, diethyl alcohol, dichloromethane, benzenes, carbon tetrachloride, etc.) and so on.
- Wastewater containing microorganisms which cause infectious diseases.
- The substances for which Maximum Allowable Concentrations (MAC) are not determined in waters of water objects and (or) the substances which cannot be filtered in the process of water treatment in the WWTP.

The warranty does not cover any faults or defects caused by violation of these clauses or caused by the fire or other acts of nature!

IT IS ALLOWED:

- To flush into sewer system toilet paper (cellulose and paper one);
- To flush into sewer system wastewater from washing machines providing household washing detergents are used.
- To flush into sewer system kitchen wastewater;
- To flush into sewer system small amounts of domestic cleaning products for toilets, ceramic sanitary ware and kitchen equipment.

ATTENTION!

- In case of power outage, it is necessary to stop water consumption as the inlet chamber of the WWTP may get overfilled and untreated waste can penetrate into the environment;
- Using a large amount of cleaners containing chloride or other antiseptics may lead to dying out of the activated sludge and, consequently, to Loss of efficiency of the WWTP;
- Untimely pumping out of excessive sludge leads to sludge thickening and, consequently, to WWTP malfunction.

WARRANTY CARD

for Wastewater treatment plant (WWTP) of TOPLOS model line
MANUFACTURED BY PO TOPOL-ECO Ltd.
10 Bibirevskaya St., Bldg. 1, 127549 Moscow, Russia (office)

! Please, request warranty card filled upon purchase of WWTP!

WWTP name (model, configuration) TOPLOS-_____
Serial No. _____ Date of sale _____
Month and year of production _____

Equipment type	Model	Serial No.
Compressor		
Compressor		
Compressor		
Compressor		
Compressor		
Compressor		
Pump		
Pump		

TOPOL-ECO PA Ltd. assures the Customer, that sold WWTP TOPLOS was manufactured according to approved technology and was duly accepted by Quality Control Department and is suitable for operation.

TOPOL-ECO PA Ltd.

I have read warranty policy and operating rules

_____

place stamp here

TRADE ORGANIZATION NAME, ADDRESS, TELEPHONE
(filled by the Salesman)

Seller _____

Customer _____

WWTP name (model, configuration) _____

Serial No. _____

Date of sale _____

place stamp here

TRADE ORGANIZATION NAME, ADDRESS, TELEPHONE
(filled by the Salesman)

Seller _____

Customer _____

WWTP name (model, configuration) _____

Serial No. _____

Date of sale _____

place stamp here

TRADE ORGANIZATION NAME, ADDRESS, TELEPHONE
(filled by the Salesman)

Seller _____

Customer _____

WWTP name (model, configuration) _____

Serial No. _____

Date of sale _____

place stamp here

Service Book
Notes on Services Performed, Equipment Changed
(filled out by service organization)

Type of equipment	Model	Serial No.|	Date of Replacement	Note of Service Center	Signature of Employee of Service Center

place stamp here

Information concerning assembly (supervised installation) and commissioning

Assembly (supervised installation) performed by (underline as appropriate)

Organization
(which performed assembly/supervised installation) _____

Date of assembly/supervised installation_____

The Customer _____
Full name

Plant site address_____ (service center stamp)

Putting into operation

Date of commissioning _____

Service center employee _____

Service center name _____ (service facility stamp)

REGISTERED SEATS OF SERVICE FACILITIES
TOPOL-ECO Service Ltd.
10 Bibirevskaya St., Bldg. 1, 127549 Moscow, Russia. Tel.: (495) 789-69-37, 789-84-37, e-mail: info@topol-eco.ru
Emergency service department: tel.: (495) 795-88- 10; 8-800-333-69-37.
Branches:
TOPOL-ECO Service Ltd. in St. Petersburg. 271 Obukhovskoi Oborony Ave., let. "A", room 231, 192012 St. Petersburg, Russia. Tel: (812) 970-20-62
TOPOL-ECO Service Ltd. in in Rostov-on-Don. 34 Chekhov Ave., 344006 Rostov-on-Don, Russia. Tel .: (863) 263-41-45, 263-41-37
TOPOL-ECO Service Ltd. in Samara. 60 Vodnikov St., room 814, 443099 Samara, Russia, Tel.: (846) 273-33-41, 273-33-42
TOPOL-ECO Service Ltd. in Yekaterinburg. 35 Vishnevaya St., room 512, 620078 Yekaterinburg, Russia. Tel.: (343) 379-21-96, 379-21-97
TOPOL-ECO Service Ltd. in Novosibirsk. 4 Oktyabrskaya magistral St., room 211, 630007 Novosibirsk region, Novosibirsk, Russia. Tel.: (383) 230-51-80, 230-51-08
TOPOL-ECO Service Ltd. in Khabarovsk. 41 Vostochnoe shosse, room 206, 680014, Khabarovsk region, Khabarovsk, Russia. Tel: (4212) 400-290, 400-291

Annex No. 1 (Main Parameters and Characteristics)

All specifications are subjected to change by the manufacturer without prior notice

WWTP model	Number of equivalent users	Volley of sewage (l)	Capacity (m^3/day)	Power consumption (kW/day)	Weight (kg)	Dimensions (m)		
						length	width	height
TOPLOS 4	4	175	0.8	1.5	215.00	0.95	0.97	2.50
TOPLOS 4 Pr	4	175	0.8	1.6	225.00	0.88	0.97	2.60
TOPLOS 5	5	220	1.00	1.5	280.00	1.15	1.17	2.50
TOPLOS 5 Pr	5	220	1.00	1.6	295.00	1.08	1.17	2.60
TOPLOS 5 Long	5	220	1.00	1.5	340.00	1.18	1.00	3.10
TOPLOS 5 Long Pr	5	220	1.00	1.6	350.00	1.16	1.00	3.10
TOPLOS 6	6	250	1.15	1.5	280.00	1.15	1.17	2.55
TOPLOS 6 Pr	6	250	1.15	1.6	295.00	1.08	1.17	2.60
TOPLOS 6 Long	6	250	1.15	1.5	345.00	1.18	1.00	3.10
TOPLOS 6 Long Pr	6	250	1.15	1.6	355.00	1.16	1.00	3.10
TOPLOS 8	8	440	1.5	1.5	350.00	1.63	1.17	2.50
TOPLOS 8 Pr	8	440	1.5	1.6	365.00	1.56	1.17	2.60
TOPLOS 8 Long	8	440	1.5	1.5	425.00	1.52	1.16	3.10
TOPLOS 8 Long Pr	8	440	1.5	1.6	435.00	1.50	1.16	3.10
TOPLOS 8 Long Us	8	440	1.5	1.5	490.00	1.69	1.36	3.10
TOPLOS 8 Long Pr Us	8	440	1.5	1.6	495.00	1.66	1.36	3.10
TOPLOS 9	9	510	1.7	1.5	355.00	1.63	1.17	2.55
TOPLOS 9 Pr	9	510	1.7	1.6	370.00	1.56	1.17	2.60
TOPLOS 9 Long	9	510	1.7	1.5	420.00	1.52	1.16	3.10
TOPLOS 9 Long Pr	9	510	1.7	1.6	430.00	1.50	1.16	3.10
TOPLOS 9 Long Us	9	510	1.7	1.5	460.00	1.69	1.36	3.10
TOPLOS 9 Long Pr Us	9	510	1.7	1.6	470.00	1.66	1.36	3.10
TOPLOS 10	10	760	2.0	2.0	485.00	2.10	1.18	2.50
TOPLOS 10 Pr	10	760	2.0	2.1	505.00	2.03	1.18	2.60
TOPLOS 10 Long	10	760	2.0	2.0	555.00	2.02	1.16	3.10
TOPLOS 10 Long Pr	10	760	2.0	2.1	565.00	2.00	1.16	3.10
TOPLOS 10 Long Us	10	760	2.0	2.0	595.00	2.11	1.36	3.10
TOPLOS 10 Long Pr Us	10	760	2.0	2.1	605.00	2.00	1.36	3.10
TOPLOS 12	12	830	2.2	2.0	490.00	2.10	1.18	2.55
TOPLOS 12 Pr	12	830	2.2	2.1	505.00	2.03	1.18	2.60
TOPLOS 12 Long	12	830	2.2	2.0	560.00	2.02	1.16	3.10
TOPLOS 12 Long Pr	12	830	2.2	2.1	570.00	2.00	1.16	3.10
TOPLOS 12 Long Us	12	830	2.2	2.0	600.00	2.11	1.36	3.10
TOPLOS 12 Long Pr Us	12	830	2.2	2.1	610.00	2.00	1.36	3.10
TOPLOS 15	15	850	3.0	2.9	550.00	2.10	1.18	2.50
TOPLOS 15 Pr	15	850	3.0	3.2	565.00	2.03	1.18	2.60
TOPLOS 15 Long	15	850	3.0	2.9	615.00	2.02	1.16	3.10
TOPLOS 15 Long Pr	15	850	3.0	3.2	625.00	2.00	1.16	3.10
TOPLOS 15 Long Us	15	850	3.0	2.9	655.00	2.11	1.36	3.10
TOPLOS 15 Long Pr Us	15	850	3.0	3.2	665.00	2.00	1.36	3.10
TOPLOS 20	20	1000	4.0	2.9	695.00	2.30	1.70	2.60
TOPLOS 20 Pr	20	1000	4.0	3.2	710.00	2.20	1.70	2.60
TOPLOS 20 Long	20	1000	4.0	2.9	775.00	2.30	1.70	3.00
TOPLOS 20 Long Pr	20	1000	4.0	3.2	785.00	2.20	1.70	3.00
TOPLOS 30	30	1200	6.0	3.6	830.00	2.30	2.20	2.60
TOPLOS 30 Pr	30	1200	6.0	4.1	840.00	2.20	2.20	2.60
TOPLOS 30 Long	30	1200	6.0	3.6	890.00	2.30	2.20	3.00
TOPLOS 30 Long Pr	30	1200	6.0	4.1	895.00	2.20	2.20	3.00
TOPLOS 40	40	1300	7.0	5.8	960.00	2.30	2.20	3.00
TOPLOS 40 Pr	40	1300	7.0	6.3	970.00	2.20	2.20	3.00
TOPLOS 50	50	1500	9.0	7.2	1225.00	3.30	2.20	3.00
TOPLOS 50 Pr	50	1500	9.0	8.0	1235.00	3.20	2.20	3.00
TOPLOS 75	75	2250	12.00	10.8	1605.00	4.30	2.20	3.00
TOPLOS 75 Pr	75	2250	12.00	11.8	1620.00	4.20	2.20	3.00
TOPLOS 100 *	100	3000	16.00	14.4	1970.00	3.30	4.70	3.00
TOPLOS 100 Pr *	100	3000	16.00	15.7	2045.00	3.20	4.70	3.00
TOPLOS 150 ***	150	4500	24.00	21.6	3290.00	4.30	4.60	3.00
TOPLOS 150 Pr ***	150	4500	24.00	23.6	3330.00	4.20	4.60	3.00

Long models possess elongated orifice; Pr models possess built-in pump; Us: reinforced models (reinforced models are used for further plant expanding)

Specified Parameters of the Composition and the Properties of Wastewater Prior to and After Wastewater Treatment Shall Correspond to Those Indicated in the Table.

Parameter Name	Unit	Concentration (max)		
		Prior to Treatment	After Treatment (max)	After Post-Treatment with Bioreactor TOPLOS CYCLON (max)
pH		6-9	6-9	6-9
Suspended matters	mg/l	less than 300	10.0	3.0
BOD5	mg/l	less than 300	4.0	2.0
COD	mg/l	less than 500	30.0	15.0
Ammonium nitrogen	mg/l	25	1.5	0.39
Nitrates	mg/l		45	40
Nitrites	mg/l	-	3.3	0.08
Dissolved oxygen	mg O2/l	-	4	4
Synthetic surfactants	mg/l	20	0.5	0.1
Oil products	mg/l	0.5	0.05	0.05
Phosphates (PO4)	mg/l	5	3.5	0.05 (по P)****

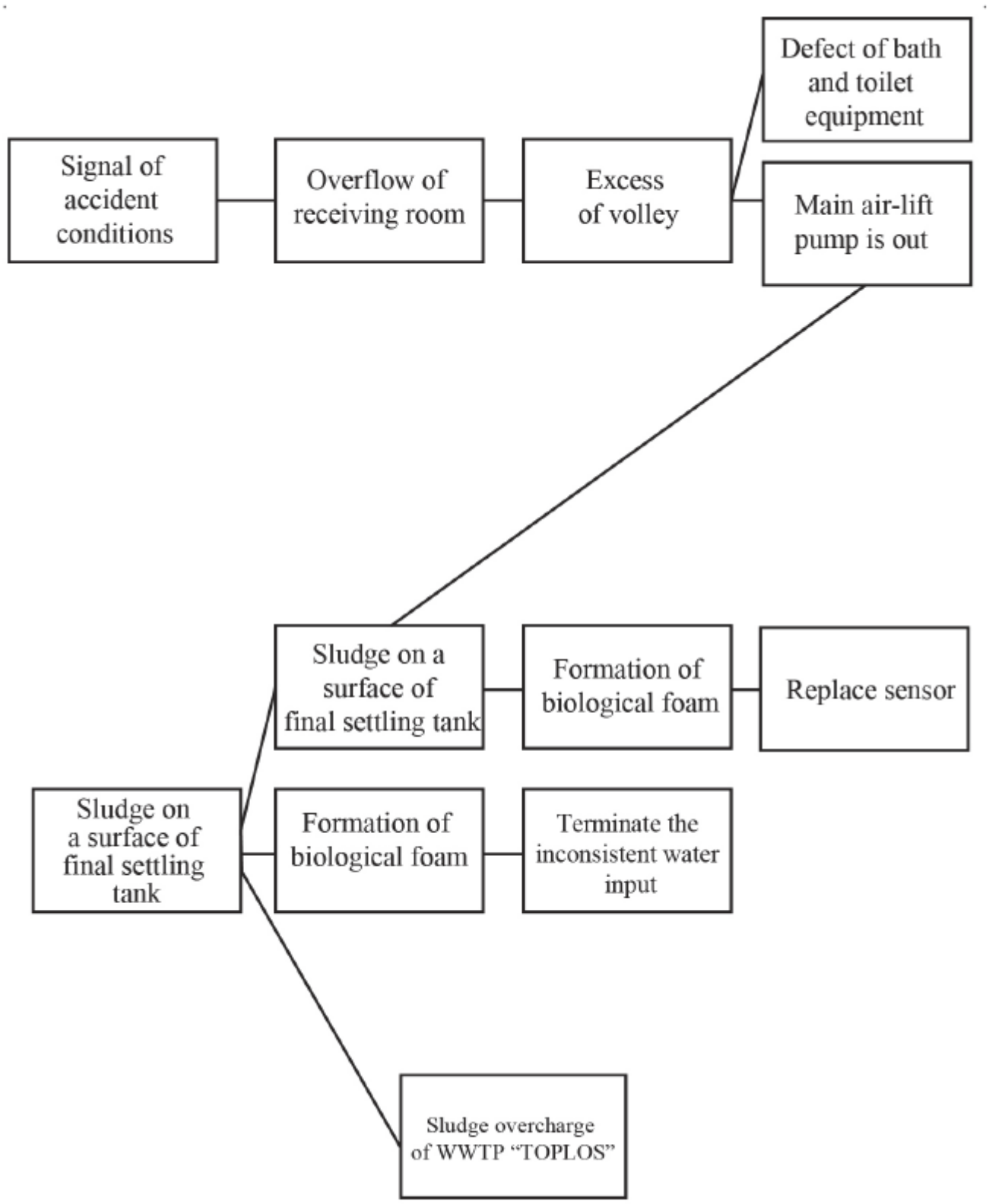
* Max hour consumption

** Double cased WWTP

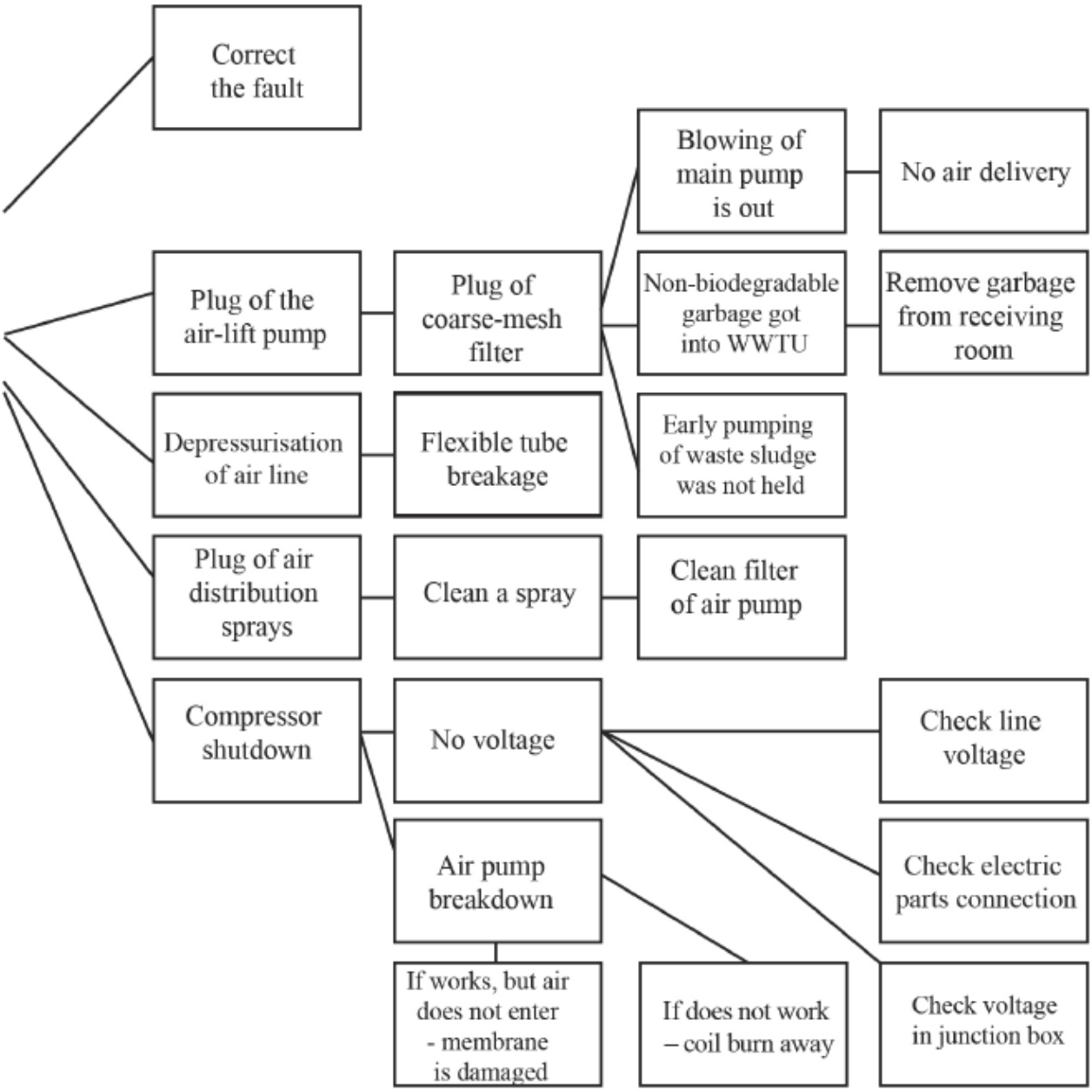
*** Double cased WWTP with distribution reservoir

**** When adding reagent

Annex No.2 (Troubleshooting Diagram)

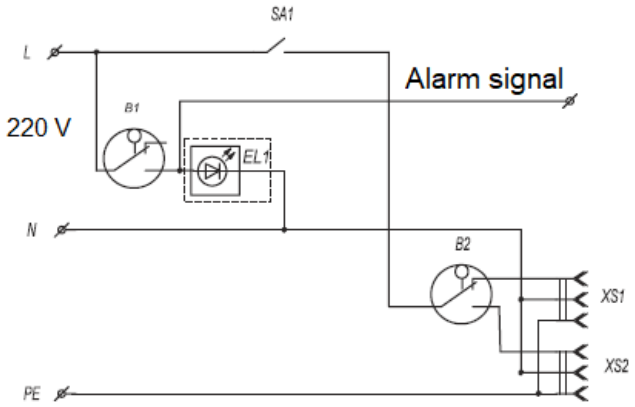


Concerning support service please refer to the Seller or directly to TOPOL-ECO service® LLC
tel: (495) 789-69-37; (495) 789-84-37;
(495) 795-88-10; 8-800-333-69-37.
Telephones of service department are on the producer's website. Carry technical passport and serial number of the purchased WWTP www.topol-eco.ru



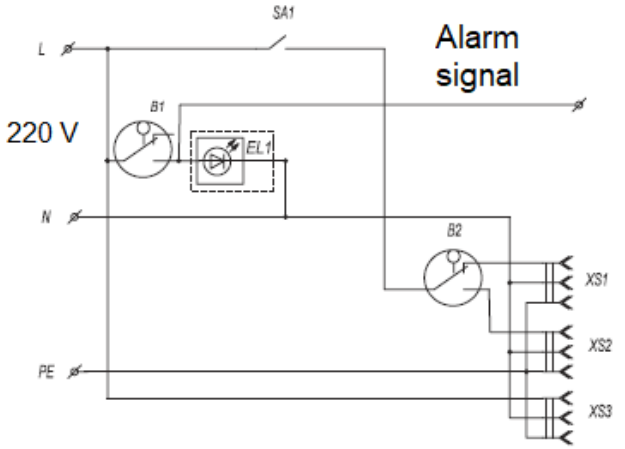
Annex No.3 (Electrical Schematic Diagrams)

TOPLOS 4 – TOPLOS 30 Electrical Schematic Diagram



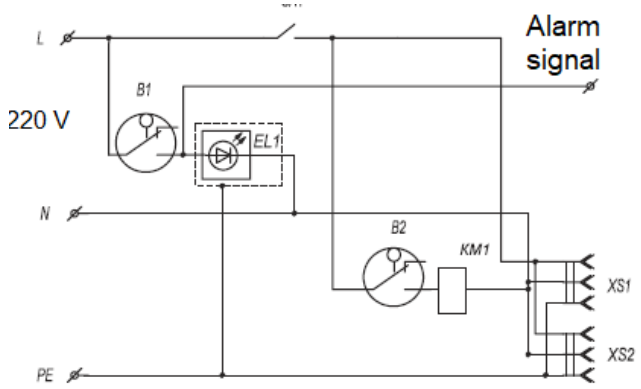
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
SA1	Switch	1	
XS1, XS2	Socket (female connector)	2	

TOPLOS 4 – TOPLOS 30 equipped with forcing pump Electrical Schematic Diagram



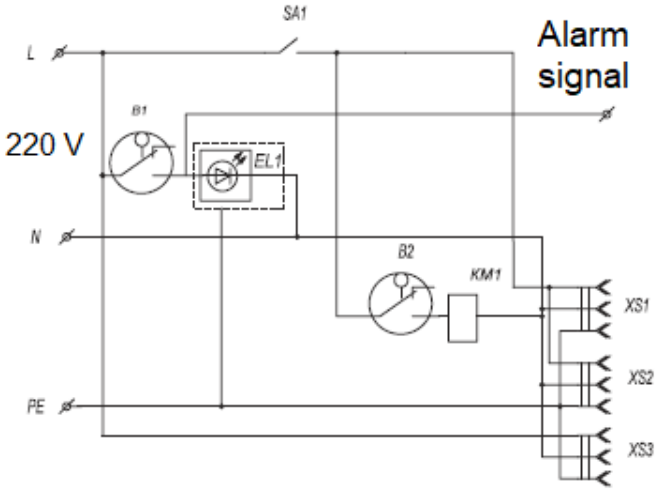
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
SA1	Switch	1	
XS1 – XS3	Socket (female connector)	3	

TOPLOS 40 – TOPLOS 50 Electrical Schematic Diagram



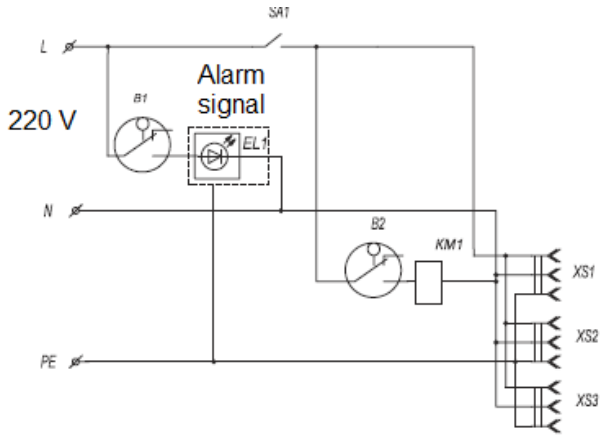
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1, XS2	Socket (female connector)	2	

TOPLOS 40 – TOPLOS 50 equipped with forcing pump Electrical Schematic Diagram



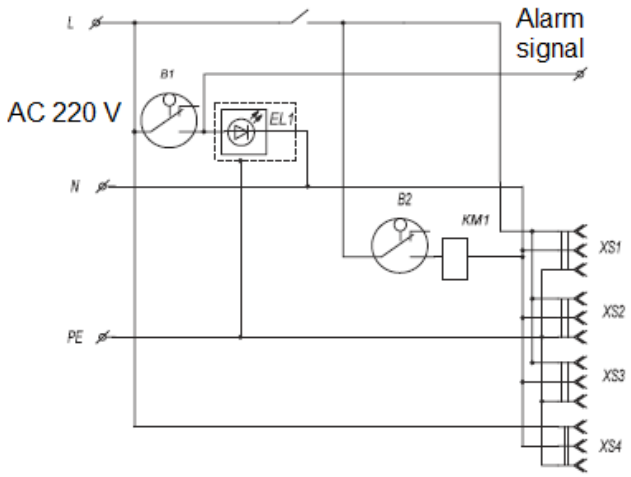
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
SA1	Switch	1	
XS1 – XS3	Socket (female connector)	3	

TOPLOS 75 Electrical Schematic Diagram



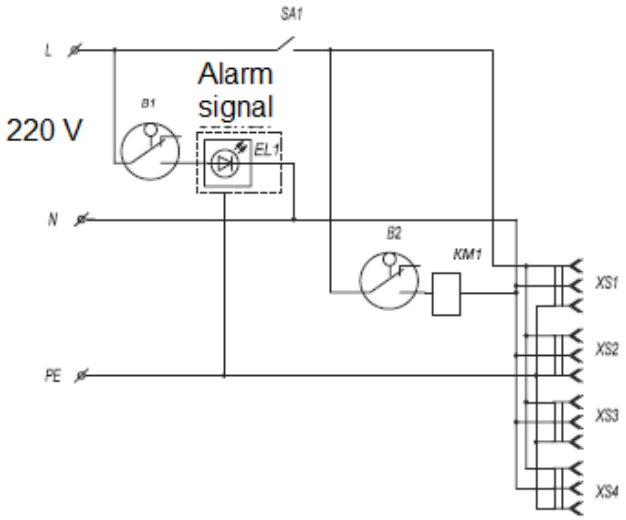
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS3	Socket (female connector)	3	

TOPLOS 75 equipped with forcing pump Electrical Schematic Diagram



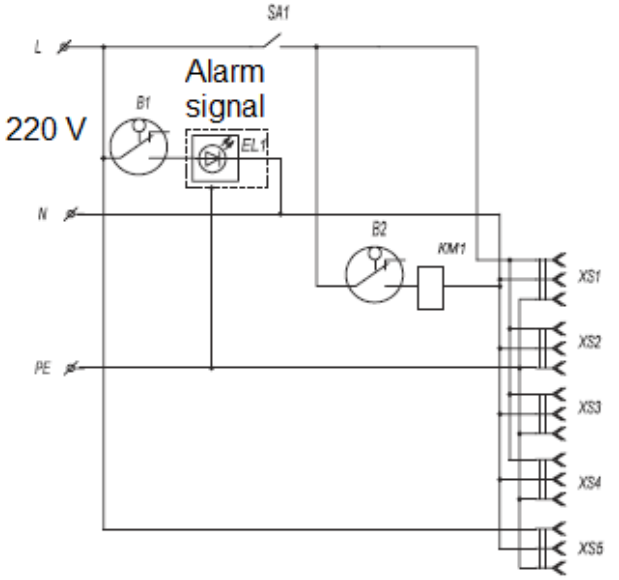
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS4	Socket (female connector)	4	

TOPLOS 100 Electrical Schematic Diagram



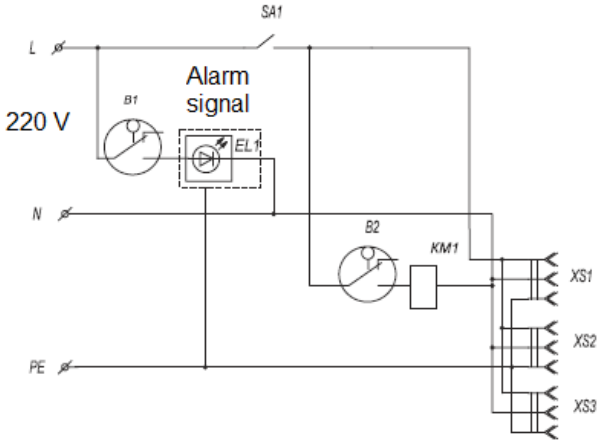
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS4	Socket (female connector)	4	

TOPLOS 100 equipped with forcing pump Electrical Schematic Diagram



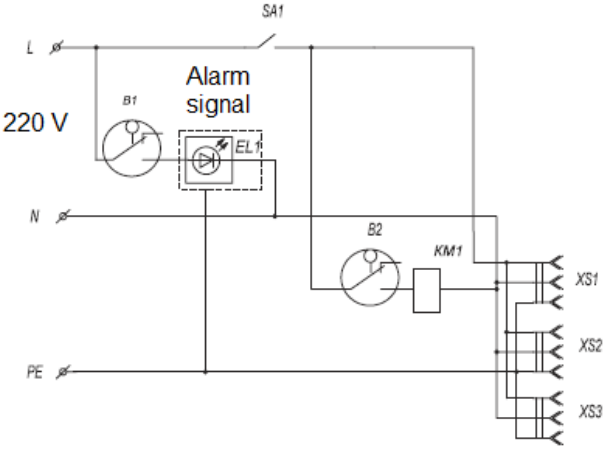
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS5	Socket (female connector)	5	

TOPLOS 150 (compartment 1) Electrical Schematic Diagram



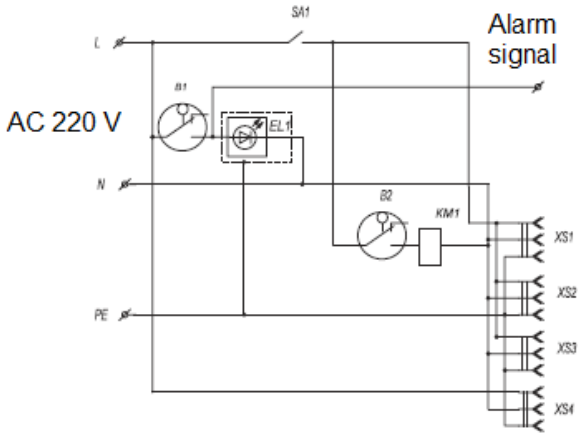
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS3	Socket (female connector)	3	

TOPLOS 150 (compartment 2) Electrical Schematic Diagram



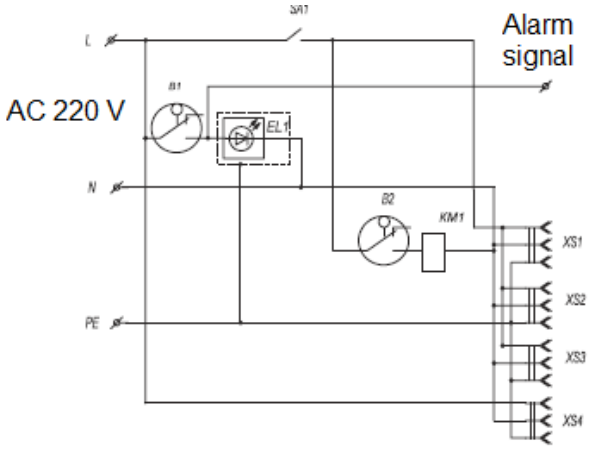
Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS3	Socket (female connector)	4	

TOPLOS 150 (compartment 1) equipped with forcing pump
Electrical Schematic Diagram



Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS4	Socket (female connector)	4	

TOPLOS 150 (compartment 2) equipped with forcing pump
Electrical Schematic Diagram

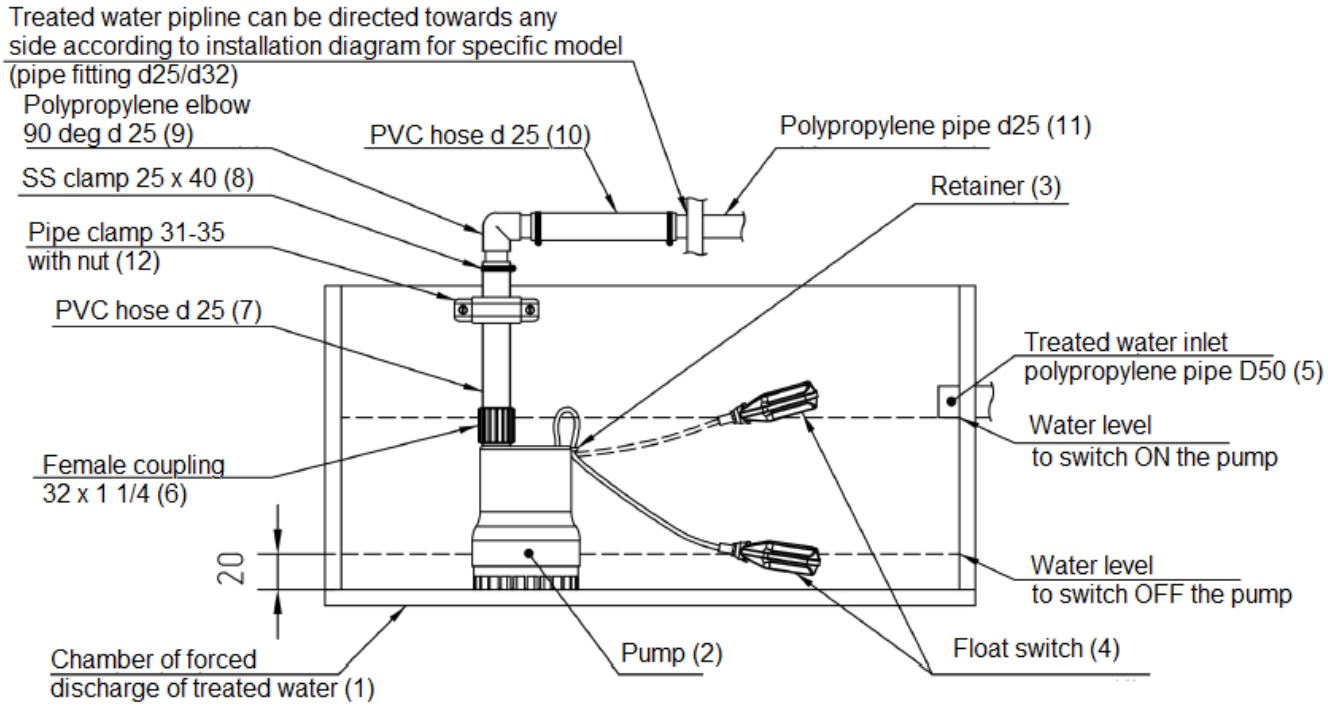


Designation	Name	Q-ty	Note
B1	Alarm sensor	1	
B2	Sensor	1	
EL1	LED lamp	1	
KM1	Solenoid valve	1	
SA1	Switch	1	
XS1 – XS4	Socket (female connector)	4	

Annex No.4 (Pump Connection Diagram)

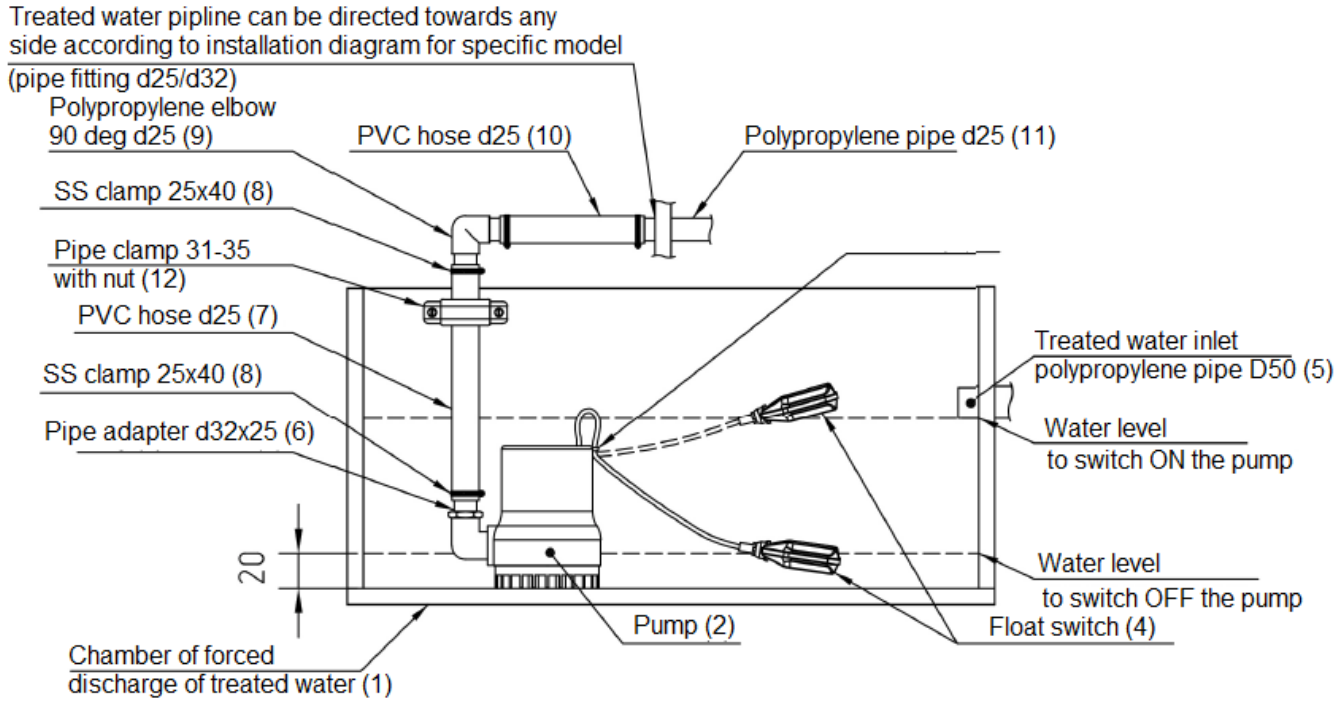
WWTP TOPLOS pump connection diagram to" (in case of WWTP equipped with drainage pump for forced discharge of treated water

Depending on pump modification the following options of pump connection is available:



The submersible pump (2) is installed in the chamber of forced discharge of treated water (1). The float switch (4) is fixed in the holder (3) installed on the pump (2). Stroke of the float switch (4) should be free from any obstacles to ensure smooth surfacing (when switching on the pump) or sinking (when switching off the pump) freely. To switch ON the pump (2), the float switch (4) must be positioned strictly at the level of lower edge (inner diameter) of the inlet pipeline ø50 mm (5) (see diagram).

To switch OFF the pump (2), the float switch must be positioned at the distance of 20 mm from the bottom of the chamber (1) (see diagram). The female hose coupling 32x1 1/4 (6) is screwed onto the pump outlet pipe branch (2). The hose 25 mm (7) is inserted into the coupling. Then the elbow 25 x 25 (9) in installed on the hose (7), and further the hose 25 mm (10) is installed onto the elbow. The hose 25 mm (10) is fixed with the clamp 25-40 (8) to the polypropylene pipe 25 mm (11) and the pipe is directed towards any side wall of the casing. The hose 25 mm (7) is fixed to the chamber of forced discharge of the treated water (1) by means of the pipe clamp with nut M8 (12).



The submersible pump (2) is installed in the chamber of forced discharge of treated water (1). The float switch (4) is fixed in the holder (3) installed on the pump (2). Stroke of the float switch (4) should be free from any obstacles to ensure smooth surfacing (when switching on the pump) or sinking (when switching off the pump) freely. To switch ON the pump (2), the float switch (4) must be positioned strictly at the level of lower edge (inner diameter) of the inlet pipeline ø50 mm (5) (see diagram).

The PVC hose 25 mm (7) is installed onto the adapter Ø32x25 mm (6) of the pump (2). The hose 25 mm (7) is installed on the adapter and is fixed with the stainless steel clamp 25-40 (8). Then the elbow 25 x 25 (9) in installed on the hose (7), and further the hose 25 mm (10) is installed onto the elbow. The polypropylene pipe 25 mm (11) is fixed with the clamp 25-40 (8) to the hose 25 mm (10) and is directed towards any side wall of the casing. Hose 25 mm (7) is fixed to the chamber of forced discharge of the treated water (1) by means of pipe clamp with nut M8 (12).

Annex No.5 (Compressor Equipment and Auxiliary Equipment Connection Manual)

1. Guidelines for Connection of Compressor Equipment and Electrical Units of WWTP TOPLOS-4 – TOPLOS 45 and their Modifications

The WWTP is supplied together with the following equipment:

- compressor completed with all parts * - 2 pieces;
- submersible pump** - 1 pieces.

Connection of compressor equipment to gravity WWTP TOPLOS

The WWTP is connected to power supply by means of electric cable through a separate circuit breaker. After electric cable has been connected to junction box (see instructions in Technical Certificate of WWTP TOPLOS) it is necessary to install and to connect compressor equipment depending on the model as shown in the figures below.

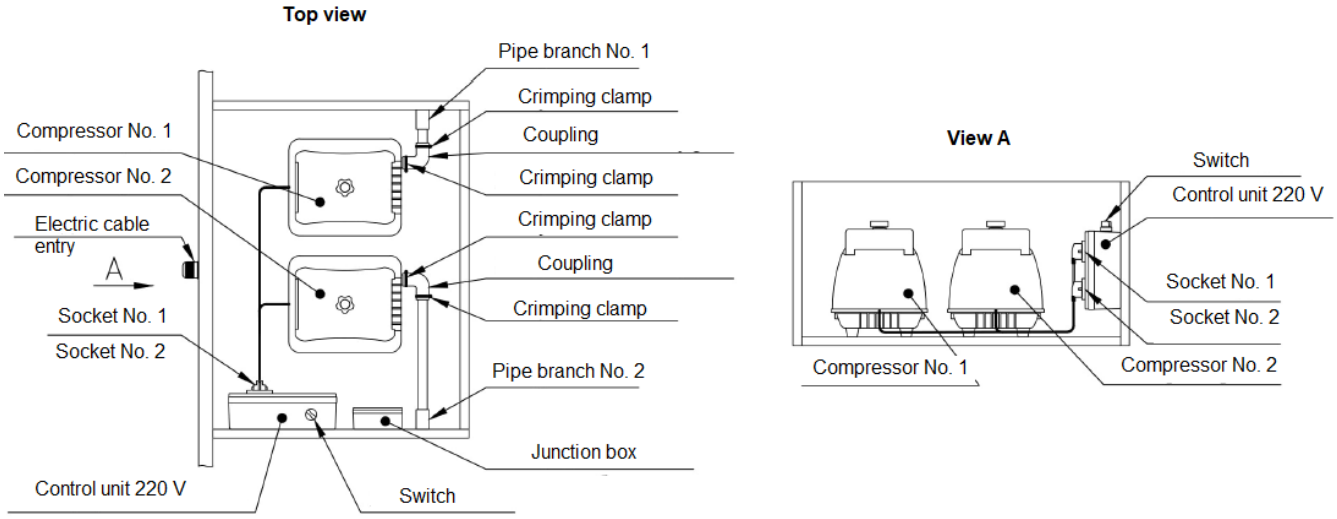


Figure 1. Gravity WWTP TOPLOS 4 – 12

---

* The equipment is supplied in original packing and is completed with all parts. Complete set of one packing includes: Technical Certificate – 1 piece; coupling (rubber) – 1 piece; crimping clamp – 2 pieces; diaphragm repair kit – 1 set.

** The equipment is supplied only for modification of WWTP “TOPLOS with forced discharge of treated water.

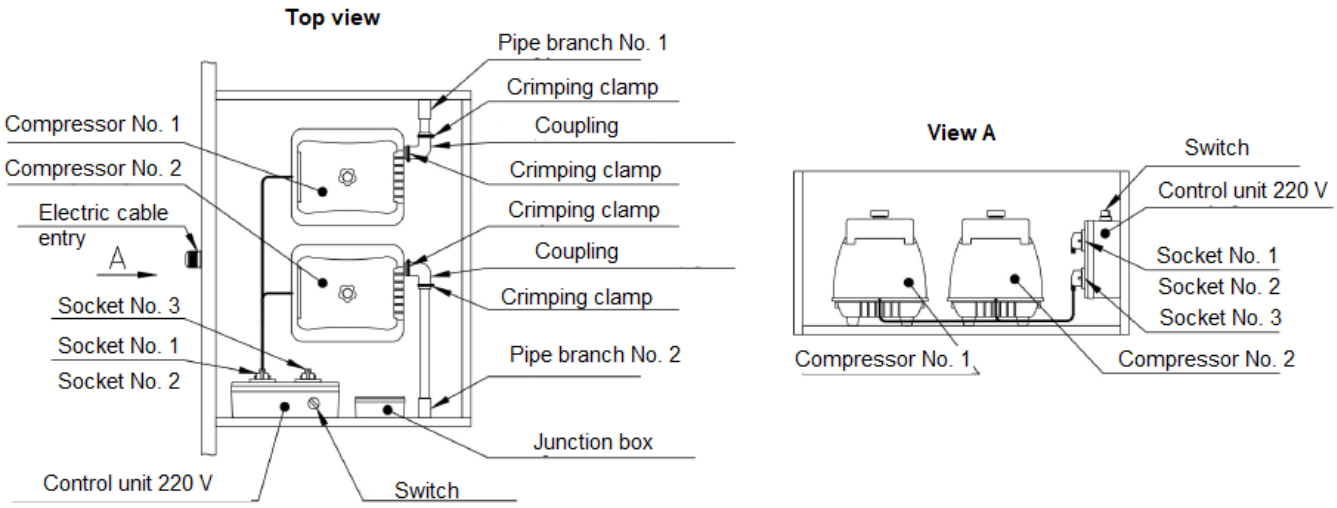


Figure 2. WWTP TOPLOS 4 – 12 Pr with forced discharge of treated water

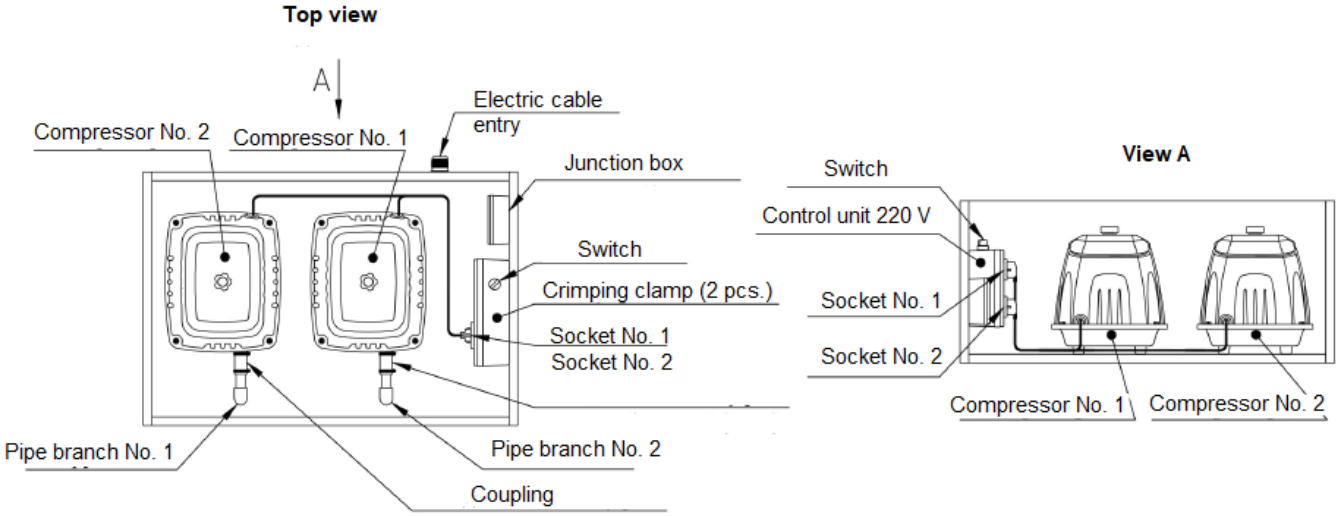


Figure 3. Gravity WWTP TOPLOS 15 – 30

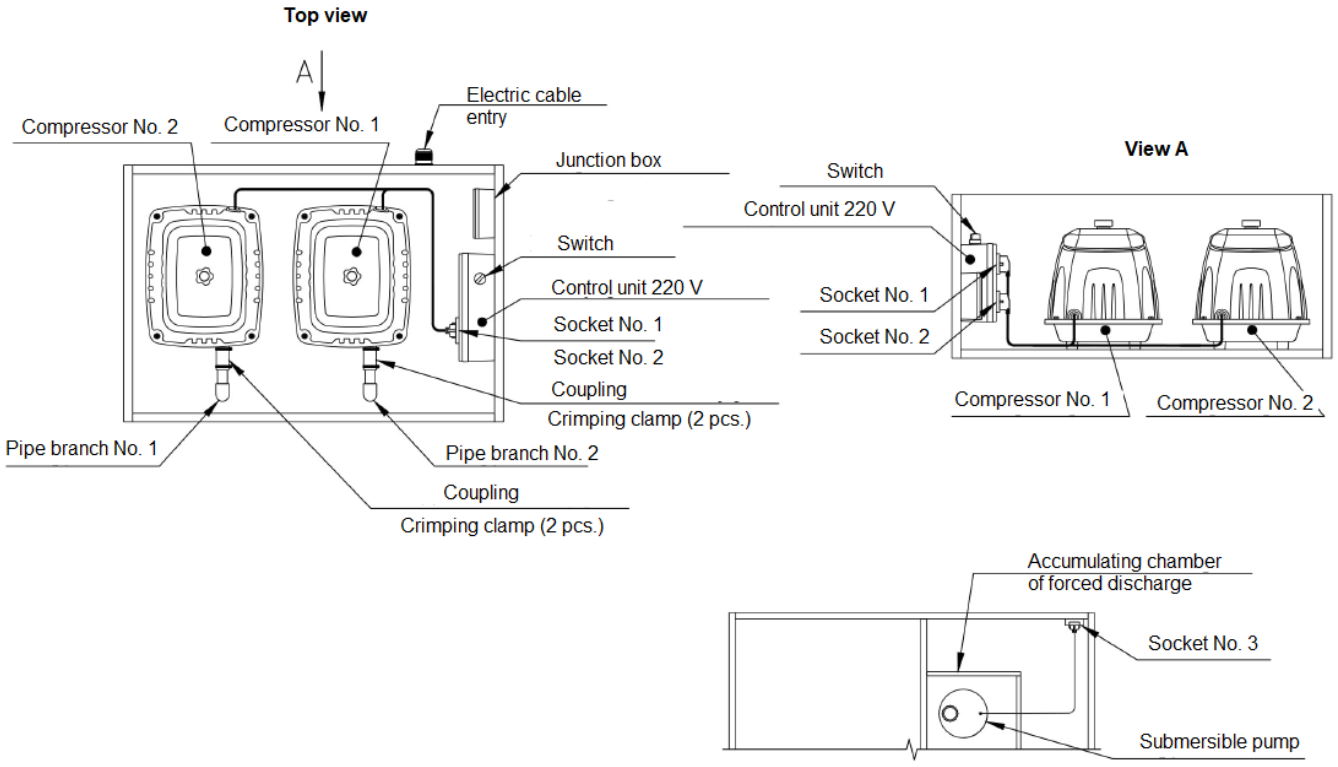


Figure 4. WWTP TOPLOS 15 – 30 with forced discharge of treated water

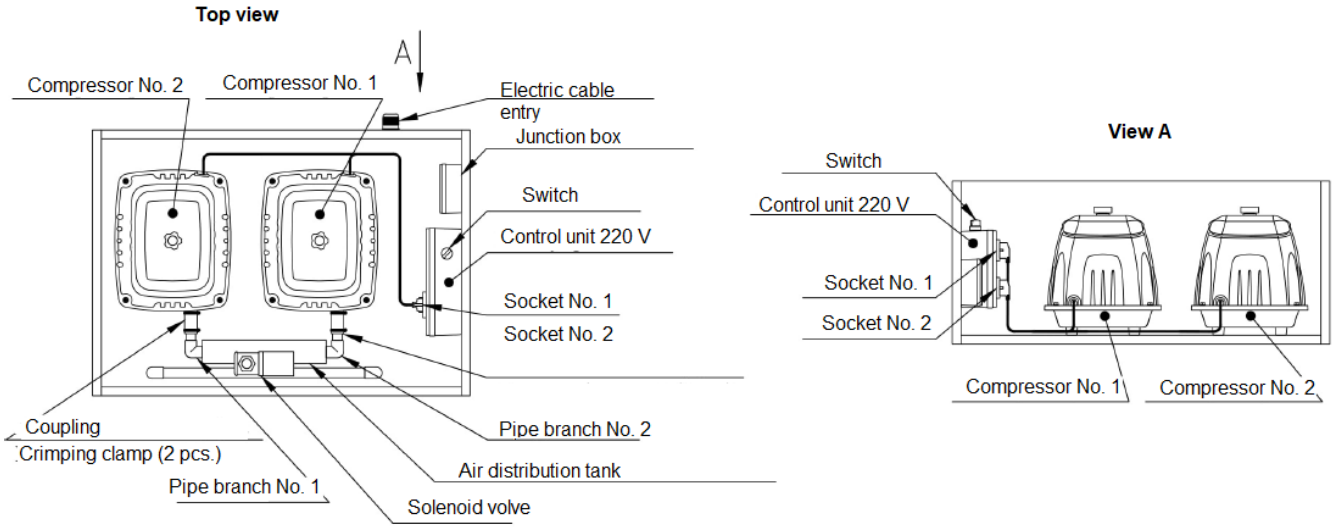


Figure 5. Gravity WWTP TOPLOS 40 – 50

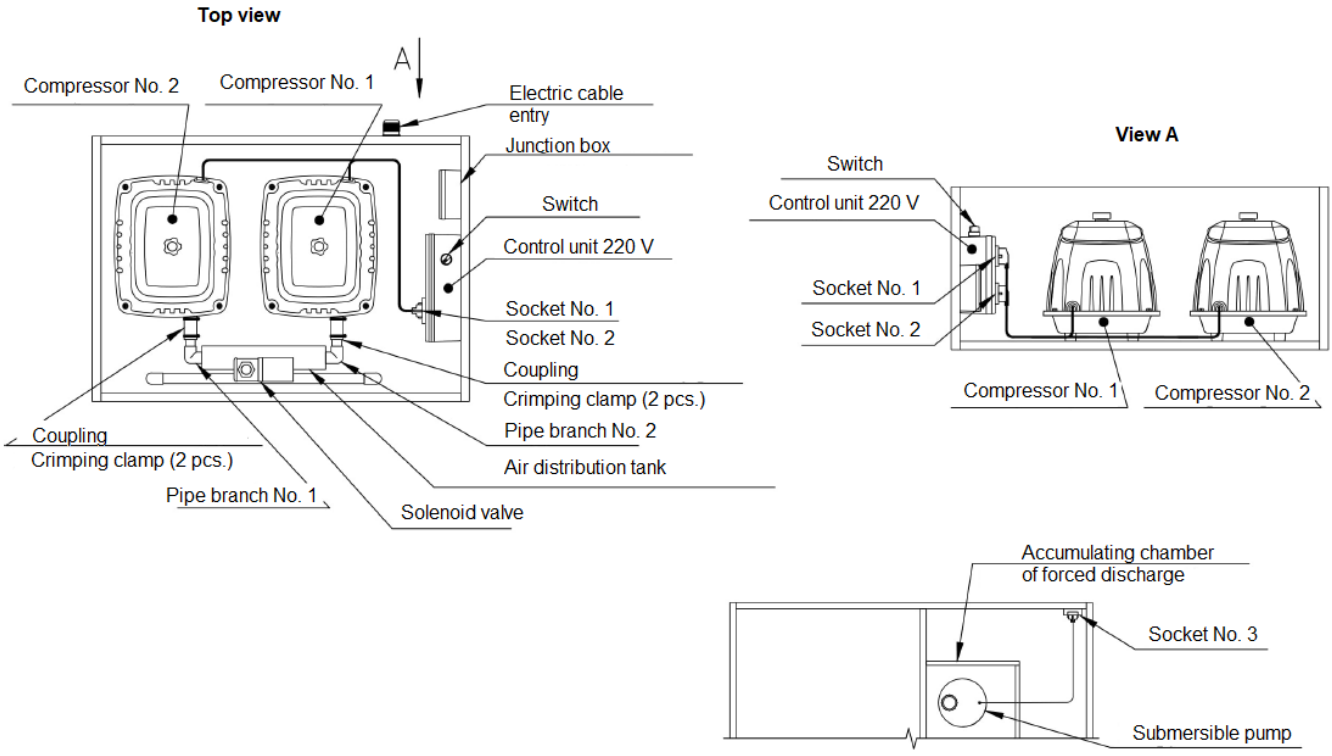


Figure 6. WWTP TOPLOS 40 – 50 with forced discharge of treated water

Compressor Equipment Installation and Connection Diagram

- Connect the compressor No. 1 to the socket No. 1. Compressor outlet pipe branch is connected to the pipe branch No. 1 by means of the rubber coupling and is fixed by means of crimping clamps.
- Connect the compressor No. 2 to the socket No. 2. Compressor outlet pipe branch is connected to the pipe branch No. 2 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- The submersible pump (in case of forced WWTP) must be submerged into the accumulating chamber of forced discharge and must be installed according to the connection diagram (see above). Then connect the pump to the socket No. 3.

ATTENTION!
1. Only after the compressor equipment and electric units have been connected to the WWTP TOPLOS it is allowed to switch ON power supply of the plant using switch on the WWTP.
2. Any opening of sealed control unit should only be performed by a person who renders guarantee services. In case of unauthorized opening sealed unit WWTP warranty is void.

2. Guidelines for Connection of Compressor Equipment and Electrical Units of WWTP TOPLOS-75 and their Modifications

The WWTP is supplied together with the following equipment:

- compressor completed with all parts * - 3 pieces;
- submersible pump** - 1 pieces.

Connection of compressor equipment to gravity WWTP TOPLOS

The WWTP is connected to power supply by means of electric cable through a separate circuit breaker. After electric cable has been connected to junction box (see instructions in Technical Certificate of WWTP TOPLOS) it is necessary to install and to connect compressor equipment depending on the model as shown in the figures below.

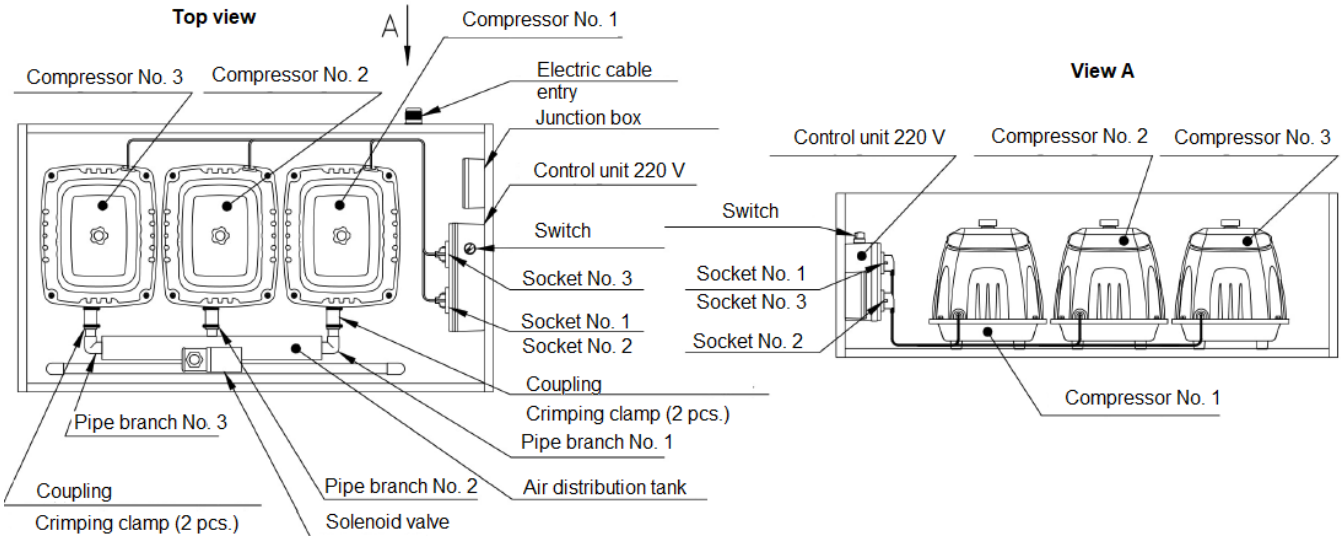


Figure 7. Gravity WWTP TOPLOS 75

---

* The equipment is supplied in original packing and is completed with all parts. Complete set of one packing includes: Technical Certificate – 1 piece; coupling (rubber) – 1 piece; crimping clamp – 2 pieces; diaphragm repair kit – 1 set.

** The equipment is supplied only for modification of WWTP “TOPLOS with forced discharge of treated water.

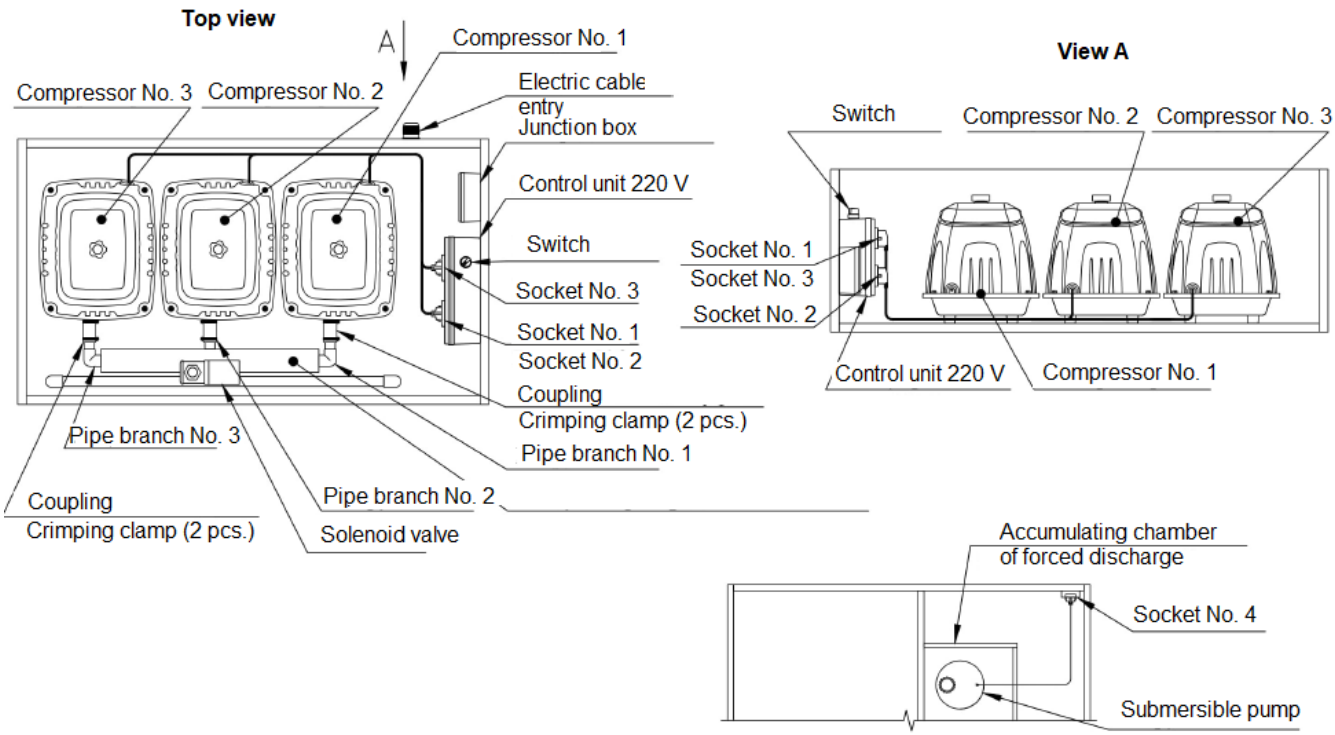


Figure 8. WWTP TOPLOS Pr 75 with forced discharge of treated water

Compressor Equipment Installation and Connection Diagram

- Connect the compressor No. 1 to the socket No. 1. Compressor outlet pipe branch is connected to the pipe branch No. 1 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 2 to the socket No. 2. Compressor outlet pipe branch is connected to the pipe branch No. 2 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 3 to the socket No. 3. Compressor outlet pipe branch is connected to the pipe branch No. 3 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- The submersible pump (in case of forced WWTP) must be submerged into the accumulating chamber of forced discharge and must be installed according to the connection diagram (see above). Then connect the pump to the socket No. 4.

ATTENTION!
1. Only after the compressor equipment and electric units have been connected to the WWTP TOPLOS it is allowed to switch ON power supply of the plant using switch on the WWTP.
2. Any opening of sealed control unit should only be performed by a person who renders guarantee services. In case of unauthorized opening sealed unit WWTP warranty is void.

3. Guidelines for Connection of Compressor Equipment and Electrical Units of WWTP TOPLOS-100 and their Modifications

The WWTP is supplied together with the following equipment:

- compressor completed with all parts * - 4 pieces;
- submersible pump** - 1 pieces.

Connection of compressor equipment to gravity WWTP TOPLOS

The WWTP is connected to power supply by means of electric cable through a separate circuit breaker. After electric cable has been connected to junction box (see instructions in Technical Certificate of WWTP TOPLOS) it is necessary to install and to connect compressor equipment depending on the model as shown in the figures below.

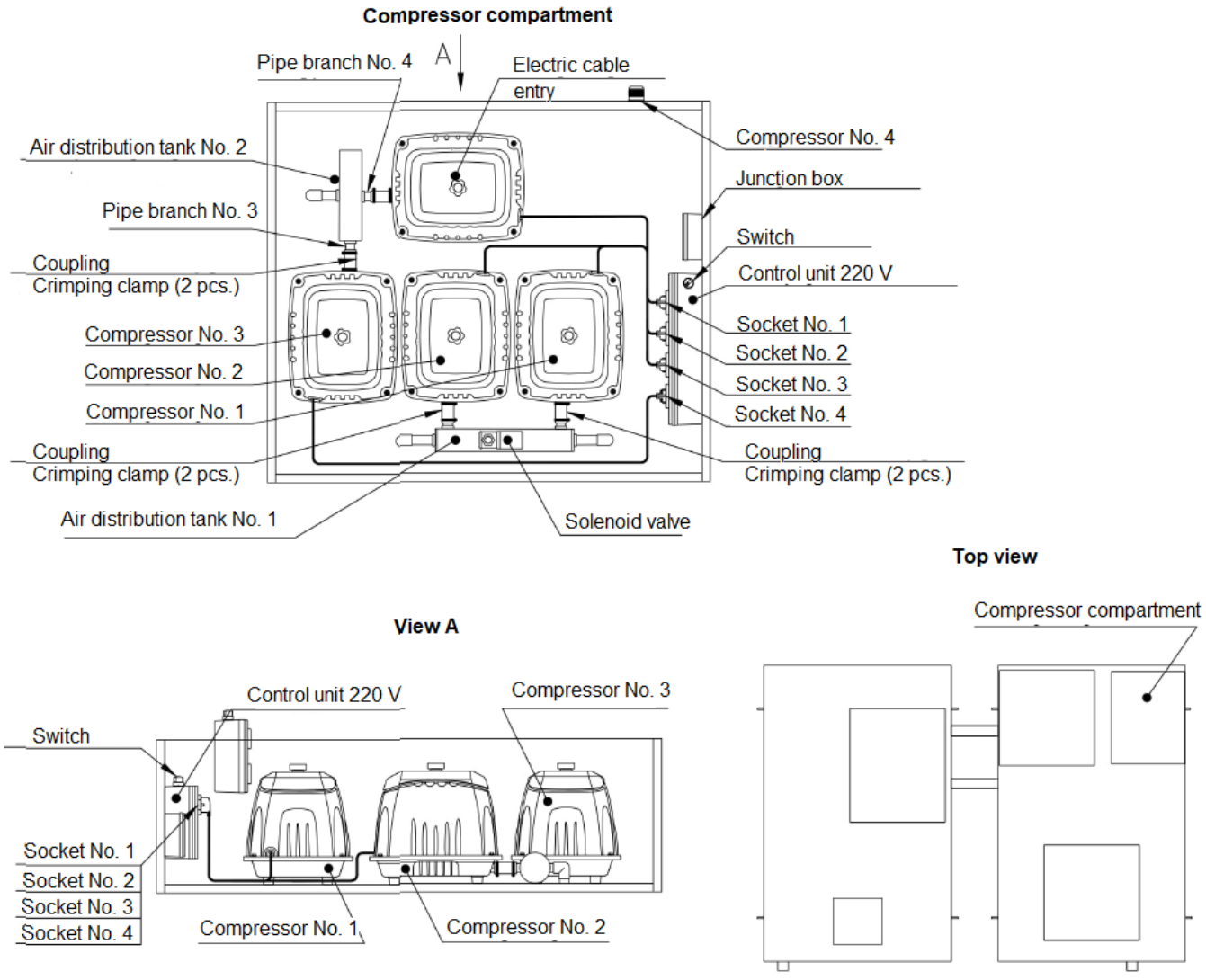


Figure 9. Gravity WWTP TOPLOS 100

---

* The equipment is supplied in original packing and is completed with all parts. Complete set of one packing includes: Technical Certificate – 1 piece; coupling (rubber) – 1 piece; crimping clamp – 2 pieces; diaphragm repair kit – 1 set.

** The equipment is supplied only for modification of WWTP “TOPLOS with forced discharge of treated water.

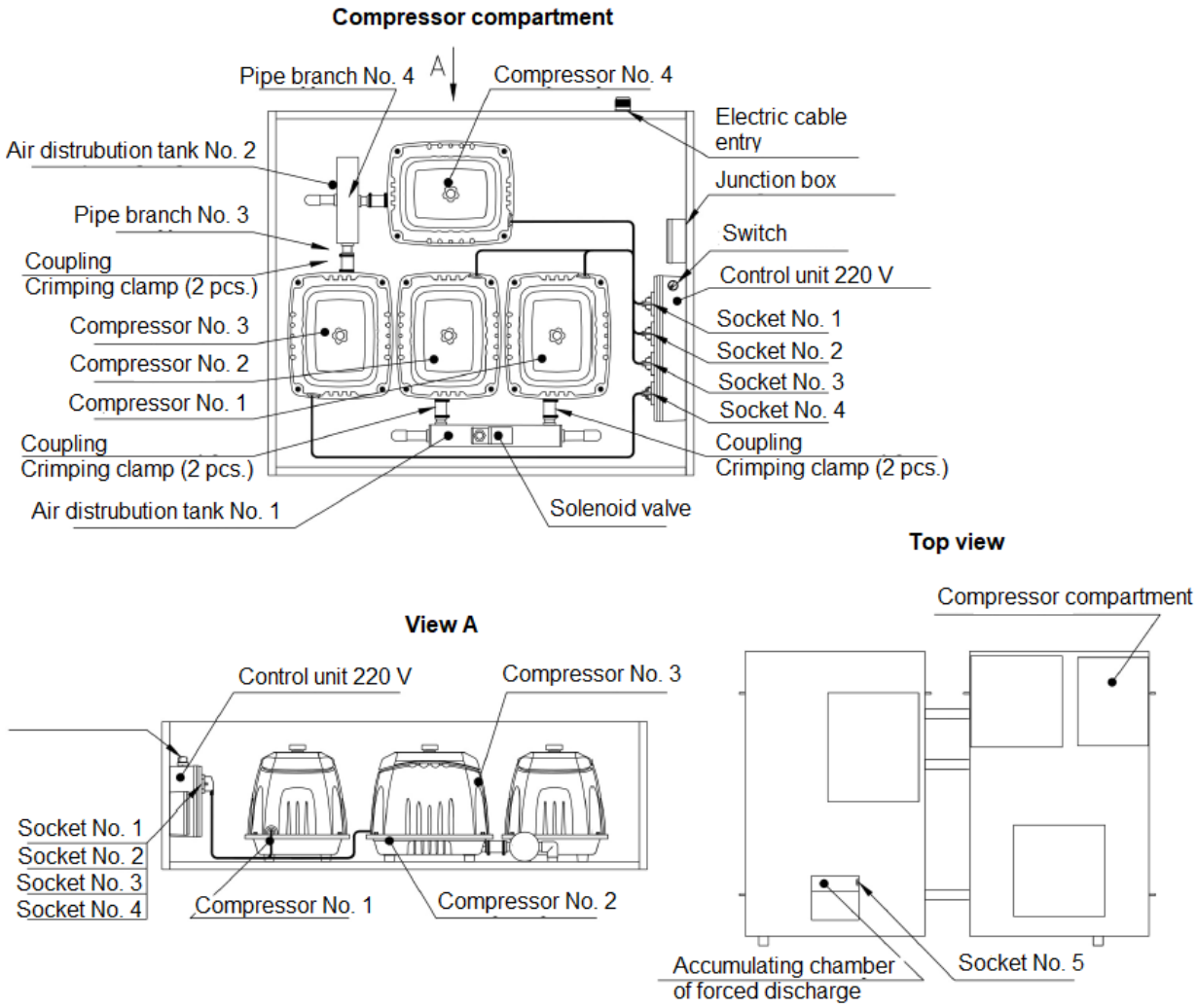


Figure 10. WWTP TOPLOS 100 with forced discharge of treated water

Compressor Equipment Installation and Connection Diagram

- Connect the compressor No. 1 to the socket No. 1. Compressor outlet pipe branch is connected to the pipe branch No. 1 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 2 to the socket No. 2. Compressor outlet pipe branch is connected to the pipe branch No. 2 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 3 to the socket No. 3. Compressor outlet pipe branch is connected to the pipe branch No. 3 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 4 to the socket No. 4. Compressor outlet pipe branch is connected to the pipe branch No. 4 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- The submersible pump (in case of forced WWTP) must be submerged into the accumulating chamber of forced discharge and must be installed according to the connection diagram (see above). Then connect the pump to the socket No. 4.

Air distributor No. 1 possesses 3 mm branch hose to connect air-lift pump. Each hose has a certain label and each air-lift pump has an appropriate label.

For instance:
Air distributor No. 1 possesses 3 mm branch hose with the label No. 1. This hose must be connected to the ail-lift pump No. 1. Further connections are similar to this one. In other words, the labels on the hoses should correspond to those on the pumps.

4. Guidelines for Connection of Compressor Equipment and Electrical Units of WWTP TOPLOS-150 and their Modifications

The WWTP is supplied together with the following equipment:

- compressor completed with all parts * - 6 pieces;
- submersible pump** - 2 pieces.

Connection of compressor equipment to gravity WWTP TOPLOS

The WWTP is connected to power supply by means of electric cable through a separate circuit breaker. After electric cable has been connected to junction box (see instructions in Technical Certificate of WWTP TOPLOS) it is necessary to install and to connect compressor equipment depending on the model as shown in the figures below.

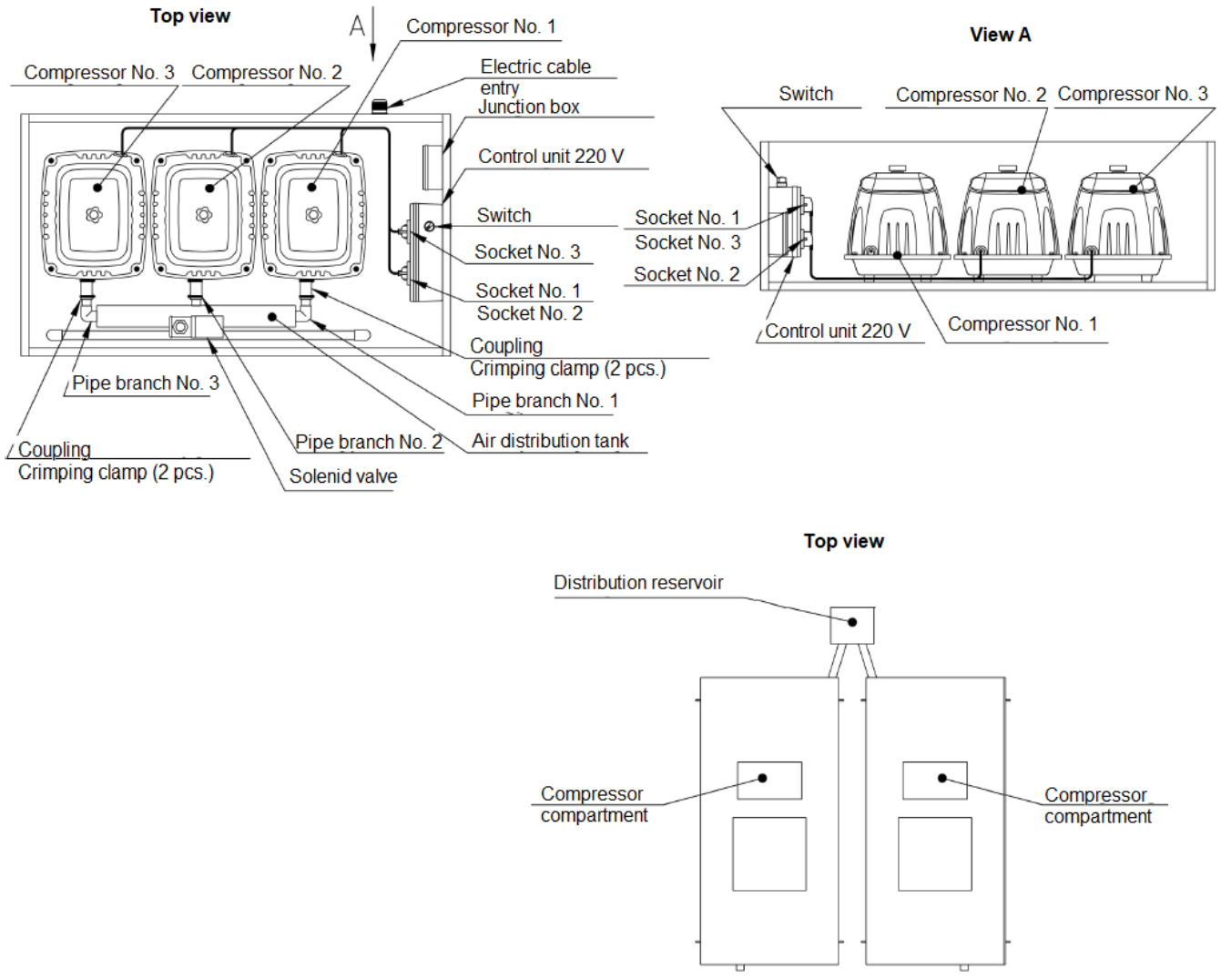


Figure 11. Gravity WWTP TOPLOS 150

---

* The equipment is supplied in original packing and is completed with all parts. Complete set of one packing includes: Technical Certificate – 1 piece; coupling (rubber) – 1 piece; crimping clamp – 2 pieces; diaphragm repair kit – 1 set.

** The equipment is supplied only for modification of WWTP “TOPLOS with forced discharge of treated water.

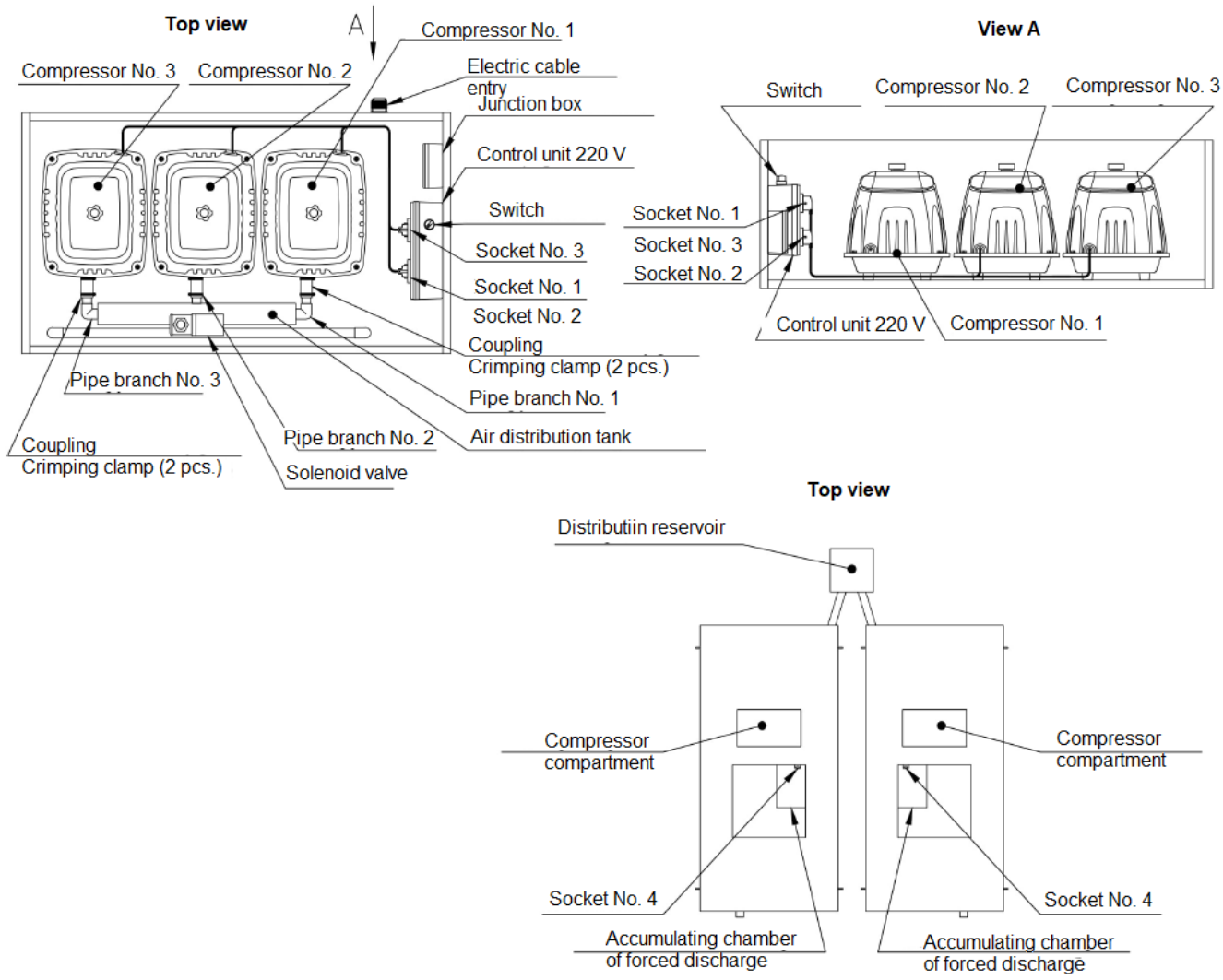


Figure 12. WWTP TOPLOS 150 with forced discharge of treated water

Compressor Equipment Installation and Connection Diagram

- Connect the compressor No. 1 to the socket No. 1. Compressor outlet pipe branch is connected to the pipe branch No. 1 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 2 to the socket No. 2. Compressor outlet pipe branch is connected to the pipe branch No. 2 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- Connect the compressor No. 3 to the socket No. 3. Compressor outlet pipe branch is connected to the pipe branch No. 3 by means of the rubber coupling and is fixed by means of attached crimping clamps.
- The submersible pump (in case of forced WWTP) must be submerged into the accumulating chamber of forced discharge and must be installed according to the connection diagram (see above). Then connect the pump to the socket No. 4.

- Connection of the compressor compartment No. 2 must be performed specularly relative to compartment No. 1.

ATTENTION!
1. Only after the compressor equipment and electric units have been connected to the WWTP TOPLOS it is allowed to switch ON power supply of the plant using switch on the WWTP.
2. Any opening of sealed control unit should only be performed by a person who renders guarantee services. In case of unauthorized opening sealed unit WWTP warranty is void.

Additional information

1. At the moment of printing this document in May 2017 the information presented in it completely corresponded to our actual products. However, some amendments of our products might were made after the document had been printed. In such cases supplements are issued for each set of the documentations.
2. We are constantly working on improvement of our product and therefore we reserve the right to change technical characteristics, design and equipment at any time and without prior notice; such changes do not impose any additional obligations on the company. It is forbidden to reproduce this document partially or in full or to translate it without the company's permit.

The producer is not responsible for consequences of misprints or omissions.

To be Filled out by the Seller

Tear-off coupon No. 1

The Seller _____

Model _____

Serial No. _____

Date of sale _____

place stamp here

Tear-off coupon No. 1

The Seller _____

Model _____

Serial No. _____

Date of sale _____

place stamp here

Tear-off coupon No. 1

The Seller _____

Model _____

Serial No. _____

Date of sale _____

place stamp here

Tear-off coupon No. 1

The Seller _____

Model _____

Serial No. _____

Date of sale _____

place stamp here

To be Filled out by Service Center

Company _____

Date of works performed under warranty_____

Address _____

Claimed defect _____

Faults detected _____

Made by (full name) _____

place stamp here

Company _____

Date of works performed under warranty_____

Address _____

Claimed defect _____

Faults detected _____

Made by (full name) _____

place stamp here

Company _____

Date of works performed under warranty_____

Address _____

Claimed defect _____

Faults detected _____

Made by (full name) _____

place stamp here

Company _____

Date of works performed under warranty_____

Address _____

Claimed defect _____

Faults detected _____

Made by (full name) _____

place stamp here

For further information and advice, please, address the manufacturer:

Address: 10 Bibirevskaya St., Bldg. 1, 127549 Moscow, Russia.
Tel.: (495) 789-69-37, 789-84-37, 8-800-333-69-37.
or directly the Seller.

Detailed information can be found at website of the manufacturer: www.topol-eco.ru

Additionally, the following documents are attached to the product Technical Certificate (please, remember to take those):

1. Valid Certificate of Conformity.
2. Declaration of Conformity.
3. Installation diagram for purchased WWTP.
4. Technical Certificates of compressor equipment and pump equipment the WWTP equipped with (type, model, serial number are specified in the Warranty Card).

For your notes: