FACTORY ECOPOLYMER

WASTEWATER TREATMENT EQUIPMENT

«Ecopolymer factory» one of the first in Russia organized the production of equipment for wastewater treatment plants. It all started in far 1990, when a group of young engineers started the production of tubular aeration systems from polymeric materials. The name “Ecopolymer” was born from the first advertising slogan “Polymers at the service of ecology!”. Over 30 years of its activity, the company has become a recognized leader on the Russian market, which produces a full range of equipment made of metal and polymers for water and wastewater treatment - more than 30 items.

Our company is located in the Kaluga region, 180 km from Moscow. The production area is more than 5000 m² and is equipped with modern high-precision SMART equipment from European manufacturers. This allows to make a closed production cycle on the territory of the enterprise and minimize the manufacturing terms.

Self-contained manufacture of all parts and the applying of components from leading world manufacturers allows us to achieve such high quality products that meet international standards and is competitive in the global market. Quality is one of the priorities of our company.

We are proud of our qualified staff. Our design office is one of the best in the industry, the personnel structure is stuffed by experienced high-level workers.

We have been successfully working in the field of water and wastewater treatment for over 30 years. This allows us to proudly say:

«Our experience is the best guarantee of quality!»

We produce products of European quality by Russian prices.
Cooperating with us, you will make it sure for yourself!

OUR CUSTOMERS ARE:

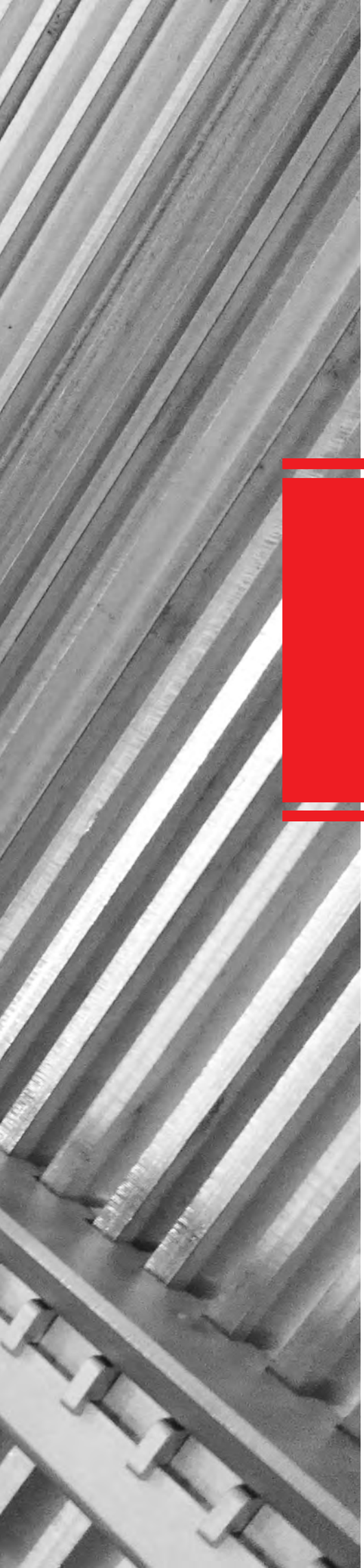
- more than 1000 industrial plants, water supply companies and waste water treatment plants;
- main contracting, trading companies.

OUR SERVICE INCLUDES:

- consultation and equipment selection recommendation;
- adapt the equipment for your needs;
- warranty and post-warranty service.

...our equipment ecoLOGICALLY solves your problems!

CONTENT



MECHANICAL TREATMENT

The first step of processing municipal and industrial wastewater is mechanical treatment, which is used as a preliminary stage before biological treatment.

Mechanical treatment is used to remove undissolved mineral and organic impurities from wastewater.

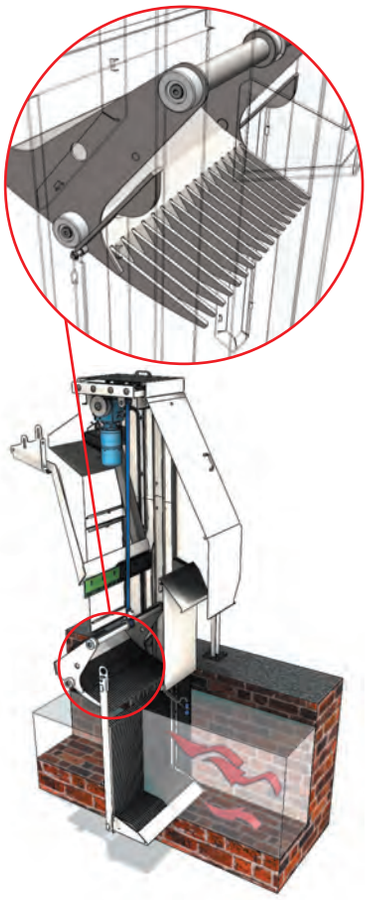
«Ecopolymer factory» offers a wide range of equipment for wastewater treatment from mechanical pollution:

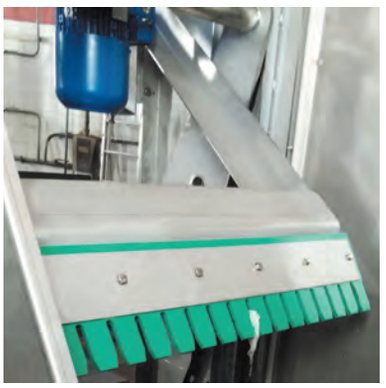
- mechanized screens;
- screw wash presses;
- screw conveyors;
- sewage grinders;
- sand separator and sand silos;
- scraper systems;
- sludge scrapers.

COARSE VERTICAL SCREEN WITH REVERSE RAKE

The vertical screen with reverse rake is designed for coarse pre-treatment of wastewater from mechanical garbage on sewage pumping stations, municipal and industrial water, and wastewater treatment plants. Screen is used as part of a mechanical sewage treatment complex and is designed for installation vertically into the channel. Bar space has a variable spacing from 16 to 50 mm.

Most often, the coarse screens perform the function of protecting equipment installed downstream behind a screen, for example, fine screens or pumps.





- Moving the bucket with rakes, along the guides up and down, is provided by winding or unwinding of a belt sling on a drum with a drive.
- The simplicity of the design provides reliable operation of all components and mechanisms of the screen and, as a result, low operating costs.

Reliable and efficient screening operation by cleaning the filter screen with a rake bucket from the side of the cleaned stream to the side of the uncleaned stream and unloading the collected sludge over the uncleaned stream. Ideal for deep and wide channels.

- Excluded jamming of the raking and cleaning mechanism in case of hit of sticks or logs in front of the screen.
- Bucket design with rakes allows removing large size garbage from wastewater.
- It is possible to lift the filter screen above the channel without dismantling the screen.
- Screen operation is fully automated.

The manufacturing of the screens with non-standard dimensions and technical specifications is possible according to the individual Customer requirements.

FINE SCREEN WITH PERFORATED PLATES

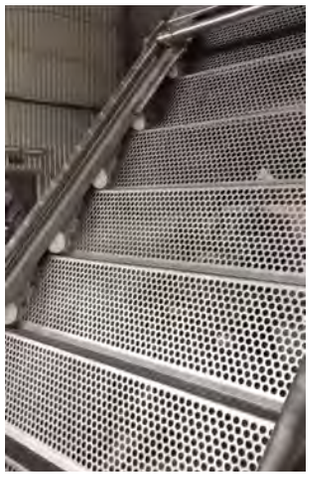
The screen is designed for fine treatment of municipal and industrial wastewater from mechanical garbage larger than the size of the screen holes.

- The stepped shape of the perforated panels provides an increase in the efficiency of the treatment process, reduce hydraulic resistance and remove large objects from the wastewater.

The ideal solution for wastewater with a high content of fibrous inclusions. The efficiency of the trapping of contaminants is 97%.

- The perforated panels on the back side of the screen are moved to the position parallel to the flow, which reduces the hydraulic resistance and eliminates the accumulation of fine debris inside the screen.
- The screen design is designed for almost unlimited channel depth and maximum channel width 3 m.
- The degree of cleaning depends on the perforation of the filter screen and can be from 2 to 8 mm.

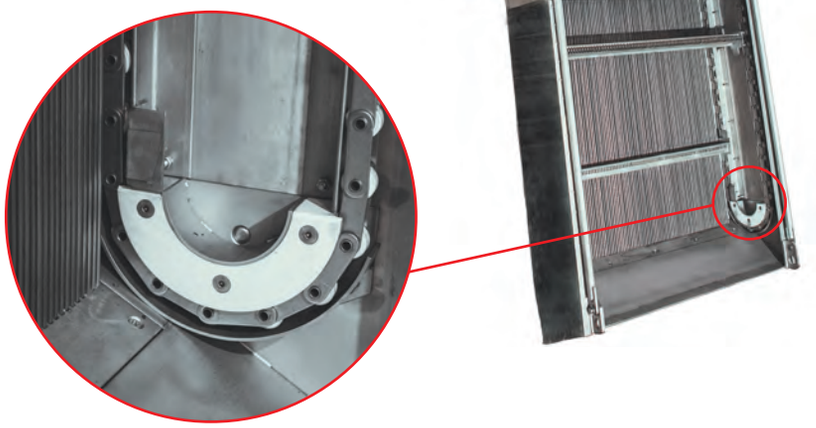
The manufacturing of the screens with non-standard dimensions and technical specifications is possible according to the individual Customer requirements.



RAKE BAR SCREEN

The rake bar screen is designed for sewage treatment from solid waste and is part of the mechanical sewage treatment complex at wastewater treatment plants, and also protects pumps at sewage pumping stations.

Screen operation is fully automated. The automatic control system is built on the basis of a programmable logic controller, which allows displaying information about the state of the screen using standard communication protocols to the local control pools or dispatcher's automated workplace.



- The design of the filter screen does not require the use of transverse stiffeners.
- The design of the rake allows effectively clear the gap in the entire depth of the profile of the bar.
- The absence of rotating details in the submerged part of the screen, which increases its reliability.
- Installed in a channel with a width from 500 to 2600 mm and with a depth from 600 to 3500 mm.
- The screen has two degrees of protection for mechanisms and parts — mechanical and electronic.

Mechanical protection is provided by a torque limiting ferrule integrated into the gear motor.

- Filter screen and rakes are collapsible, which allows the replacement of any screen bar and teeth of the rake without dismantling the entire screen or rake.
- The chain tensioning mechanism is interlocked with the kicker device, which makes it possible not to correct the position of the kicker device at each chain tension.
- Intellectual system of automatic removal of a blockage of the filtering screen.

Production of a screen according to individual requirements of the Customer is possible.

SCREW FINE SCREEN

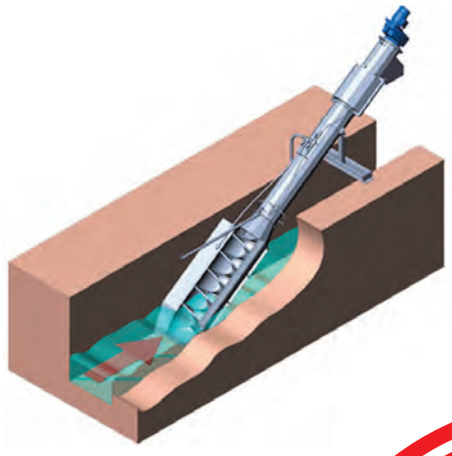
The screw screen is designed for fine mechanical treatment of wastewater from garbage larger than the size of the screen perforation holes and is used in municipal and industrial wastewater treatment plants.

It is used a slotted or perforated filter screen with variable spacing from 1 to 5 mm.

- All components of the screen, including shaftless screw, are made of stainless steel and other corrosion resistant materials.
- Use shaftless screw for cleaning screen and transporting collected waste in the pressing area increases the reliability of the screen.
- An integrated press for compaction of collected waste minimizes the volume of garbage.

The use of a screw screen allows having turnkey decision: collect, wash from organic solids, and compact waste with transportation to a height of up to 5 m.

- In the pressing zone integrated washing system of collected waste from organic solids.
- It can be designed for in the channel or in the container.
- It works fully in automatic mode, does not require the attendance of a serving staff.
- Inexpensive and cost-effective solution for small wastewater plants.



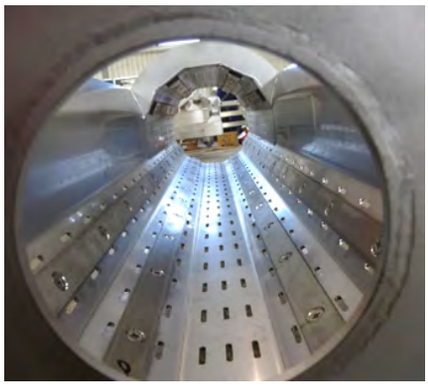
The manufacturing of the screens with non-standard dimensions and technical specifications is possible according to the individual Customer requirements.

SCREW WASH PRESS

Screw wash press is designed for washing, compaction, and transportation to a collecting waste container removed by screens from wastewater. Also, the press used to return the organic soluble compounds contained in the waste, back to the wastewater treatment processing.

Pressing allows reducing the volume of waste up to 10 times. The press usually is operated as a part of technological line of mechanical sewage treatment at wastewater treatment plants.

Maximum unloading height up to 5000 mm at an angle up to 45°.



- The press and screw are made of stainless steel.
- Intensive washing of waste allows saving organic compounds in wastewater.
- Compacted waste does not have a strong odor.
- Press working in automatic mode, it operates from a signal from other process line equipment.

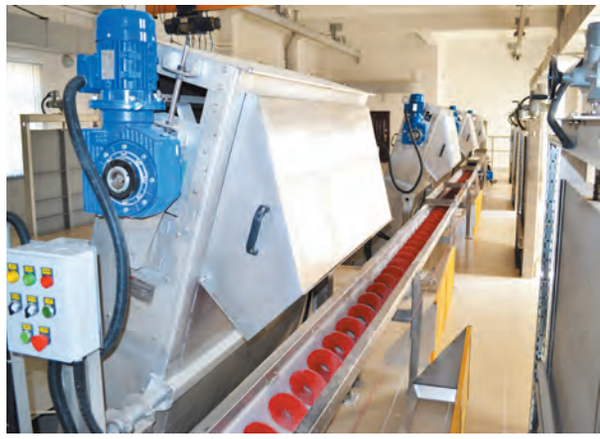
The manufacturing of a screw wash press according to individual requirements of the Customer is possible.

SCREW CONVEYOR

The screw conveyor is designed to transport waste with moisture from 30% to 80% and any other granular (0,5-6 mm) and small-sized (6-80 mm) matter. Transportation on a screw conveyor is carried out in a horizontal or inclined position.

The screw conveyor can be operated as part of technological lines where the transportation of such products is required.

Transportation of waste or other materials along of the conveyor provides by a shaftless screw.



**The supports if necessary can be arranged with a step of 150 mm.
The angle of elevation up to 35° is possible.**

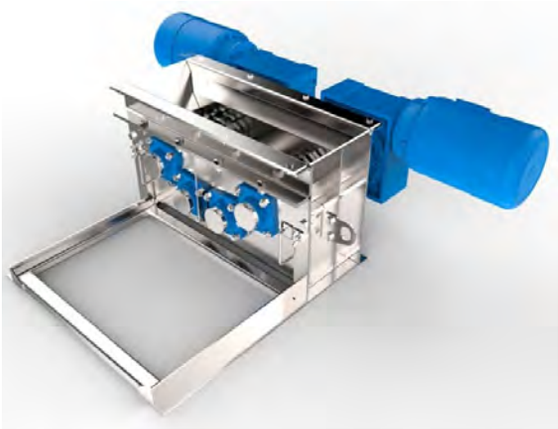
- Height-adjustable supports that simplify installation and hide surface flaws.
- In automatic mode, it operates from a signal from other technological line equipment.
- May have two technical solutions with a pulling or pushing screw, as well as one or several loading windows.

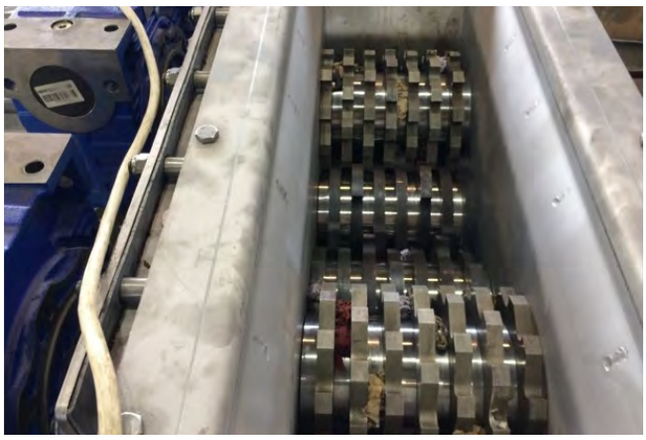
The manufacturing of the conveyor on the individual requirement of the Customer is possible.

SEWAGE GRINDER

The sewage grinder is designed to grind large and medium waste, including fiber materials. The design of the sewage grinder makes it possible to grind various types of waste.

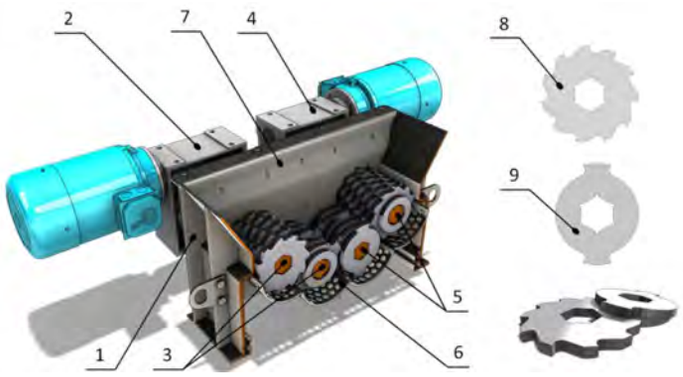
The sewage grinder is manufactured in «dry» version and can be installed above the wastewater channel for dumping grinded waste into it or above screw wash press as a protective-grinding device before washing and squeezing of waste or under coarse/rake bar screens.





- «Dry» installation of the grinder eliminates the winding of fibrous waste on the elements of the grinder.
- Fibrous waste is easily grinded to a fine fraction, the size of which is determined by the mesh size of the sorting sieve.
- When grinding wet waste, the wash water supplied to the grinding zone facilitates the passage of the grinded waste through the meshes of the sorting sieve.
- The grinder can operate in automatic mode, without requiring the constant presence of service personnel.
- The main parts of the grinder are made of stainless steel.

The main purpose is to grind napkins, rags, non-woven products, etc.



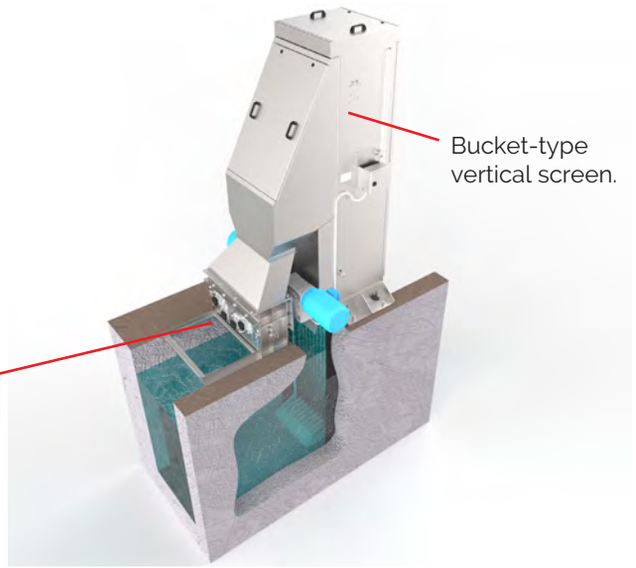
1 – housing;
2 – drive of the first group of shafts with cutters;
3 – the first group of hex shafts;
4 – drive of the second group of shafts with cutters;
5 – the second group of hex shafts;
6 – perforated sorting sieve;
7 – waste feeding zone;
8 – auxiliary cutter;
9 – main cutter.

The sewage grinder is manufactured in two modification: 2-shaft and 4-shaft.

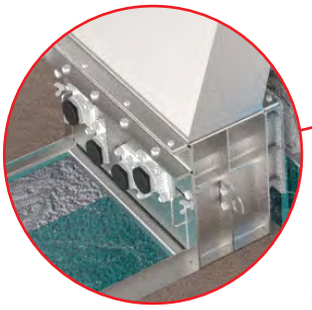
AUTOMATIC COMPLEX FOR MECHANICAL TREATMENT «MY MET»

PACKAGED SOLUTION FOR SEWAGE PUMP STATIONS

The complex is used at sewage pump stations of municipal and industrial enterprises. It is intended to treat wastewater from coarse contaminants, including fibrous inclusions, followed by grinding and returning them to wastewater.

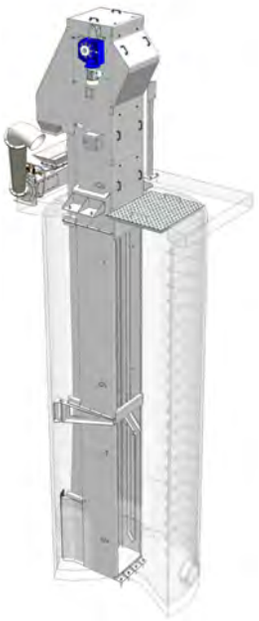


Bucket-type vertical screen.

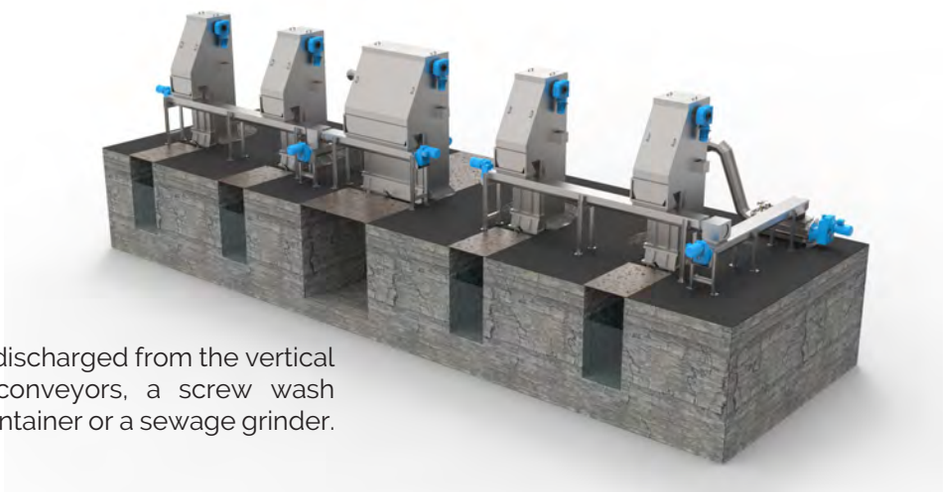


"Dry" sewage grinder for grinding fibrous inclusions.

- Minimization of equipment units.
- It is possible to install in limited space, without significant alterations in the design of the SPS.
- It is possible to operate without constant supervision of personnel.
- It is possible to continue operation in case of breakdown of the sewage grinder, waste disposal into a temporary hopper.
- Minimizing the spread of odors.
- The vertical screen can be placed in a channel, which is structurally designed only for channel grinders.
- To facilitate installation and transportation to the SPS, the vertical screen can be manufactured with division into parts.



An effective solution for the trapping of large fibrous inclusions and protection of pumping groups at the sewage pumping station in automatic mode.

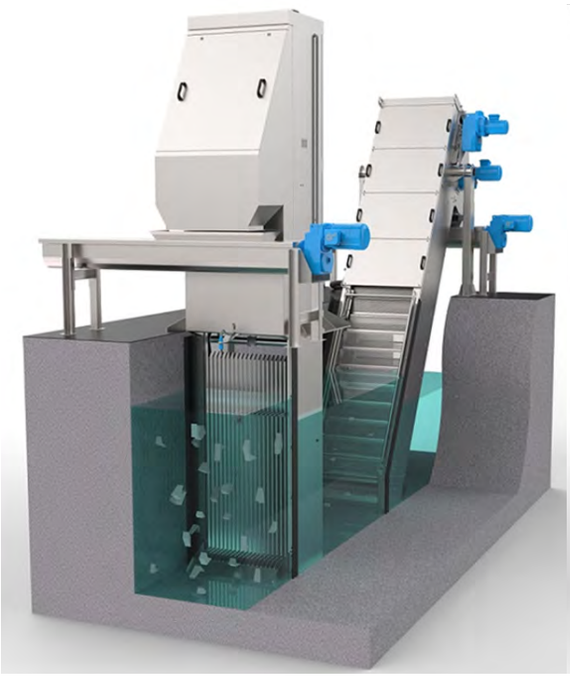


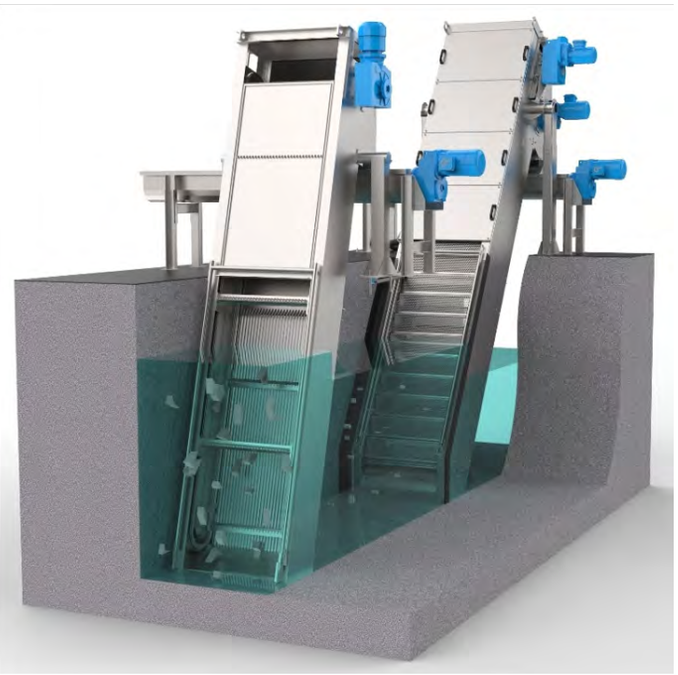
Waste can be discharged from the vertical screens into conveyors, a screw wash press, into a container or a sewage grinder.

AUTOMATIC COMPLEX FOR MECHANICAL TREATMENT «MY MET»

PACKAGED SOLUTION FOR SEWAGE TREATMENT PLANTS

«MY MET» — an effective and modern solution for the trapping of fibrous inclusions and small debris. Provides the extraction of fine and coarse fibrous inclusions from wastewater.



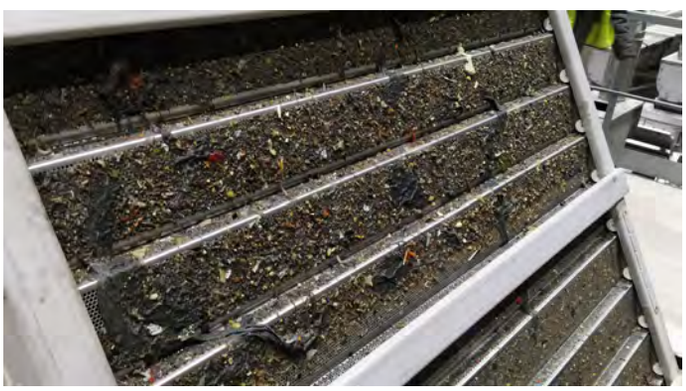


- The complex minimizes the ingress of large and fibrous inclusions to further stages of treatment, which stabilizes the operation of the entire wastewater treatment plant and solves many technological problems.
- The vertical screen ensures the trapping and guaranteed extraction of large waste, including fibrous inclusions in the form of "twists" and "bales". In the screen`s design there are no elements of rotation and discharging in front of the screen. Extraction of trapped inclusions is carried out by a bucket and discharge of waste in front of "himself" allows to extract bulky debris without jamming and breakage of the screen.

The complex solves the problem of accumulation of fibrous inclusions in aeration tanks, clogging of sludge collectors in radial secondary clarifiers, increases the service life of UV.

- The fine screen extracts 40–45% more garbage from effluents than rack screen, including such hard-to-trap waste as matches, cotton swabs, threads, husks, fluff, feathers, etc. The average efficiency of extracting fine debris is 97%. The original design of the filter lamellae makes it possible to extract medium-sized inclusions, as well as to prevent double filtering of the lamellae after cleaning. The "carpet" of retained debris provides additional cleaning and allows to trap inclusions up to 2 mm.
- The complex minimizes the amount of raw sludge, ensures its uniformity, and in certain cases, even eliminates the stage of primary settling.

24 «MY MET» complexes at the Lyuberetsky wastewater treatment plant of JSC “Mosvodokanal". Capacity 3 000 000 m³/day.

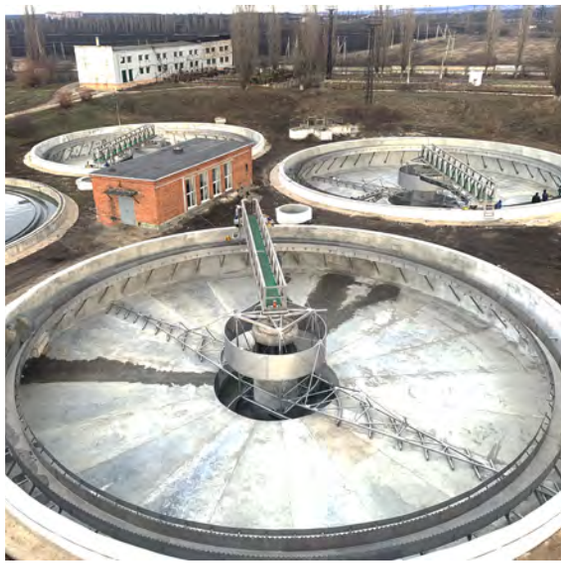


SLUDGE SCRAPER

Scrapers are used in primary radial clarifiers and designed to collect sediment thick substances on the bottom and floating substances on the surface and removal them from the tank.

The classic, reliable design of collecting and removing the sediment, time-tested – suspension of two diametrically opposite scraper wings over the bottom of the tank.

- The bridge of sludge scraper is a structure in the form of spatial truss made of aluminum alloy AMg3M, due to which its high strength and limited windage are achieved.
- High corrosion resistance of the bridge is achieved by riveted joints instead of welding.
- The upgraded design of the turntable ensures reliable operation, as well as ease of installation and low requirements for its accuracy.
- Slotted flooring with anti-slip surface, drive a carriage with solid tires and direct drive to the drive wheel – a reliable technical solution for harsh winter conditions.



An innovative and efficient collection system for floating substances provides uniform collection and disposal around the radius of the tank.

For more convenience of use, scrapers are recommended to be equipped with additional equipment:

- **overflow brush cleaner**, which helps to increase the service life of overflows and reduce the number of suspended substances in purified water;
- under especially cold climatic conditions:

  - **infrared thermal radiator**, which is installed between the snow plow and the rotating brush, which contributes to snow melting;

  - **heating of the sump side of the tank** with an electric heating cable.

SAND SEPARATOR

The sand separator is designed to separate sand and other mineral particles from the sand pulp stream, launder them from organic compounds and transport washed product in a container with its simultaneous dehydration.

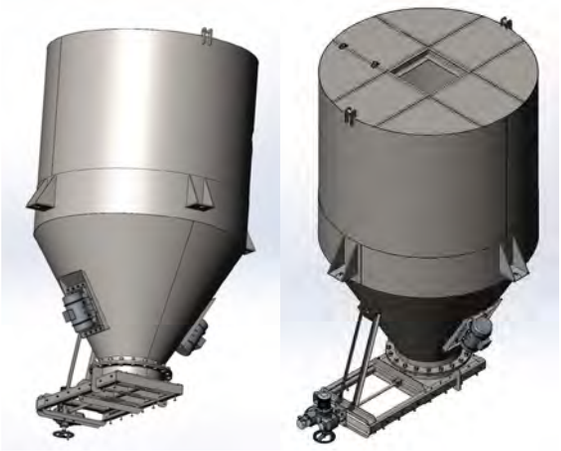
- The efficiency of separation of mineral particles with a size of 0,2 mm and more is 95%.
- Ideal for sand-pulp processing from sand traps at wastewater treatment plants.
- Productive capacity for dry matter up to 3 t/h.
- Hydraulic productive capacity for sand-pulp up to 90 m^3/h.
- The operation of the sand separator is fully automated, does not require the presence of staff.
- Washing the sand from organic compounds increase the sanitary and environmental safety.
- Dehydration of sand reduces its volume by 2-3 times, which helps reduce disposal costs.

Using the shaft less screw for transportation and sand dehydration simplifies design, increases reliability and durability of the equipment.

1 – sand-pulp feed pipe;
2 – the flow twisting tank;
3 – gear-motor;
4 – water outlet pipe;
5 – pipe outlet of organic compounds;
6 – branch pipe for the technical water supply;
7 – mixer;
8 – sand discharge conveyor;
9 – sand discharge area;
10 – drainage of water after dehydration.

SAND SILOS

Designed to receive sand pulp from sand traps, accumulation, static compaction and unloading into motor transport.

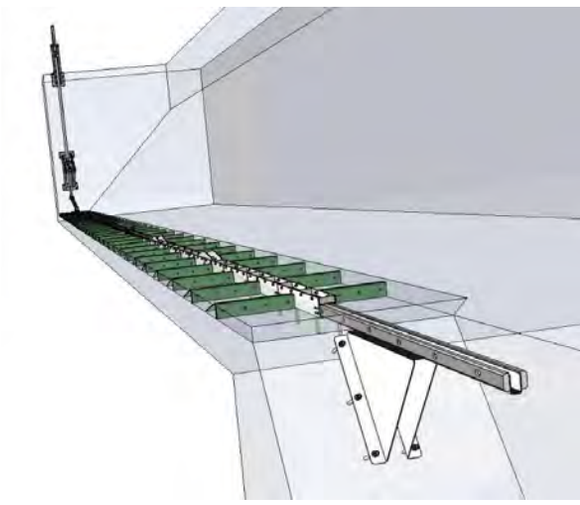


- Equipped with vibrators on the conical bottom to provide reliable unloading and prevent sand retention.
- By custom order the silos could be made with heating system for outdoor installation.

Sand silos for the accumulation of 8 m³ with a penstock and vibrators on the conical bottom.

SCRAPER SYSTEM FOR GRIT CHAMBER

The scraper system is intended for installation in a horizontal grit chamber and removal of grit settled on the bottom with its subsequent transportation to the appropriate pit. The principle of operation of the scraper system based on the reciprocating movement of the scrapers, which have a special wedge-shaped hydrodynamic profile. When moving "forward", the end surfaces scraper profiles direct the settled grit towards the pit of grit tank. When moving "backward", the sharp (sloping) profile of the scraper moves at almost double the speed, as a result of which the grit overflows through the sharp scraper part. As the result is an almost continuous transport of grit towards the pit. Due to the constant reciprocating movement of the profiles, the grit is compacted.



Ideal solution for existing grit chambers. Significant compaction of the sludge during the reciprocating movement of the scrapers.

- Few moving parts.
- The minimum need for maintenance
- Continuous transport of the grit.
- No interference in the sedimentation process.
- High operational reliability.

PHYSICAL AND CHEMICAL TREATMENT

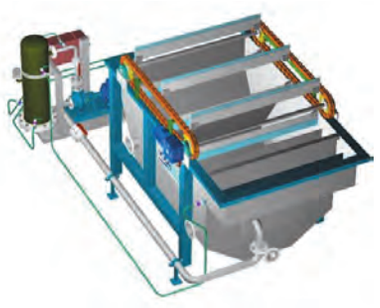
Physical and chemical methods of wastewater treatment are used to removal of suspended, colloidal and dissolved solids using the physical properties of solids and chemical reagents: the processes are based on different abilities of the interaction of substances with water, chemical reagents and among themselves. Physical and chemical methods include: coagulation, flotation, adsorption, ion exchange, reverse osmosis, etc.

The Ecopolymer company produces the following types of equipment:

- dissolved air flotation;
- drain systems.

DISSOLVED AIR FLOTATION (MY DAF)

Dissolved air flotation is used to purify industrial wastewater from suspended substances, fats, petroleum products, as well as to reduce the concentration of COD and BOD. Saturation of waste water with air and the use of reagents can improve the quality of water purification.

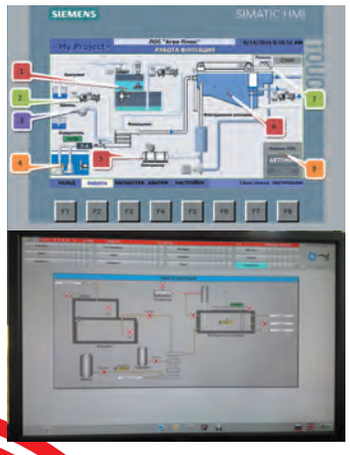


MY DAF – dissolved air flotation unit is the joint Russian-Czech production. Component parts come from the Czech Republic. Ecopolymer Company develops its own SCADA system and control cabinets.

Flotation is especially effective for wastewater treatment at meat processing plants, poultry farms, fish factories, dairies, oil extraction plants, paper mills, and other industrial plants.

- Compact dimensions of the flotation unit simplify its movement, installation and save space.
- The optimal ratio: price – quality.
- DAF is made of stainless steel AISI 304 or AISI 316, which provides long service life.

Effective removal of suspended solids, fats, petroleum products – up to 90%. Decrease BOD and COD – by 50-70%.



- Standard sizes for various applications.
- Capacity from 5 to 250 m^3/h.
- Automated control system that does not require the presence of staff.

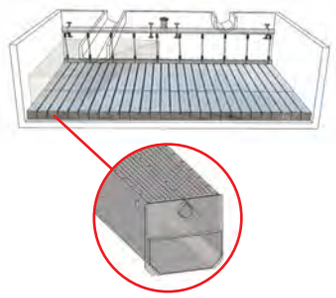
The flotation unit «MY DAF T» (for sludge thickening) is also successfully used for thickening biological activated sludge, for the purification of suspended solids.

The visualized information is presented to the operator on the screen of the control panel of DAF unit.

DRAIN SYSTEM AREAL TYPE

Drain systems of this type are designed for installation in high-rate trickling filters with granular loading at water treatment plants and at wastewater treatment plants in the post-treatment stage.

- The drainage and distribution system is made of AISI 304 stainless steel, service life of at least 20 years.
- The system covers the entire working area of the filter.
- Provides the ability to use one system to distribute both water and air for air-water flushing.
- Excludes the ingress of the filtering loading into system that significantly raisesits reliability and durability.
- The unevenness of distribution of flushing water along the length of the grid is less than 5%.
- The ease of installation of the Drain system minimizes modernization costs. The
- versatility of the design allows the use of drainage systems with filters of any configuration.



DRAIN SYSTEMS

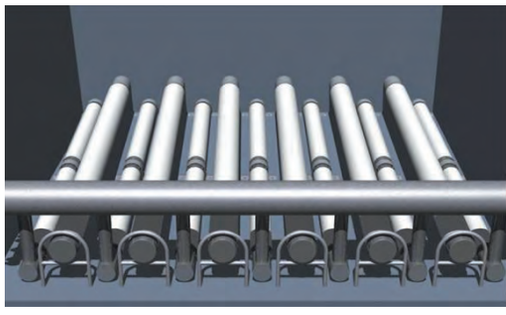
Drain systems (DS) are intended for reconstruction any type of filters: fast non-pressure filters with water or water-air flushing, contact clarifiers, pressure filters.

Due to an innovative technology, Ecopolymer produces DS from polymeric materials that have unique technical characteristics and have no analogues on the market. The use of patented drainage filters with adjustable length significantly reduces installation time and simplifies its process. For filters with air-flushing, along with the DS, there is an original air supply system made of AQUA-PRO diffusers.

- Reducing the cost of repair and reconstruction of filters.
- Improving the efficiency of using volume by eliminating supporting layers of gravel.
- Increase filter performance without increasing the number or volume of filtering facilities by increasing the filtering speed and, as a result, the filter cycle.

«Ecopolymer factory» produces the wide range of drain systems.

- Exclusion of the removal of the filter load with purified water.
- Ensuring uniform distribution of water during filtration and washing.
- Drainage filters of adjustable length simplify installation and shorten its time.



BIOLOGICAL TREATMENT

Biological wastewater treatment is based on the use of special bacteria capable to absorb dissolved pollutants from wastewater.

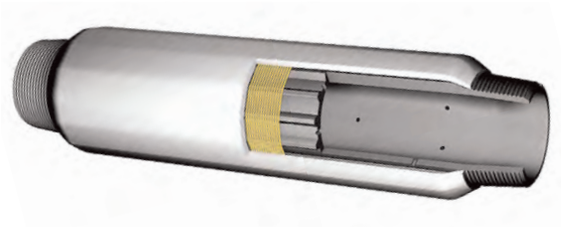
«Ecopolymer factory» produces the following types of equipment for biological treatment:

- two types of aeration systems – disk membrane and tubular diffuser;
- sludge suction scrapers;
- spillway trays;
- v-notch weir;
- semi-submersible boards;
- lifting devices.

The basis for the creation of the "ECOPOLYMER FACTORY" was the invention and introduction into production in 1990 of a polymer diffuser of the original design, which became one of the best in world practice.

AERATION SYSTEM AQUA-PRO-M

Aeration systems AQUA-PRO-M are used to saturate wastewater with oxygen in biological treatment process. The main elements of the AQUA-PRO-M aeration system are tubular diffusers, manufactured on the basis of profiled frame tubes.



- The frame of the diffuser has longitudinal ribs, which form the air cavities between the inner and outer dispersing layer. This contributes to the uniform distribution of air throughout the length of the diffuser.

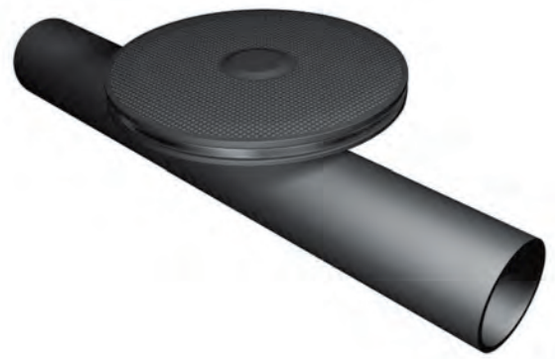
The most reliable and durable diffusers in CIS countries and China.

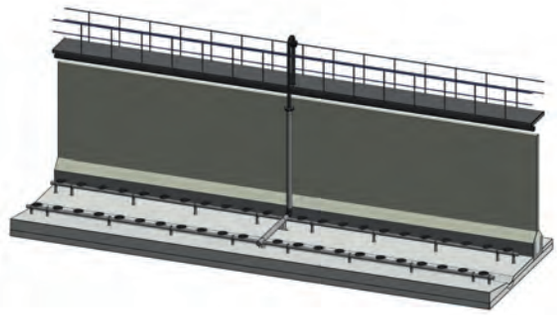
- Capacity from 6 to 21 m^3/h.
- External diameter – 128 mm.
- Internal diameter – 88 mm.
- Long-term service life without regeneration.
- Simple design provides reliable, easy and quick mounting.
- Stable operation conditions during all service life.
- Diffusers have high mass-transfer design, confirmed with national and international certificates, operational experience at more than 1000 WWTP.

AERATION SYSTEM AQUA-PLAST

AQUA-PLAST aeration system based on disk diffusers AR-300M with perforated elastic membrane are employed in multipurpose aeration systems.

Original design of rubber membrane provides effective diffusers operation within 10 years. Due to the design of the system service life can be extended up to 20 years by means of simple membrane replacement, which require minimal expenses.

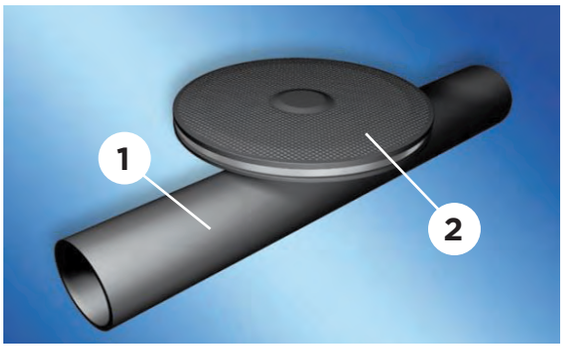




In addition to diffusers, the AQUA-PLAST aeration system includes supports and fittings, downcomers and manifold. Special supports are used to fasten modules and manifold to the bottom of the aeration tank.

- Ability to operate both in continuous and intermittent aeration modes, including backup aeration tank areas with nitrification-denitrification.
- Reliable protection from wastewater ingress into the system and resistance to aggressive conditions.
- Non-clogging membrane.
- Fine-bubble aeration and high mass transfer properties.

We have created a fashion for diffusers!



- Capacity from 2 to 10 m^3/h.
- Outer diameter – 290 mm.
- Simplicity of design, mounting and operation.

Diffuser AR-300-M
1 – air pipe;
2 – perforated membrane.

AQUA-TOR aeration system based on toroidal diffusers AR-420 T(N) with perforated elastic membrane is designed for aeration of sludge mixture (wastewater with activated sludge) in biological wastewater treatment systems (also, it is possible to apply to saturate natural).

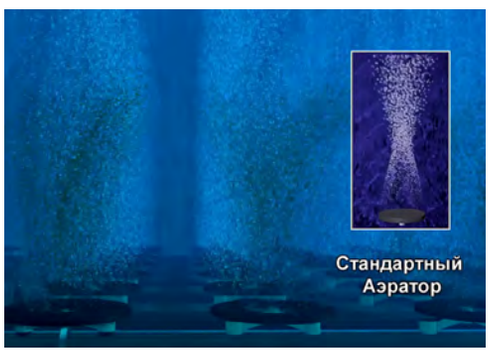
AERATION SYSTEM AQUA-TOR 420

The diffuser combines the advantages of membrane disc diffusers and a capacity of pipe diffusers. The air flow rate through one diffuser stands within a wide range. The diffusers efficiently prevent formation of dead areas in aeration tanks. The AQUA-TOR diffuser is protected by a number of patents. Diffusers are compatible with different piping systems of air distribution in air tanks, which simplifies building and assembly jobs.

- Capability of continuous and periodic modes of aeration.
- Aggressive chemical action resistance.
- Mud-resistant elastic membrane.
- Fine-bubble aeration and high level of oxygen transfer efficiency (OTE) at low head losses.

The most productive diffusers with air-lift effect.

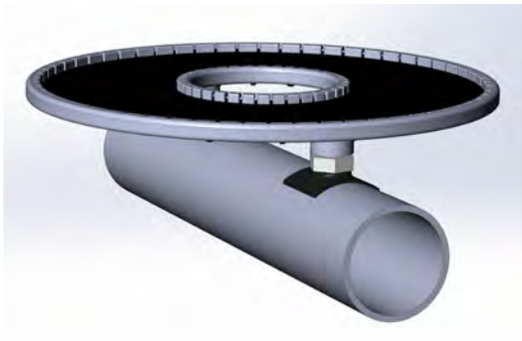
- Capacity from 4 to 25 m^3/h.
- Outer diameter – 420 mm.
- The diameter of the inner hole – 170 mm.
- High economic efficiency of one diffuser is equal to capacity of 3 standard 12» disc diffusers.
- Design, assemble and maintenance simplicity.



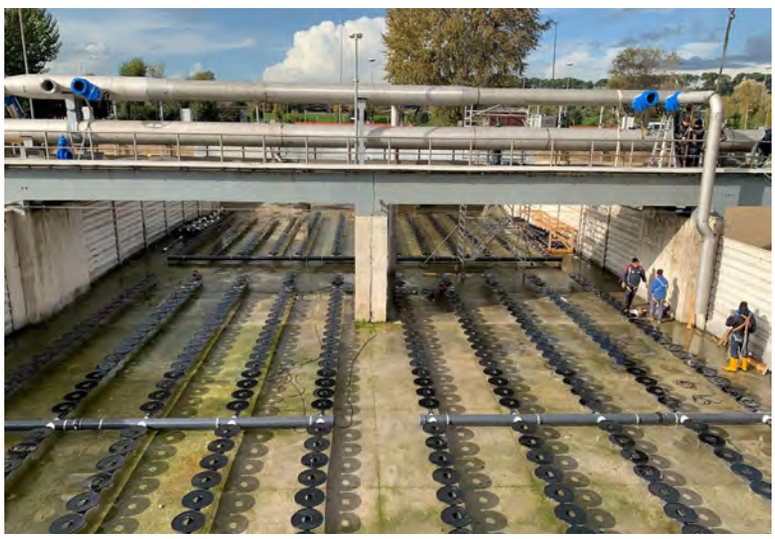
Air-lift effect

AERATION SYSTEM AQUA-TOR 500

AQUA-TOR 500 – is an innovative, highly efficient diffuser with the following unique properties:



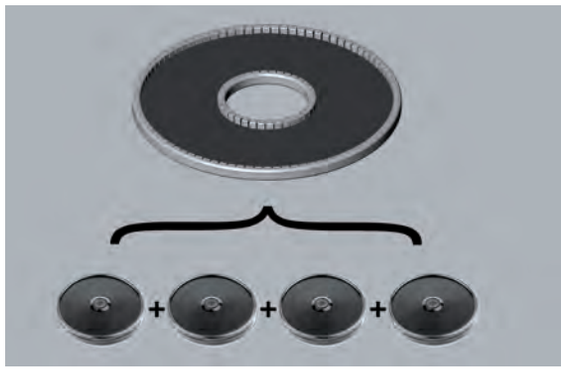
- High oxygen transfer efficiency at low hydraulic resistance.
- Capacity up to 30 m^3/h of air per diffuser
- Perforated area 0,14 m^2.
- Efficient operation in both continuous and intermittent aeration modes, including variable zones in aeration tanks with nitrification-denitrification.
- The capital expenditure of the aeration system is reduced as one AQUA-TOR 500 can replace four 9" disc diffusers.
- The lower hydraulic resistance of the aeration system increases the energy efficiency of the biological treatment system. Allows the operating company to save up to 25% of energy.
- Intensive airlift effect is provided by the central hole of the diffuser.



The large operating range makes it possible to widely solve technological problems, including areal zoning of aerotanks.

- Intensive mixing and preventing the sedimentation of activated sludge at the bottom of the aeration tank due to the airlift effect.
- The toroidal design of the diffuser reduces the coalescence of air bubbles during operation, increasing the air transfer efficiency.
- Simplicity of design, installation and operation.
- High chemical resistance to ultra-aggressive wastewater (option, on request).

The diffuser is installed on the manifold with a grommet and threaded sleeve.



AQUA-TOR 500 can replace four 9" diffusers

SLUDGE SUCTION SCRAPER

The suction scraper is used in secondary radial clarifiers and designed to collect sediment sludge on the bottom and floating sludge on the surface and removal them from the tank, it designs as a rotating mechanism with a peripheral drive, sludge feed, and sludge discharge systems.

Ecopolymer's sludge suction scraper has such technological advantages:

- The suction bridge is a structure in the form of framework, due to which its high strength and limited windage are achieved and made of AMg3M aluminum alloy.
- High corrosion resistance of the bridge is achieved by using a riveted connections instead of welding.

Separate sludge pipes allow to regulate the sludge consumption in each suction pipe – an innovative development of Ecopolymer's constructors – it's make possible to remove active sludge with a higher concentration and without pumping excess water. All sludge collection system are produced of stainless steel.

- The central support is a designed structure ensuring reliable operation of the suction scraper during its running, as well as ease of installation and low requirements for its accuracy. Central support is produced of stainless steel.
- Flooring on bridge with anti-slip surface, drive unit with one-piece tires and direct drive to the driving wheel – reliable solution for harsh winter conditions.

The sludge collection system is made of stainless steel.

For ease of use it is recommended to equip suction scrapers with additional equipment:

- additional cleaning brush, which increases the service life of weir and reduces the amount of suspended solids in effluent;
- for harsh winter conditions:
  - use infrared thermal radiator, which promotes the snow melting;
  - use special heating system the track with an electric heating cable;
- for a system with high foam forming it is recommended to apply the option of collecting floating substances that are removed from the clarifier together with recirculation sludge.

EQUIPMENT FOR SEDIMENTATION TANKS

COVERS

Designed to odor control at treatment facilities. The designs of the radial covers are made of fiberglass laminate of arched shape with a diameter of 15 to 54 m. They can also be made of metal (aluminum, stainless steel) with polymeric materials. There are 2 types of covers: stationary and rotating.

SPILLWAY TRAYS

Designed for diversion of clarified water from radial and horizontal sedimentation tanks. The water flow of clarified water is poured into the water overflow tray, where it is removed from the tank and sent to the further stages of cleaning. Provided for in sewage treatment plants. Production material – stainless steel or zinc coated carbon steel.

Convenience of installation and durability of operation.

SEMI-SUBMERSIBLE BOARD

It's intended to prevent the ingress of floating solids into the spillway tray of the sedimentation tanks and is mounted on brackets to board overflow tray.

V-NOTCH WEIRS

Intended to ensure uniform distribution of water along the length of the spillway tray and to level the hydraulic load between the tanks operating in the same group. V-notch weirs can be installed on both the concrete and the metal drain box of the sedimentation tank.

The material is stainless steel or special sheet plastic, resistant to UV and low temperatures.

BOARDING FOR CENTRAL (INLET) WELL

The complete set of boarding for the central (inlet) well includes all the fasteners necessary for the execution of the corresponding installation work.

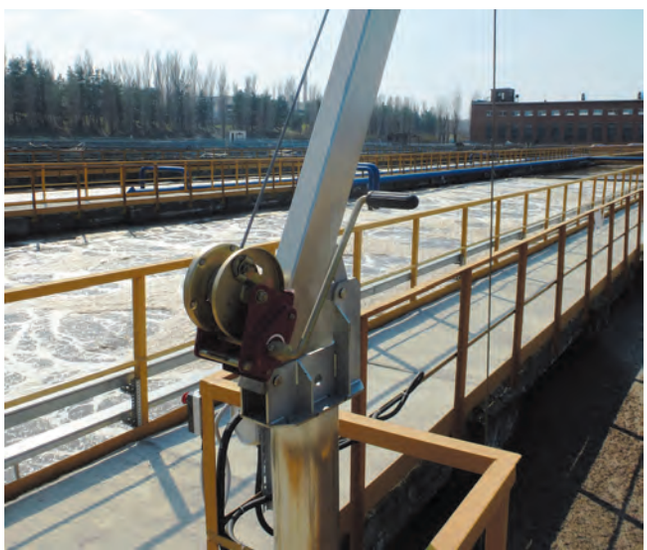
Additionally, it is possible tomanufacture and supply the corresponding stainless steel central (inlet) well according to the Customers drawings or according to the calculations of Ecopolymer specialists.

LIFTING DEVICES

Lifts and guides are designed for the installation, dismantling and maintenance of submersible mixers and pumps, and also for their positioning in tanks.

Elevators are made 3 models: UP01, UP02, UP03 and differ from each other in design and carrying capacity. Maximum capacity – up to 800 kg.

Used for wastewater treatment plants and sewage pumping stations.



- All models of lifts are made of stainless steel.
- Lifts have adjustable arm.

SLUDGE DEWATERING

Sludge dewatering is used to reduce sludge volume in order to getting the product easy for transportation. Dewatering is a mandatory step in the process preparation of sludge for further processing and disposal.

For the successful implementation of the technology of sludge dewatering, «Ecopolymer factory» produces reliable and efficient equipment:

- belt filter presses;
- screw presses;
- silos for dewatering sludge.

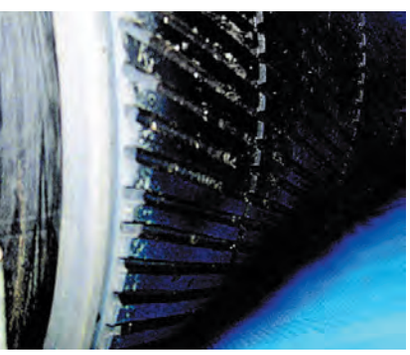
BELT FILTER PRESS

Ecopolymer belt filter presses provide the premium process for continuously converting sludge into a moist cake. The sludge is processed in three distinct stages: flocculation, gravity drainage, compression and shear.

Belt filter press is result of years of work experience in dewatering of different types of sludge and the latest world developments. EBP design is based on kinematic scheme at vertical positioning of press rolls and shafts.

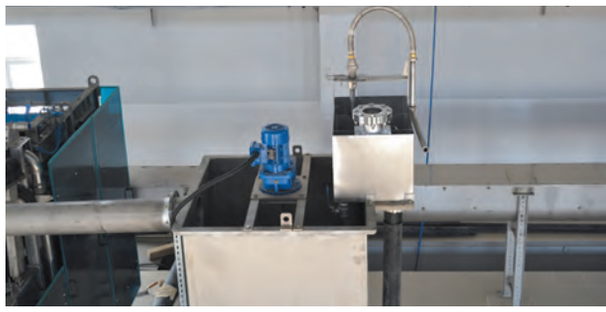
- The press shafts are located close to the vertical plan, each shaft has its own collection tray of filtrate. This technical decision prevents filtrate going to the previous or next shaft.

Filter press allows to reduce the volume of sludge by 10 times with minimal capital and operating costs.



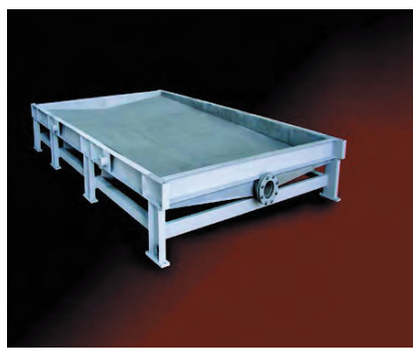
- The belt positioning system includes a compressor, pneumatic cylinders, belt position sensors and an air distribution panel. Technical solution provides reliable trouble-free operation of equipment and increases the service life of belts.
- In the rubber shafts, grooves are made of a spiral shape – provides reliable movement of belts without slipping efficient removal of filtrate.
- Additional pressing area provides for high efficiency and stable dewatering pressure. System allows achieving the required degree of sludge dewatering.

- Stainless steel pallet is located under whole area of press. This solution excludes the need for concrete baths and reduces the cost of construction and installation work.
- Stainless steel flocculation tank or with speed control mechanical mixer. This technical decision aids for better mixing of sludge with and reduce polymer consumption.
- Automatic blade feeder with turners in gravity drainage area allow distribute sludge evenly over all width of belt regardless of the viscosity of sludge and improve the outflow of the filtrate.
- Control cabinet with special touch panel. Control of belt press work can provide with operational tablet PC, or SCADA system. Any additional equipment can be easy connected.



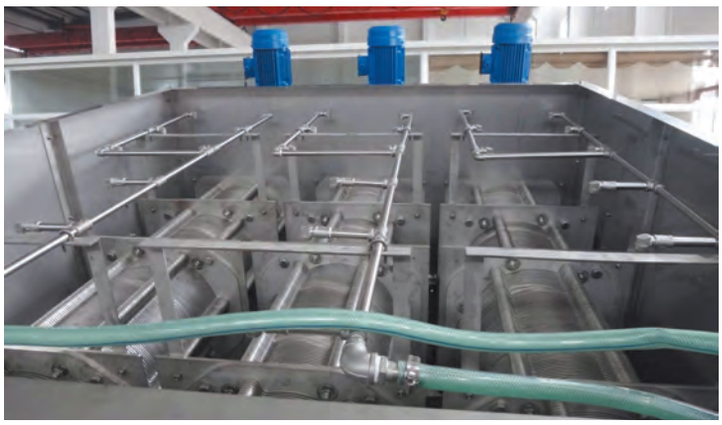
All elements of EBP (frame, pallet, tray and mixer) are made of AISI 304 (321) stainless steel (optionally, AISI 316 can be used). Shafts are made of carbon steel with corrosion resistant coating (the main dewatering and drive shafts are rubber-coated, other shafts have RILSAN® polyamide coating). Other elements, in contact with sludge and cake, are made of modern polymer materials

The filter press dimensions (by width of belt): 1000, 2000 and 3000 mm and depends on the needed capacity.



SCREW PRESS

The screw press is used for dewatering municipal and industrial sludge. The screw press works with sludge having a moisture content of 99,8% to 95%.



- Compact closed system, completely made of corrosion-resistant stainless steel.
- Depending on the concentration of solids in the sludge, the screw dewatering machine can be equipped with either a sludge mixer and floculant, or vertical thickener.
- The small weight and dimensions of the screw dewatering machine make it possible to compactly place the installation even in limited areas of mechanical dewatering workshops.

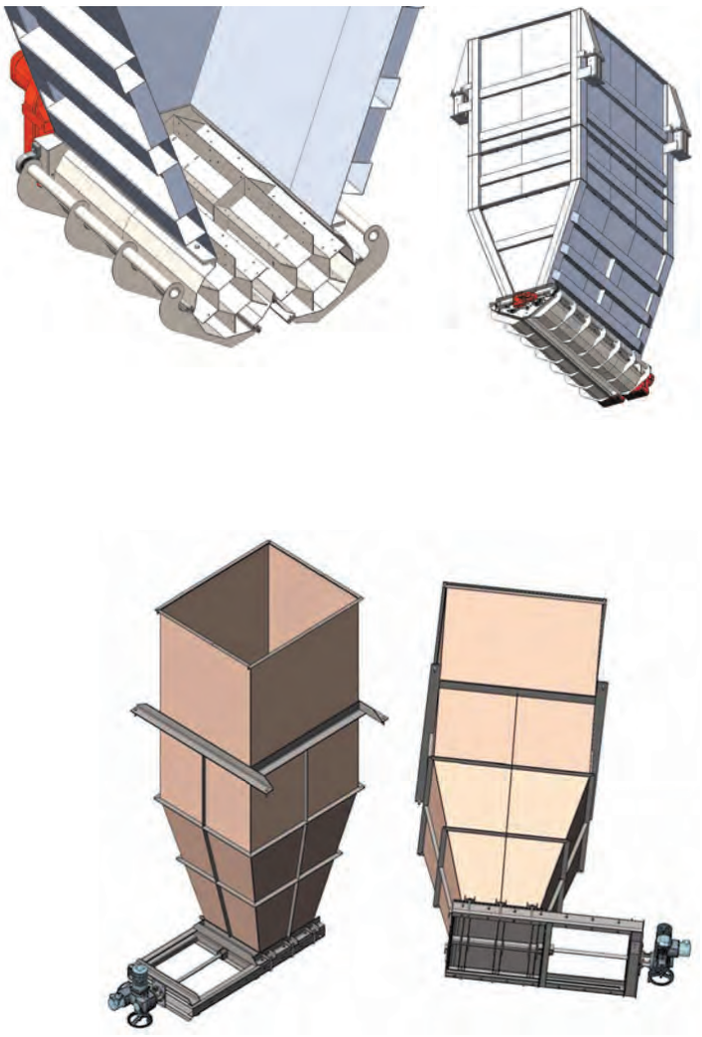
The use of the screw press can reduce the moisture content of sludge up to 75-85% with low capital and operating costs in a limited area.

- Due to the low speed of rotation of the screw and the forced movement of the moving disks, the service life of the equipment has been significantly increased.
- Low noise level (no more than 60 Db).
- Low consumption of electricity, reagents and water for washing.
- Works well with industrial sludge containing oils, fibers, petroleum products and fat-containing substances, as well as low dry matter precipitation.
- Works in automatic mode, does not require the continual presence of staff.

SILOS FOR DEWATERING SLUDGE

Designed for the collection and short-term storage of dewatered sludge and produced as a silos with top loading and unloading from the bottom.

SILOS for accumulating 48 m³ of cake with a paddle turner-dispenser and bucket gates.



SILOS for accumulation 16 m³ of cake with a penstock.

- The silos are made entirely of corrosion-resistant materials, which ensures a long service life.
- Developed and manufactured for individual customer requirements.

The design, shape and size of silos depend on many factors: the layout of the structure, the time required for the accumulation of cake, methods of loading and unloading, the type of supporting structures of the building, the physical properties of the cake (humidity, bulk weight, angle repose), as well as environmental and economic requirements.

FLOW CONTROL EQUIPMENT

At the wastewater treatment plant, to regulate and shut off the flow of water, is used penstocks, which can be used at all stages of water purification.

Flow control equipment are used in chambers, trays, open or closed channels for monitoring the volume of waste water, activated sludge, sludge mixture, etc.

PENSTOCKS

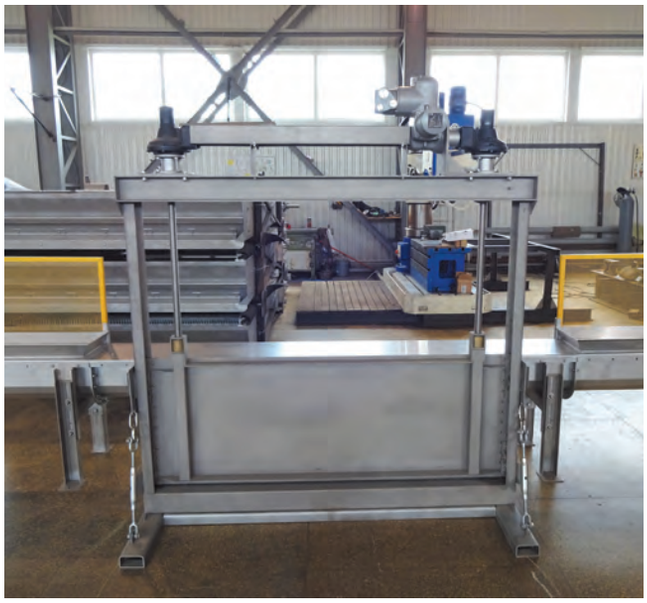
Penstocks are designed to quickly shut off or regulate the flow of water and other liquids and installed in open and closed self-flowing trays, channels, distribution chambers, recessed wall openings and large section collectors.

The trade and industrial company "Ecopolymer factory" offers a wide model and standard range of gates, suitable for a variety of technological Customer tasks.

Easy replacement of the seal, bearings, screw and slide screw gear is made without dismantling the gate frame.

The penstocks of production «Ecopolymer» are divided:

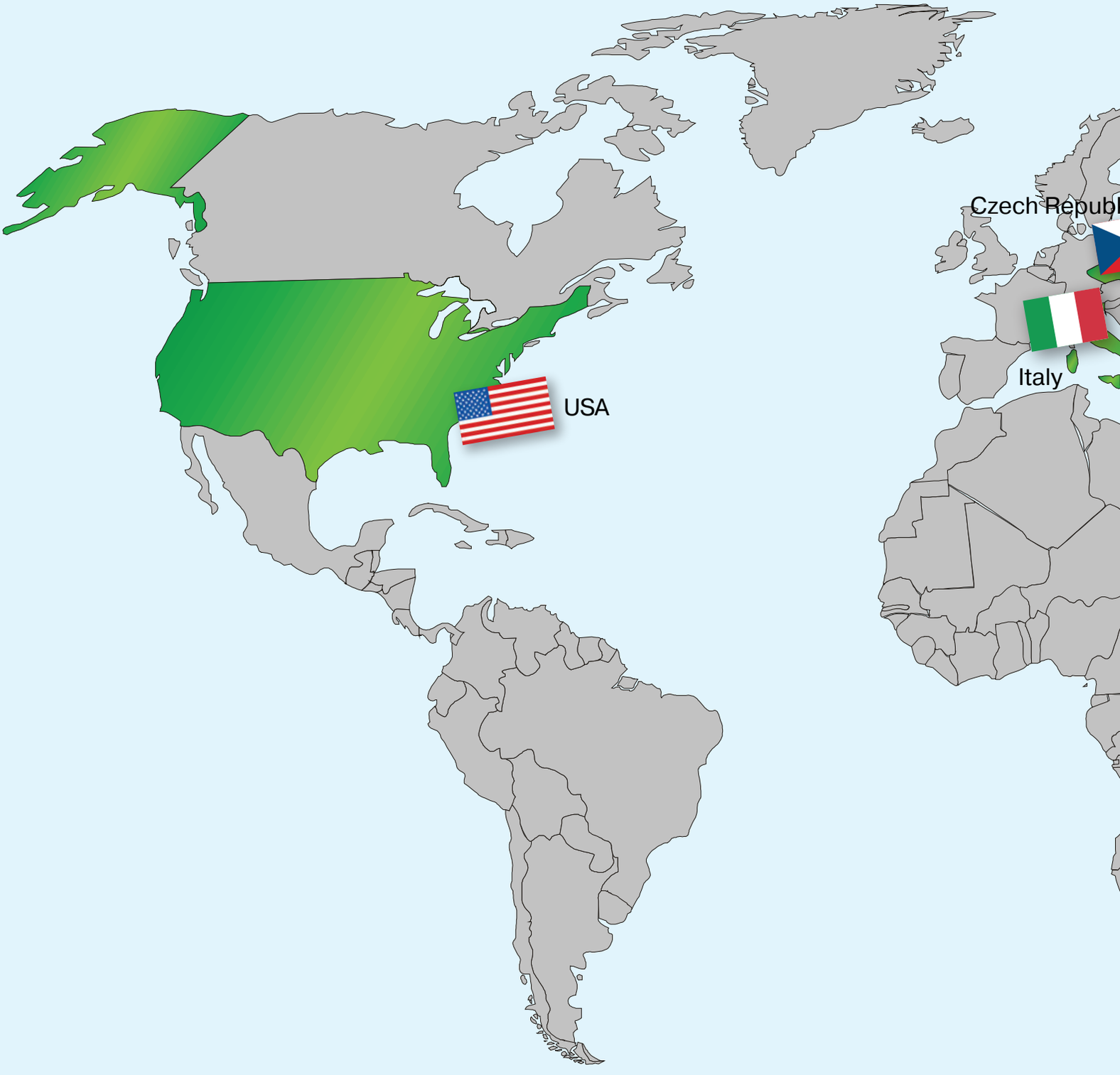
- **Type of installation:** channel penstocks (installed in the wall, channel etc.), wall penstocks (installed on inlets or outlets of chambers or basins) and flange penstock (installed on the pipe).
- **Type of location:** surface (with sealing on the three sides of gate) and deep (with sealing on the four sides of gate).
- **Direction of flow:** one side and two sided penstocks.
- **Type of drive:** with manual drive, with manual gear and with electric drive.



All «Ecopolymer» penstocks are made of stainless steel and other corrosion-resistant materials.

- Rotatable stem nut of lifting mechanism is made of high-quality stainless steel and clevis is made of special bronze – it provides reliable operation for a long time.
- Using of multi-rotatable nut allow to optimize opening-closing time and minimize electricity consumption;
- All models of seals are made by a non-moulded method of high-quality rubber produced using rubber grade (heat-frost-acid-alkali-resistant) with special additives, improving performance, durability and resistance in aggressive environment.
- Use of several models of seals with specially designed cross-section, allowing rational use of the environment pressure, allow to reduce material and energy consumption with the guarantee of impermeability.
- Penstocks are characterized by increased maintainability due to collapsible design: simplicity of seals replacement, bearings, stem and clevis without dismantling of frame gate.

LEADING COMPANIES IN THE INDUSTRY HAVE



Our equipment serves more

ALREADY CHOSEN “ECOPOLYMER” EQUIPMENT

than 120 000 000 people

FACTORY
ECOPOLYMER

Office: Moscow, Bolshoy Strochenovsky Lane, 7, fl.8
Factory: Kaluga Region.,
Polotnyanii zavod, Slobodka st., 117A
+7 (495) 710-86-22; **+7 (495) 710-99-70**
zavod@ecopolymer.com
www.ecopolymer.com