



INTEGRATED
SOLUTIONS
FOR WATER TREATMENT

+7 (812) 342-67-16, WWW.PTL2.COM



Equipment Catalogue

natural and waste water treatment

for customers



AWARDS



CERTIFICATES



REFERENCES



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ABOUT THE COMPANY

The POTENTIAL-2 Research & Development Centre has been working with technologies and equipment for natural and waste water treatment for more than 15 years. We focus on development, delivery and follow-up of industrial equipment for integrated treatment of natural water and sewage



Main Areas of Equipment Application

- UKOS-AUTO** sewage in water-circulation systems for washing automobiles and other machinery;
- UKOS-D** storm, melt water and watering-and-washing drains, waste water polishing;
- UKOS-BIO-F** household sewage in small sewer systems;
- UFIAN-M** production waste water from industrial, transport and service facilities;
- UKOS-BIO-FF** food production waste water;
- UKOS-VOD** surface and subsurface natural water for household-drinking and industrial water supply.

Appropriate certificates and licenses have been obtained for all equipment delivered and work performed.



Services

Site investigation, initial data acquisition, expert inspection, design, equipment installation and supervision of installation, commissioning, repairs of existing equipment, warranty and post-warranty service.

Advantages of the Technology

- Development of centralised and local water-circulation systems at enterprises
- Minimised operating costs (minimum staff, prevailing utilization of processes without chemical reagents)
- Easy maintenance of treatment facilities
- Versatility and reliability of operation of modular equipment

Our Customers:

OJSC GAZPROM // OJSC BELTRANSGAZ // Administration of President of Russia // OJSC Russian Railways // OJSC United Power System of the Russia // Ministry of Nuclear Industry of the Russia // Government of Leningrad Area // JSC Lukoil // JSC BSK // GUP Admiralteyskiye Verfi // JSC Alarm // Extradepartmental Security Directorate with City Administration for Internal Affairs // Transport Directorate with Ministry of Internal Affairs of the Russia // Transoil-Terminal, Ltd. // JSC Yeyesk-Port-Vista // JSC Borskoye Steklo // Toyota Motor Rus, Ltd. // Toyota AB // Volvo AB (Sweden) // Audi AB (Sweden) // Volkswagen AB (Sweden) // Statoil AB (Sweden) // Swebus AB (Sweden) // Slovak Eastern Steel Works (Slovakia) // SEZ CROMPACHY (Slovakia) // Stanta Mincovna (Slovakia) and many others.

HISTORY

The POTENTIAL-2 Research & Development Centre was established in 1990 with assistance from the Ukrainian Water-Economy Engineers Institute (now National Water Industry and Nature Management University) for large-scale implementation of water technologies and equipment for industrial sewage treatment in Russian engineering companies. The main base of implementation was LOMO (Leningrad), one of the largest companies in the USSR.



Later on, the R&D Centre was transformed into a limited liability company. The following departments were formed: research and technological work; design and development work; start-up, installation and service work; commercial and foreign economic relations department. After becoming a limited liability company, the R&D Centre independently developed about 20 natural water and sewage treatment technologies, more than 50 versions and dimension-types of water treatment equipment.



POTENTIAL-2 develops original water technologies and manufactures proprietary equipment for natural water and sewage treatment. Currently, more than 500 designs of water treatment facilities have been developed and implemented.

Today the Centre has partners and dealers in Sweden, Slovakia, Belarus, Poland and Israel, and has representative offices in Ukraine and the Czech Republic.

The greatest sales volume in proprietary water-treatment equipment has been reached in Russia's Northwest, and among foreign customers, in Scandinavia. POTENTIAL-2 takes active part in various exhibitions in Russia and other countries. As a designer and manufacturer of modern water-treatment equipment, the Centre was invited to participate in the international exhibitions "Cheping 1997" (Cheping, Sweden), "NEXPO 2001" (Tokyo, Japan), Scandinavian Technical Fair 2006 (Stockholm, Sweden).



Main Equipment Development Principles



The main line of the Centre's scientific activities includes theoretical and experimental studies of the physical-chemical processes involved in the phase-dispersed transformation of impurities, and the processes of removing impurities from natural water and sewage.

On the basis of modern achievements in water chemistry and technology, a fundamental technique for separating impurities using phase-dispersed states has been developed for application to industrial sewage.

New mechanisms have been established for oxidation, reduction, coagulation and gas-generation processes in chemical and electrochemical treatment of sewage and in phase separation by sedimentation, flotation and filtration.

On the basis of our own theoretical and experimental studies, unique processes for electrochemical, physical-chemical, hydro mechanical, flotation and combined treatment of natural water and sewage have been developed.

Scientific grounds have been established for the development of integrated treatment systems for industrial sewage and systems for rational utilization of purified water in the water industry, including local and centralized water circulation systems.

As a result of the studies conducted, technical procedures have been developed for natural water and sewage treatment, including:

- Technologic procedure for natural surface water treatment for drinking and technical water supply;
- Technologic procedures of subsurface water treatment for the elimination of iron, manganese, hydrogen sulphide, fluorine;
- Technologic procedures for tap water conditioning for improving its drinking quality (consumer properties);
- Technologic procedures for preliminary water softening before ion exchange or reverse osmosis;
- Technologic procedure for the regeneration of Na-cation column effluent filters;
- Technologic procedures for local, centralised or combined treatment of chromium-containing, acid-base, cyan-containing sewage from galvanic and painting facilities and from printed board production facilities;
- Technologic procedures for treatment of discharge cutting lubricants, detergent solutions, oil-emulsion sewage;
- Technologic procedures for spray cabinet sewage treatment;



- Technologic procedures for automobile washing sewage treatment;
- Technologic procedures for rainwater and meltwater treatment;
- Technologic procedures for household sewage treatment also mixed with industrial wastewater for units with low water removal rate;
- Technologic procedures for food production sewage treatment;
- Technologic procedures for treatment of sewage from railway and road transport facilities;
- Technologic procedures for primary and final treatment of sewage water to remove suspended substances, petroleum products, oils, fats, surfactants, organic compounds, heavy metals and other impurities;
- Technologic procedures for treatment, neutralization, utilization or regeneration of ion-exchange column effluent filters, reverse-osmosis unit concentrates, discharge process solutions and electrolytes.



All the procedures use combined physical-chemical treatment including electrochemical or chemical treatment, phase separation by sedimentation or flotation and filtration at the final stage. If necessary, the technical procedures are supplemented with modules providing biological oxidation or reduction of impurities, adsorption

of residual biological compounds, desalination and disinfection of purified water.

Customised sewage treatment procedures are developed in accordance with the customer's requirements.

Scientific recommendations were used in development of proprietary equipment – modular water treatment complexes (units). In developing this design, we used the principle of hydraulic coupling of modules, each of which provides an individual water-treatment process. Combining all the processes yields purified water of the required quality. Prefabricated complex modules have transportable dimensions and can be quickly installed on-site. The required capacity of water treatment facilities is ensured by a set of units from a dimension-type series.



On the basis of developments in engineering processes, rational water-utilization systems have been created for industrial, transport and service enterprises.

Machinery Washing and Water Recycling



GENERAL DESCRIPTION

UKOS-AUTO is advanced and reliable equipment designed for treatment of sewage discharged from car-washing facilities, ensuring water circulation systems on the wash areas (without sewage discharge).

UKOS-AUTO is a compact modular unit utilising breakthrough electrochemical treatment technologies and filtration without chemical reagents.

UKOS-AUTO is easy to use, does not require constant maintenance staff and has low-current demands. It can be installed in the wash areas.

INITIAL SPECIFICATIONS

UKOS-AUTO may be used with the following initial specifications:

- Sewage flow rate, 0.3–20 m³/h
- Concentration, not more than, mg/l:
 - petroleum products 500
 - suspended substances 2500
 - surfactants 50
- Sewage temperature, 10–50°C.

MATERIALS

UKOS-AUTO units are made of ferrous metal, plastic and stainless steel.

APPLICATIONS

The UKOS-AUTO modular water-treatment complex (UMWTC) is designed for treatment of sewage from washing of:

- Carburetor or diesel-powered automobiles and freight vehicles;
- Railway and underground vehicles;
- Buses, automobiles and freight vehicles at motor transport facilities, maintenance and service stations and centers;
- Units and assemblies;
- and other machinery.

In a procedure including UKOS-AUTO UMWTC, automobiles can be washed manually or by means of mechanized washing equipment; shampoos or other detergents may be used for washing. In case UKOS-AUTO UMWTC is applied for treatment of sewage from washing the freight vehicles used for carrying food products, fertilisers, pesticides and similar goods, approval by R&D Centre POTENTIAL-2 is required.

DELIVERY SET

The basic delivery set includes the following:

- UKOS-AUTO complex of required capacity equipped with regulating station
- Rectifier
- Pump of sewage supply to treatment

Optional:

- Automobile washing equipment
- Auxiliary purified water tank
- Injection pump
- Other accessories for washing site

DELIVERY SPECIFICATIONS

Delivery time – 0.5–2 months (depending on the order complexity).
Transportation – any mode of transport (preferably – motor or rail).
Equipment storage – warehousing, in summer – outdoor warehousing.

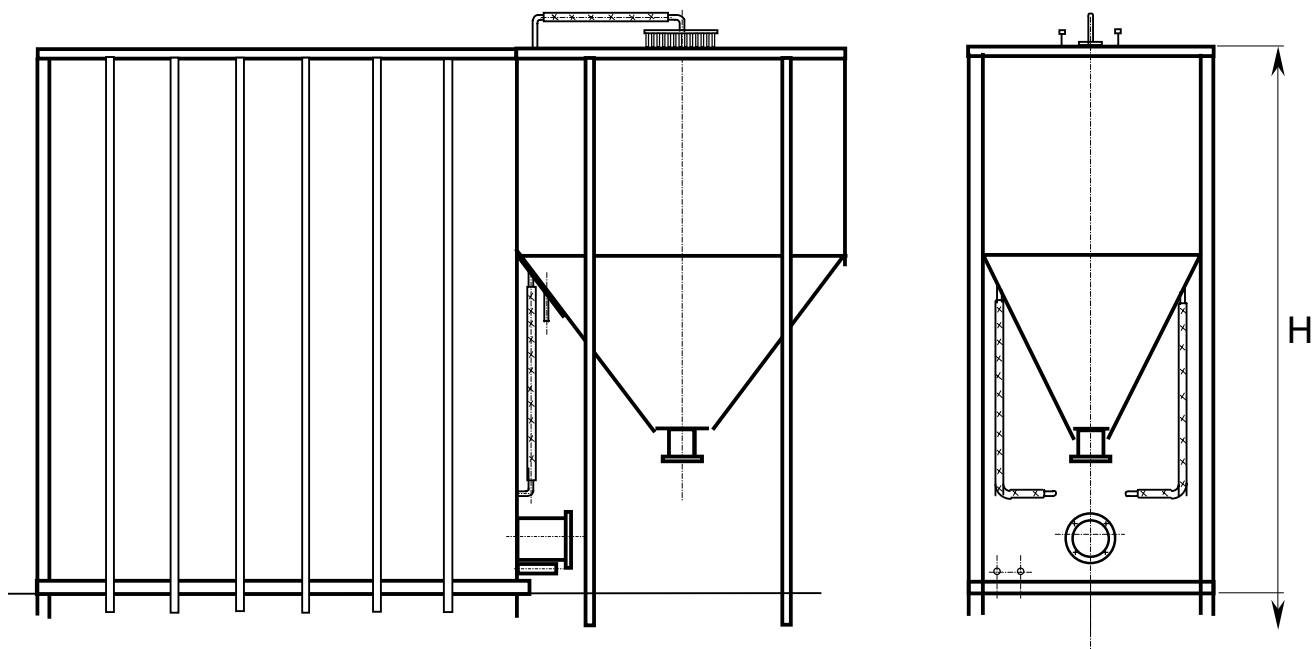
ГАРАНТИИ

Warranty period for equipment – 12 months from the day of commissioning. Warranty period for accessories – 6 months.

EXTENDED SERVICES

- Design work
- Installation of equipment
- Maintenance staff training
- Service maintenance

OUTLINE DRAWING



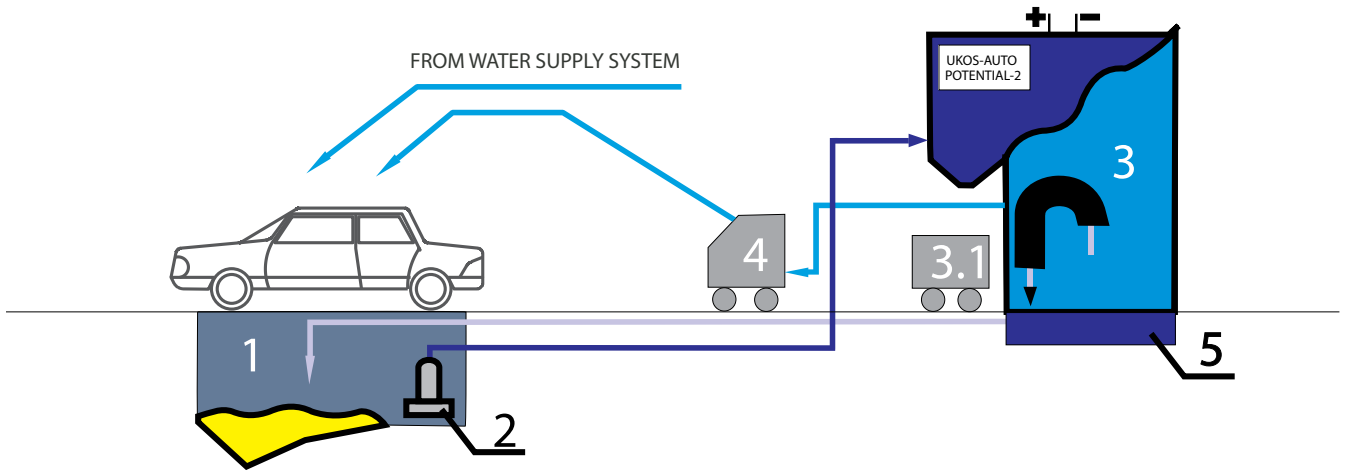
TECHNICAL DATA

No.	Parameters	Version of the Modular Complex					
		UKOS-AUTO-0.3	UKOS-AUTO-0.5	UKOS-AUTO-1	UKOS-AUTO-2	UKOS-AUTO-5	UKOS-AUTO-10
1.	Capacity, m ³ /h	0.3	0.5	1	2	5	10-20
2.	Electrode service life, months	2 - 8					
3.	Filter cycle duration, not less than, h	10					
4.	Washing water volume, not more than, m ³	0.2	0.4	0.7	1.5	3.0	6.0
5.	Overall dimensions, mm						
	- length	1 180	1 380	1 700	1 950	5 100* / 4 400	4 150
	- width	500	580	900	1 300	1 300	2 400
	- height	2 100	2 100	2 100	2 400	2 400	2 400
6.	Mass, t						
	- dry	0.4 (0.2)	0.5 (0.25)	0.8 (0.4)	1.2 (0.6)	2.3 (1.2) 2.7* (1.4*)	3.8 (1.9)
	- water-filled	1.2 (1.0)	1.5 (1.25)	3.1 (2.7)	5.5 (4.9)	10.7 (9.4) 12.7* (11.4*)	18.7 (16.8)
7.	Operation mode	continuous or periodic					

Note:

1. Mass of stainless steel UKOS-AUTO-ES UMWTC shown in parentheses.
 2. * - data for UMWTC where a pure-water tank is included in the delivery set.
- Outline drawings of UMWTC are presented in Appendices 1-7.

SEWAGE TREATMENT AFTER MACHINERY WASHING BY UKOS-AUTO WATER-TREATMENT COMPLEX



- PURIFIED WATER
- WASHING WATER
- DIRTIED WATER
- SEDIMENT

- 1. RECEIVING WELL
- 2. IMMERSION PUMP
- 3. UKOS-AUTO UMWTC
- 3.1. CONTAINER TRUCK FOR SEDIMENT
- 4. HIGH-PRESSURE UNIT OR PURIFIED WATER PUMP
- 5. WASHING WATER PIT

CONCLUSIONS. UKOS-AUTO – PREMIUM COMPACT EQUIPMENT

- Water circulation for washing automobiles and other machinery
- No chemical reagents – electrochemical technology applied
- Compact design of UMWTC does not require sizeable installation areas
- Low electricity consumption

QUESTIONNAIRE

for processing technical & commercial offer
for delivery of sewage treatment equipment
discharged from automobile / other machinery washing facilities

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

- | | | |
|-----------------------------|-------|--------------------------|
| Internet | _____ | <input type="checkbox"/> |
| Colleagues' recommendations | _____ | <input type="checkbox"/> |
| Exhibition | _____ | <input type="checkbox"/> |
| Publishing in printed media | _____ | <input type="checkbox"/> |
| Other | _____ | <input type="checkbox"/> |

1. Purpose of purchase:

- | | |
|--|--------------------------|
| New construction of car-washing facility | <input type="checkbox"/> |
| Equipping the existing car-washing facility | <input type="checkbox"/> |
| Renovation of operating treatment facilities | <input type="checkbox"/> |

2. Types of vehicles washed or to be washed:

- | | |
|-------------------|--------------------------|
| Freight vehicles: | |
| open | <input type="checkbox"/> |
| closed | <input type="checkbox"/> |
| Automobiles | <input type="checkbox"/> |
| Buses | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/> |

3. Number of vehicles washed or to be washed, pcs/day

- | | |
|---------------------|-------|
| - Freight vehicles: | |
| open | _____ |
| closed | _____ |
| - Automobiles | _____ |
| - Buses | _____ |
| - Others | _____ |

4. Description of washing equipment (type, capacity, quantity, operation mode)

5. Type of detergents (shampoos) used:

- | | |
|-------------|--------------------------|
| - Anionic | <input type="checkbox"/> |
| - Cationic | <input type="checkbox"/> |
| - Non-ionic | <input type="checkbox"/> |

6. Description of water-supply system at the car-washing facility (designed or existing):

Water supply source

public waterworks system technical water pipeline subsurface water river water delivered water

- Other source _____

- Water conditioning equipment and its specifications _____

- Storage and regulating water tanks and their capacities _____

7. Description of water-discharge system at the car-washing facility (designed or existing):

Sewage drainage system:

municipal sewage system industrial sewage system rainwater disposal system water reservoir outlet discharge to a storage tank removal by a cesspool truck

- Other source _____

- After-wash sewage treatment equipment and its specifications

- Storage and regulating sewage tanks, their capacities and location

8. Sewage quality indicators and requirements for purified water

No.	Indicator	Unit of Measurement	Value	
			Sewage	Required
1.	Temperature	C		
2.	Suspended substances	mg/l		
3.	pH	units		
4.	Petroleum products	mg/l		
5.	Surfactants	mg/l		

Note: The table must show all rated indicators

9. Sewage flow rate, m³:

- daily _____

- hourly _____

10. Operating mode (continuous, periodical, number of working shifts):

11. Requirements for water circulation system of the car-washing facility:

- Complete recirculation
- Partial recirculation
- No recirculation required

12. Location of the car-washing facility:

- Indoors
- Shed
- Outdoors

13. Other initial specifications and special requirements (at customer's discretion) _____

AUTHORISED EMPLOYEE: _____

Please send the questionnaire filled in by the authorised employee to:

tel.: +7(812) 342-67-16,

fax: +7(812) 342-67-36,

e-mail: info@ptl2.com

www.ptl2.com

Please Note:

The technical & commercial offer will be processed on the basis of data presented in the Questionnaire. Should the initial specifications be invalid or inaccurate, they can be defined more accurately upon signing of the contract. Upon delivery of the water-treatment equipment, all responsibility for consistency and completeness of the initial specifications presented shall be on the Customer.

R&D Centre POTENTIAL-2 performs development, designing, equipment delivery, start-up, adjustment and service in natural and waste water treatment.

Treatment of Storm Water and Melt Water from Polluted Areas



GENERAL DESCRIPTION

UKOS-D is industrially approved equipment designed for post-treatment of surface (rain and melt runoff) water to required standards for application in industrial (recycling) water supply systems or water reservoir outlets.

UKOS-D is a compact modular unit utilising breakthrough electrochemical treatment technologies and filtration without additional chemical reagents.

UKOS-D is easy-to-use, does not require constant maintenance staff.

APPLICATIONS

The UKOS-D modular water-treatment complex (UMWTC) is designed for post-treatment of mechanically purified surface (rain and melt runoff) water from engineering and motor-transport enterprises, repair plants, petroleum storage depots, garages, parking lots and other industrial, transport and service facilities.

UKOS-D UMWTC can be used in the construction of new treatment facilities or in the reconstruction and modernisation of existing ones.

UKOS-D units can be installed both in aboveground and underground areas.

INITIAL SPECIFICATIONS

- UKOS-D may be used with the following initial requirements:
- Concentration of sediment accumulated in the tank inlet must not exceed, mg/l:
 - petroleum products 500
 - suspended substances 3000
 - biological oxygen demand 20.100
 - chemical oxygen demand 250

DELIVERY SET

- Basic delivery set includes as follows:
- UKOS-D complex of required capacity
 - Components and materials (by agreement with the Customer)

MATERIALS

UKOS-D UMWT complexes are made of carbon or stainless steel and provided with the hygienic certificate.

UKOS-D units are available in half-automatic and automated operation modes.

DELIVERY SPECIFICATIONS

Delivery time – 0.5-1.5 months (depending on the order complexity).

Transportation – any mode of transport.

Equipment storage – shed warehousing, in summer – outdoor warehousing.

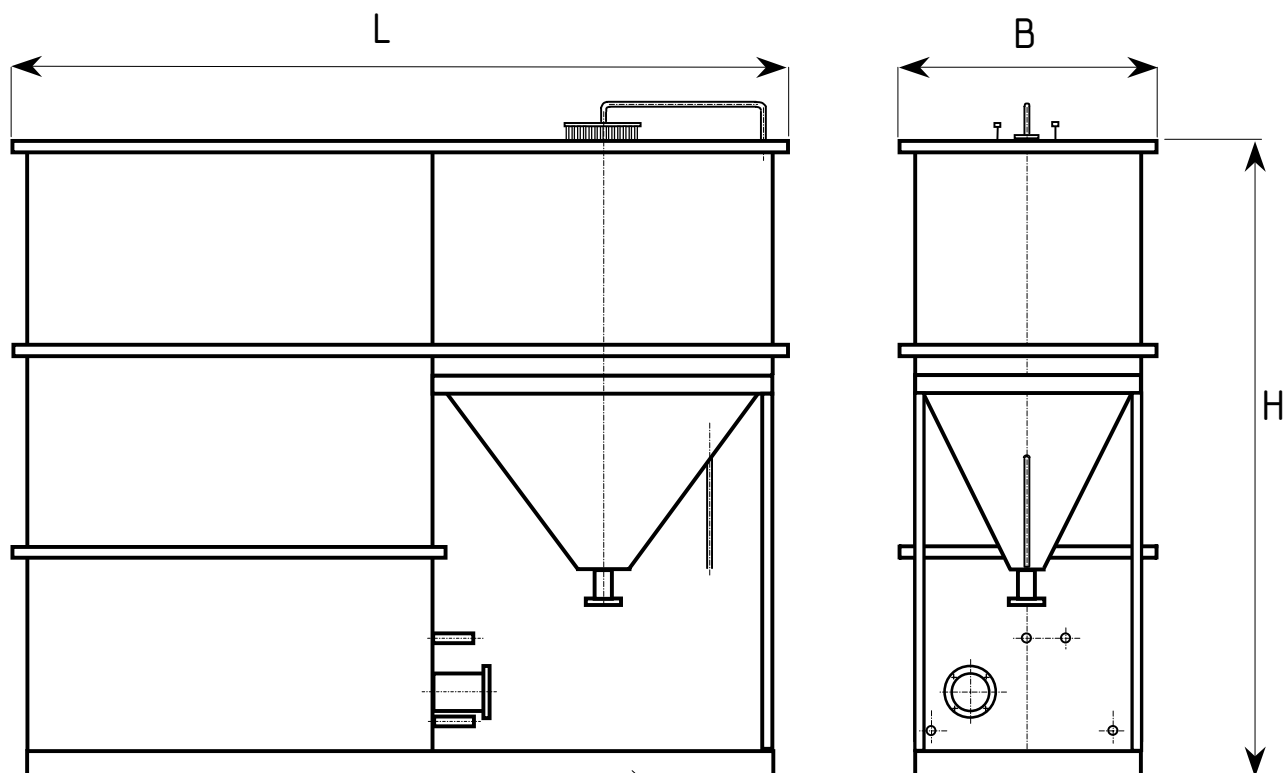
WARRANTY

Warranty period for equipment – 12 months from the day of commissioning.

EXTENDED SERVICES

- Design work
- Installation of equipment
- Maintenance staff training
- Service maintenance

OUTLINE DRAWING



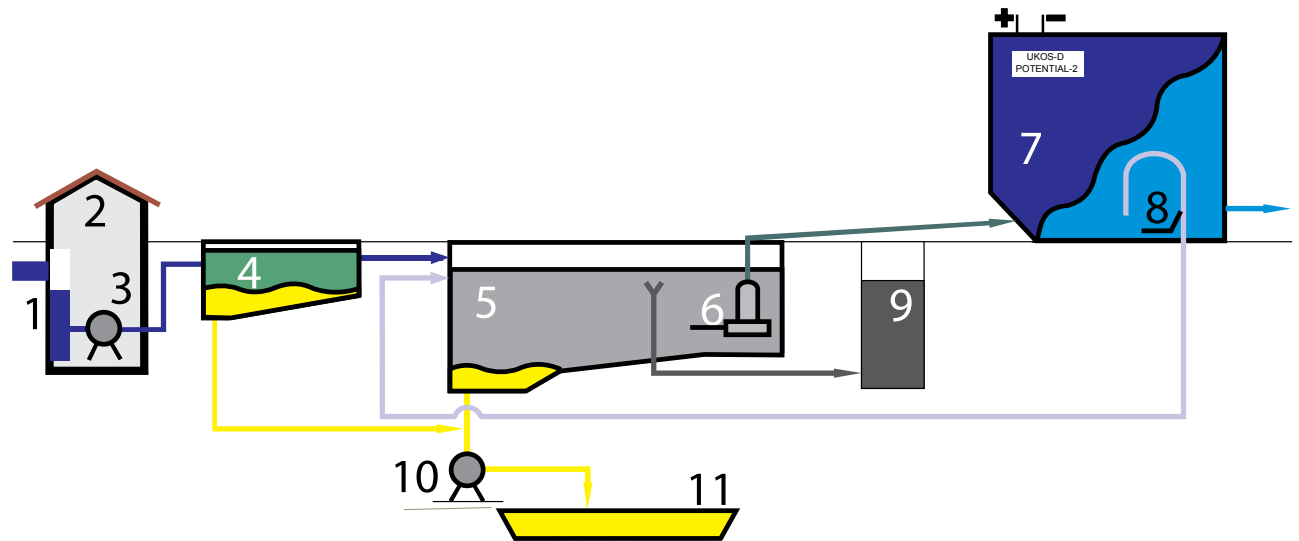
TECHNICAL DATA

No.	Parameters	Version of the Modular Complex			
		UKOS-D-2.5	UKOS-D-5	UKOS-D-10	UKOS-D-20
1.	Capacity, m ³ /h	2,5	5,0	10,0	20,0
2.	Overall dimensions, mm				
	- length	1 950	3 400	3 500	6 000
	- width	1 300	1 380	2 250	2 400
	- height	2 400	2 500	2 500	2 500
3.	Mass, t				
	- dry	1,2 (0,6)	2,3 (1,2)	3,4 (1,7)	5,9 (3,0)
	- water-filled	5,5 (4,9)	10,7 (9,6)	18,9 (17,2)	39,6 (36,7)
4.	Number of electrocoagulators, pcs.	1	1	1	2
5.	Washing water volume, m ³	1,5	3,0	5,0	11,5
6.	Electrode service life, months	2 - 6			
7.	Maintenance staff, men/shift	1			
8.	Filter cycle duration, hours	8			
9.	Operation mode	continuous or periodical			

Notes:

1. Dimensions of UKOS-D UMWTC of capacities 0.3 to 1.0 m³/h are presented in Appendix, in outline drawings.
 2. Mass of UKOS-D UMWTC made of stainless steel shown in parentheses.
- Outline drawings of UMWTC presented in Appendices 1-8.

STORM WATER AND MELT WATER TREATMENT BY UKOS-D WATER-TREATMENT COMPLEX



- | | | |
|----------------------|---|-----------------------------------|
| ● POLLUTED RAINWATER | 1. RAINWATER SEWERAGE SYSTEM | 7. UKOS-D WATER-TREATMENT COMPLEX |
| ● PURIFIED WATER | 2. PUMP STATION | 8. WASHING DEVICE |
| ● WASHING WATER | 3. PUMP POLLUTED WITH RAINWATER | 9. PETROLEUM PRODUCTS WELL |
| ● SEDIMENT | 4. SAND TRAP | 10. SEDIMENT PUMP |
| ● PETROLEUM PRODUCTS | 5. COLLECTING AND SEDIMENTATION TANK | 11. SAND AREA |
| | 6. PUMP FOR DELIVERY OF POLLUTED WATER TO FURTHER TREATMENT | |

CONCLUSIONS. UKOS-D – PREMIUM COMPACT EQUIPMENT

- Rain and meltwater treatment equipment to required standards
- Materials consumption and energy consumption of rainwater treatment and solid waste processing is decreased by 15–25%
- Stable outlet waste water indicators

QUESTIONNAIRE

for processing technical & commercial offer
for equipment delivery
for treatment of stormwater and meltwater

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

- | | | |
|-----------------------------|-------|--------------------------|
| Internet | _____ | <input type="checkbox"/> |
| Colleagues' recommendations | _____ | <input type="checkbox"/> |
| Exhibition | _____ | <input type="checkbox"/> |
| Publishing in printed media | _____ | <input type="checkbox"/> |
| Other | _____ | <input type="checkbox"/> |

1. Applications of the unit (specify application purposes)

2. Catch rainwater basin, ha

- Total catch water basin _____

- Waterproof cover area _____

- Soil surface area _____

- Lawn area _____

3. Approximate sewage composition and majority impurity concentrations (initial specifications may be presented on a separate sheet)

4. Mode of rainwater sewage supply to water-treatment facilities:

- | | |
|------------------|--------------------------|
| - Pressure | <input type="checkbox"/> |
| - Free-flow | <input type="checkbox"/> |
| - No information | <input type="checkbox"/> |

5. Separation chamber (well) in the rainwater network:

- | | |
|------------------|--------------------------|
| - Available | <input type="checkbox"/> |
| - Not available | <input type="checkbox"/> |
| - No information | <input type="checkbox"/> |

6. Requirements for treated water (may be presented on a separate sheet):

7. Other initial specifications and special requirements (specified at the Customer's discretion):

AUTHORISED EMPLOYEE: _____

Please send the Questionnaire filled in by the Authorised Employee to R&D Centre POTENTIAL-2 at the address: 197327, Russia, St.Petersburg, Gakkelevskaya st., h.18, bld.4

tel.: +7(812) 342-67-16,

fax: +7(812) 342-67-36,

e-mail: info@ptl2.com

www.ptl2.com

Please Note:

The technical & commercial offer will be processed on the basis of data presented in the Questionnaire. In case the initial specifications are invalid or inaccurate, they can be defined more accurately upon signing the contract. Upon delivery of water-treatment equipment, all responsibility for consistency and completeness of the presented initial specifications shall be on the Customer.

R&D Centre POTENTIAL-2 performs development, designing, equipment delivery, start-up, adjustment and service in natural and waste water treatment.

Sewage Treatment



GENERAL DESCRIPTION

UKOS-BIO-F is industrially approved equipment designed for treatment of household and industrial & household sewage to standard requirements for water reservoir outlet.

UKOS-BIO-F is a compact modular unit. Sewage treatment is ensured by mixed technology including the stages of mechanical, biological and electrochemical treatment and allowing for purified water of assured quality for fishery reservoir outlet. Treated water is disinfected with ultraviolet irradiation.

The unit utilises the effective aeration system.

UKOS-BIO-F is easy-to-work, does not require constant maintenance staff.

APPLICATIONS

UKOS-BIO-F modular water-treatment complexes (UMWTC) are designed for treatment of household and industrial & household sewage in groups of cottages, holiday hotels, vacation houses, localities, household facilities of production plants, transportation facilities and service industries, used in treatment facilities of production plants including food industry, and also other buildings equipped with centralised water and sewage systems.

UKOS-BIO-F can be applied in the construction of new treatment facilities and the reconstruction and modernization of existing ones.

INITIAL SPECIFICATIONS

UKOS-BIO-F may be used with the following initial requirements:

- Concentration must not exceed, mg/l:
- suspended substances 350
- biological oxygen demand 20.400
- chemical oxygen demand 600
- surfactants 10

DELIVERY SET

The basic delivery set includes the following:

- UKOS-BIO-F complex of required capacity
- Components and materials (by agreement with the Customer)
- Equipment made of carbon or stainless steel
- UKOS- BIO-F MWT complexes provided with the hygienic certificate
- UKOS- BIO-F units available in half-automatic and automated operation modes

MATERIALS

The equipment is made of carbon or stainless steel. UKOS- BIO-F MWT complexes are provided with a hygiene certificate.

UKOS- BIO-F units are available in half-automatic and automated operation modes.

DELIVERY SPECIFICATIONS

Delivery time – 0.5 1.5 months (depending on the order complexity).

Transportation – any mode of transport.

Equipment storage – shed warehousing, in summer – outdoor warehousing.

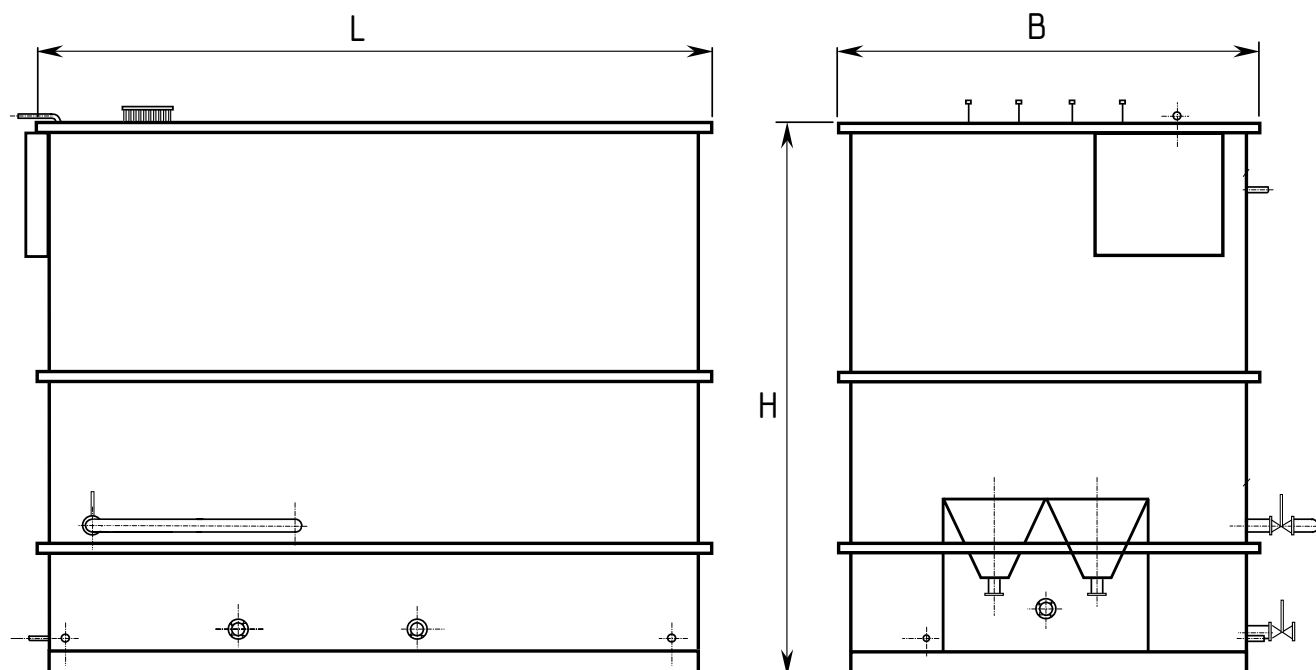
WARRANTY

Warranty period for equipment – 12 months from the day of commissioning.

EXTENDED SERVICES

- Design work
- Installation of equipment
- Maintenance staff training
- Service maintenance

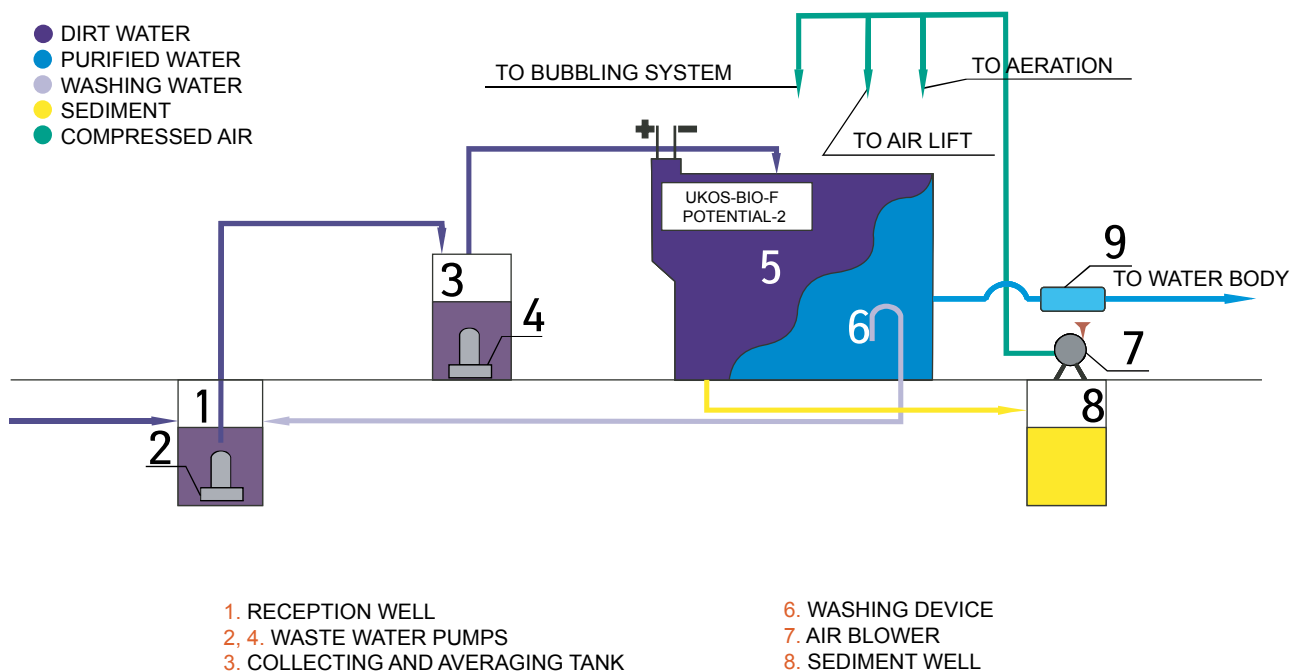
OUTLINE DRAWING



MAIN TECHNICAL DATA

No	Parameter	Version of the Complex							
		UKOS-BIO-F5	UKOS-BIO-F9	UKOS-BIO-F12	UKOS-BIO-F20	UKOS-BIO-F50	UKOS-BIO-F100	UKOS-BIO-F150	
1.	Capacity, m ³ /day	5	9	12	20	50	100	150	
2.	Equivalent number of inhabitants, persons	34	60	80	134	334	667	1000	
3.	Overall dimensions, mm								
	- length (L)	3 000	3 200	4 200	5 700	12 500	12 500	12 500	
	- width (B)	1 500	2 400	2 200	2 200	2 300	4 600	6 900	
	- height (H)	2 500	2 500	2 600	2 600	2 600	2 600	2 600	
4.	Mass, t								
	- dry	2,5	3,4	4,2	5,1	9,5	17,2	23,3	
	- water-filled	13,0	18,3	25,5	37,8	95,7	189,7	282,0	
5.	Installed capacity, not more than, kWt	1,5	2	3	3,5	4	8	11	
6.	Washing water volume, m ³	0,25	0,5	0,75	1,0	2,0	4,0	6,0	
7.	Sediment volume, m ³ /m ³	0,01 - 0,02							
8.	Filter cycle duration, hours	8							
9.	Maintenance staff, men/shift	1				1 - 2			

HOUSEHOLD AND INDUSTRIAL & HOUSEHOLD SEWAGE TREATMENT BY UKOS-BIO-F WATER-TREATMENT COMPLEX



CONCLUSIONS. UKOS-BIO-F – PREMIUM COMPACT EQUIPMENT

- Mixed technology for treatment of non-uniform household sewage
- Successful operation at facilities of OAO "Gazprom", "Oktyabrskye Railways" and other locations with low water consumption
- Technical and economic efficiency of UMWTC is proved by implemented projects

QUESTIONNAIRE

for processing technical & commercial offer
for equipment delivery
for household & sewage treatment

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

Internet

Colleagues' recommendations

Exhibition _____

Publishing in printed media _____

Other _____

1. Applications of the unit (specify application purposes)

2. Approximate sewage composition and majority impurity concentrations (initial specifications may be presented on a separate sheet)

3. Equivalent number of inhabitants _____ persons, or sewage flow rate, m³:

- daily _____

- hourly _____

4. Operation mode (continuous, periodic, number of working shifts):

5. Requirements for treated water quality (may be presented on a separate sheet):

6. Other initial specifications and special requirements (presented at the Customer's discretion):

AUTHORISED EMPLOYEE: _____

Please send the Questionnaire filled in by the Authorised Employee to R&D Centre POTENTIAL-2 at the address: 197327, Russia, St.Petersburg, Gakkelevskaya st., h.18, bld.4

tel.: +7(812) 342-67-16, fax: +7(812) 342-67-36,

e-mail: info@ptl2.com, www.ptl2.com

Please Note: The technical & commercial offer will be processed on the basis of data presented in the Questionnaire. In case the initial specifications are invalid or inaccurate, they can be defined more accurately upon signing the contract. Upon delivery of water-treatment equipment, all responsibility for consistency and completeness of the presented initial specifications shall be on the Customer.

R&D Centre POTENTIAL-2 performs development, designing, equipment delivery, start-up, adjustment and service in natural water and sewage treatment.

Industrial Waste Water Treatment



GENERAL DESCRIPTION

Application of the technology implemented in the UFIAN-M unit in modernization and reconstruction of the existing treatment facilities and in construction of the new neutralization stations allows for the following:

- Purification of sewage with medium and high concentrations of heavy metal ions to required standards with or without sewage separation by categories;
- Partial elimination of chemical reagents or significant decrease in consumption of such reagents;
- Disinfection and stabilization of purified water;
- Reduction in salt content of purified water due to smaller quantity of chemical reagents;
- Small quantity of generated solid waste suitable for further processing and recycling due to its composition, physical-chemical and mechanical properties;
- Reuse of 50–90% purified water in galvanic production depending on salt content of sewage supplied for treatment without auxiliary deionization equipment;
- Compact disposition of water-treatment equipment, shorter length of process pipelines, lower quantity of pumps and valves;
- Reduction by 15–25% of materials consumption and power consumption for processes of sewage treatment and processing of generated solid waste.

In terms of operating efficiency, engineering performance and economic indexes, the UFIAN-M water-treatment complex meets international market standards.

Technical solutions implemented for the technology and equipment are patented and involve know-how elements.

APPLICATIONS

UFIAN-M modular water-treatment complexes (UMWTC) are designed for treatment of the following categories of sewage:

- Printed circuit board manufacturing
- Galvanic production
- Metallurgy sewage
- Circulating water from spray cabinet hydrofilters
- Leather industry
- Chemical-pharmaceutical industry
- Drain water from household rubbish yards
- Oil-containing and oil-based sewage
- Paint and varnish industry
- Other categories of industrial sewage with the auxiliary modules installed

INITIAL SPECIFICATIONS

UFIAN-M may be used with the following initial requirements:

- Sewage flow rate, up to 100 m³/h
- Concentration, not more than, mg/l:
 - heavy metals (total) 800–1000
 - extractable substance 200–250
 - incl. petroleum products 150–200
- Sewage temperature, 10–50°C

DELIVERY SET

The basic delivery set includes the following:

- UFIAN-M water treatment complex
- Electrolytic cells with electrode plates, or chip electrolytic cells
- Neutralization tanks
- Nutsch filter or filter press
- Service tank for reagents
- Components and facilities, pipelines, fittings, trimmers (by agreement with the Customer)

PERFORMANCE

UFIAN-M units are made of ferrous metal, plastic or stainless steel.

DELIVERY SPECIFICATIONS

Delivery time – 1.5–9 months (depending on the order complexity).

Transportation – any mode of transport.

Equipment storage – shed warehousing, in summer – outdoor warehousing.

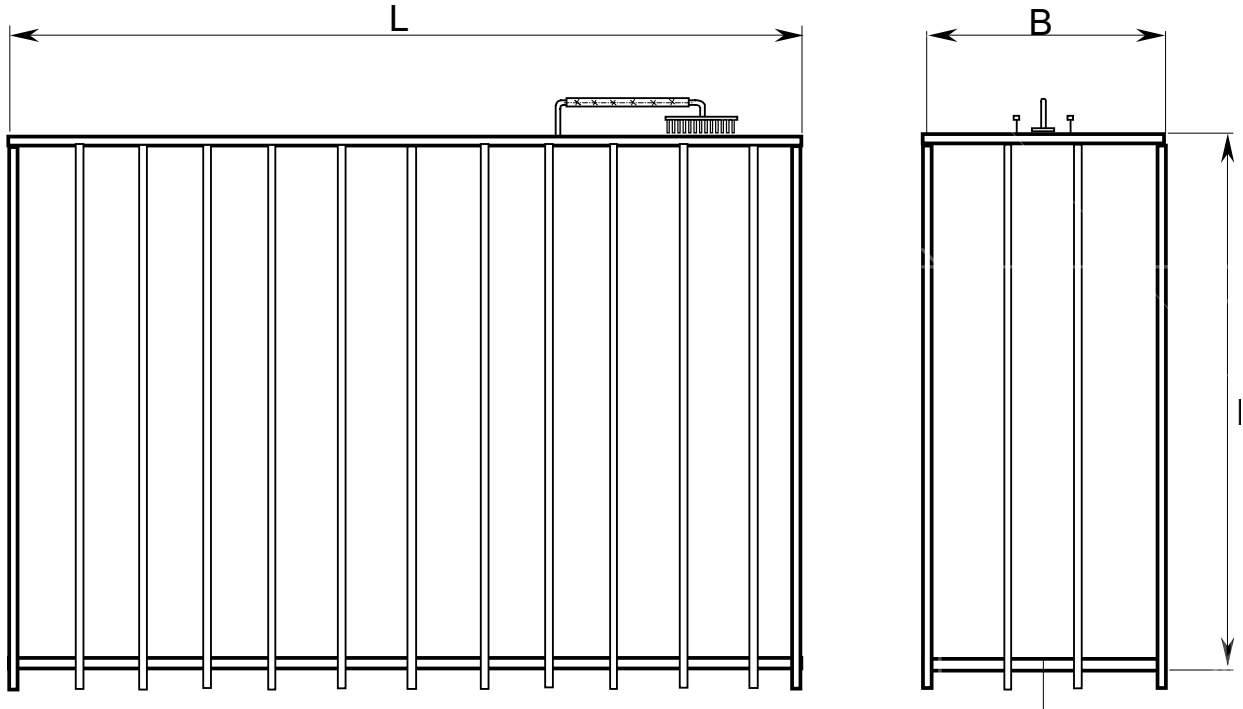
WARRANTY

Warranty period for equipment– 12 months from the day of commissioning.

EXTENDED SERVICES

- Design work
- Installation of equipment
- Maintenance staff training
- Service maintenance

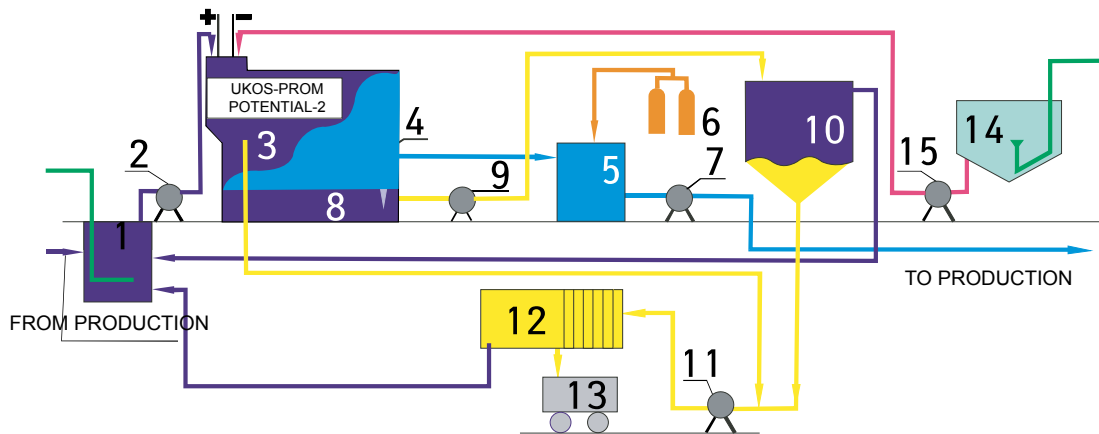
OUTLINE DRAWING



MAIN TECHNICAL DATA

No.	Parameter	Units	Version of the Complex				
			UFIAN-M				
1.	Capacity	m ³ /h	1	1-2.5	2.5-5	5-10	10-25
2.	Electrode service life	months	6 - 12				
3.	Impurity concentration in purified water:						
	- hexavalent chromium		not found				
	- trivalent chromium		traces				
	- total iron		traces				
	- zinc		traces				
	- nickel		traces				
	- copper		traces				
	- petroleum products		0.05				
	- suspended substances		2.0				
	- chemical oxygen demand	mgO ₂ /l	on the Customer's request				
	- pH	units	6,5-8,5				
4.	Overall dimensions:						
	- length (L)		2500	3300	4000	6500	7500
	- width (W)	mm	1200	2000	2000	2500	2500
	- height (H)		2500	2 500	2 500	2500	5000
5.	Installed capacity, not more than	kWt	5	8	12	25	60
6.	Filter cycle duration	hours	10				
7.	Operation mode		continuous or periodic				

INDUSTRIAL WASTE WATER TREATMENT BY UFIAN-M WATER-TREATMENT COMPLEX



- | | | |
|--|---|--|
| <ul style="list-style-type: none"> ● DIRT WATER ● PURIFIED WATER ● WASHING WATER ● SEDIMENT, FLOTATION SLIME ● REAGENTS ● COMPRESSED AIR ● CARBON DIOXIDE | <ul style="list-style-type: none"> 1. AVERAGING AND COLLECTING TANK 2. DIRT WATER PUMP 3. UKOS-PROM WATER-TREATMENT COMPLEX 4. WASHING DEVICE 5. NEUTRALIZER CHAMBER – PURIFIED WATER TANK 6. CYLINDER WITH CARBON OXIDE 7. PURIFIED WATER PUMP 8. WASHING WATER TANK | <ul style="list-style-type: none"> 9. WASHING WATER PUMP 10. SEDIMENT COMPACTOR 11. SLIME PUMP 12. FILTER-PRESS 13. DEHYDRATED SEDIMENT CONTAINER 14. STOCK OF REAGENTS 15. METERING PUMP |
|--|---|--|

CONCLUSIONS. UFIAN-M – PREMIUM COMPACT EQUIPMENT

- Treatment of sewage with medium and high concentration of heavy metal ions to required standards
- Disinfection, stabilization and salt content reduction of purified water
- Low amount of solid waste for further processing and utilization
- Arrangement of water recycling

QUESTIONNAIRE

for industrial waste water treatment

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

- Internet
- Colleagues' recommendations
- Exhibition
- Publishing in printed media
- Other

1. Applications of the equipment:

- Washing transport and other types of machinery
- Rainfall run-off from polluted areas
- Galvanic production
- Food industry
- Paint and varnish industry
- Household sewage
- Textile manufacture
- Other purposes (please specify)

2. Water source description _____

3. Water quality indicators and treatment requirements (please specify available data only, put dash if no data available):

No.	Indicator	Unit of measurement	Value	
			Source water	Required
1.	pH	units		
2.	Biological oxygen demand ₅	mg/l		
3.	Chemical oxygen demand _{Cr}	mg/l		
4.	Petroleum products	mg/l		
5.	Cu ²⁺	mg/l		
6.	Ni ²⁺	mg/l		
7.	Cr ³⁺	mg/l		

No.	Indicator	Unit of measurement	Value	
			Source water	Required
8.	Cr ⁶⁺	mg/l		
9.	Zn ²⁺	mg/l		
10.	Fe ²⁺	mg/l		
11.	Fe ³⁺	mg/l		
12.	Al ³⁺	mg/l		
13.	NH ₄ ⁺	mg/l		
14.	Cyanides	mg/l		
15.	SO ₄ ²⁻	mg/l		
16.	NO ₃ ⁻	mg/l		
17.	NO ₂ ⁻	mg/l		
18.	PO ₄ ³⁻	mg/l		
19.	Cl ⁻	mg/l		

Note. If analysis data for the indicator marked with * are not available, the data may be not presented.

4. Sewage flow rate, m³:

- daily _____ - hourly _____

5. Operation mode (continuous, periodic, number of working shifts):

6. Equipment available on-site:

- Compressed air
- Reagent section
- Pure water tank
- Other equipment and facilities _____

7. Other initial specifications and special requirements (presented at the Customer's discretion):

Signature of the Authorised Employee: _____

Please send the Questionnaire filled in by the Authorised Employee to R&D Centre POTENTIAL-2 at the address: 197327, Russia, St. Petersburg, Gakkelevskaya st., h. 18, bld. 4

tel.: +7(812) 342-67-16,

fax: +7(812) 342-67-36,

e-mail: info@ptl2.com

www.ptl2.com

Please Note:

The technical & commercial offer will be processed on the basis of data presented in the Questionnaire. In case the initial specifications are invalid or inaccurate, they can be defined more accurately upon signing the contract. Upon delivery of water-treatment equipment, all responsibility for consistency and completeness of the presented initial specifications shall be on the Customer.

Food Production Waste Water Treatment



GENERAL DESCRIPTION

UKOS-BIO-FF units are designed to be used in sewage treatment procedures for the food industry and other sectors. UKOS-BIO-FF operates on the principle of pressure flotation in biological and physical-chemical sewage treatment procedures.

UKOS-BIO-FF is a compact modular unit. It embodies new engineering solutions that have significantly improved its operating efficiency and reliability.

UKOS-BIO-FF units are easy-to-use, do not require constant maintenance staff, have relatively low power consumption and can be operated in a continuous or periodical mode.

UKOS-BIO-FF makes it possible to purify sewage with a high concentration of pollutants and to obtain low-humidity flotation sludge (lower than 95%). This sludge is easily and efficiently dehydrated due to improved water-loss quality.

APPLICATIONS

The UKOS-BIO-FF flotation unit is intended for treatment of production waste from meat- and fish-processing shops, breweries and malt-houses, bakery equipment, flourmills, milk processing equipment, cheese-making and margarine-making units and other food enterprises.

Such waste can contain: suspended substances, petroleum products, oils, fats, organic substances, surfactants and poorly soluble heavy metal compounds. UKOS-BIO-FF can also be used for separation and compaction of activated sludge at stations of biological treatment of household sewage and mixed household and industrial sewage, for treatment of oil-emulsion sewage, discharge cutting lubricants, degreasing solutions, etc.

The UKOS-BIO-FF unit may be used in the construction of new sewage-treatment facilities at food and other industries' enterprises, and in the reconstruction or modernization of existing ones.

UKOS-BIO-FF unit is efficient in treatment of sewage with a high concentration of pollutants prior to discharging to municipal sewerage systems and in deep treatment systems prior to water reservoir outlet or prior to utilization of purified water in water-circulation systems of enterprises.

Sewage treatment on UKOS-BIO-FF unit can be performed with or without application of chemical reagents.

INITIAL SPECIFICATIONS

UKOS-BIO-FF may be used with the following initial requirements:

- Sewage flow rate, 1–200 m³/h
- Concentration, not more than, mg/l:
 - fats up to 500
 - suspended substances 2500
 - surfactants up to 50
 - biological oxygen demand compl., up to 1000 mgO₂/l
 - chemical oxygen demand, up to 2000 mgO₂/l
- Sewage temperature, 10–25°C

DELIVERY SET

The basic delivery set includes the following:

- UKOS-BIO-FF unit
- Saturator
- Pump of sewage supply to saturator
- Ejector

MATERIALS

UKOS-BIO-FF units are made of carbon or stainless steel.

DELIVERY SPECIFICATIONS

Delivery time – 0.5- 2 months (depending on the order complexity).

Transportation – any mode of transport (preferentially – motor or rail transport).

Equipment storage – shed warehousing, in summer – outdoor warehousing.

WARRANTY

Warranty period for equipment – 12 months from the day of commissioning. Warranty period for accessories – 6 months.

EXTENDED SERVICES

Design work
Installation of equipment
Maintenance staff training
Service maintenance

APPROXIMATE DIMENSIONS OF UKOS-BIO-FF FLOTATION UNITS

Version of the unit	Capacity, m ³ /h	Dimensions, m		
		Length	Width	Depth
UKOS-BIO-FF-1	up to 1.0	1.0–1.5	0.5–0.8	1.5–2.0
UKOS-BIO-FF-2	1.0–2.0	1.5–2.5	0.8–1.2	1.5–2.0
UKOS-BIO-FF-5	2.0–5.0	2.0–3.0	1.0–2.0	2.0–2.5
UKOS-BIO-FF-10	5.0–10.0	2.5–4.0	1.5–2.0	2.0–2.5
UKOS-BIO-FF-20	10.0–20.0	3.5–6.0	2.0–2.5	2.0–2.5
UKOS-BIO-FF-50	40.0–50.0	4.5–10.0	2.0–2.5	2.0–2.5

Note: More close-tolerance dimensions of UKOS-BIO-FF flotation units are calculated with consideration of particular operation conditions.

SELECTION OF QUANTITY OF UKOS-BIO-FF UNITS

Sewage flow rate, m ³ /h	Version of the Unit	Quantity of units
up to 1.0	UKOS-BIO-FF-1	1
1.0–2.0	UKOS-BIO-FF-2	1
2.0–5.0	UKOS-BIO-FF-5	1
5.0–10.0	UKOS-BIO-FF-10	1
10.0–20.0	UKOS-BIO-FF-10	2
10.0–20.0	UKOS-BIO-FF-20	1
20.0–40.0	UKOS-BIO-FF-20	2
40.0–50.0	UKOS-BIO-FF-50	1
50.0–100.0	UKOS-BIO-FF-50	2
100.0–150.0	UKOS-BIO-FF-50	3
150.0–200.0	UKOS-BIO-FF-50	4

Note: for flow rates 200 m³/h and more, the units are fabricated by individual order.

QUESTIONNAIRE

for waste water treatment

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

Internet

Colleagues' recommendations

Exhibition _____

Publishing in printed media _____

Other _____

1. Applications of the equipment:

- Washing transport and other machinery

- Rainfall run-off from polluted areas

- Galvanic production _____

- Food industry _____

- Paint and varnish industry _____

- Household sewage _____

- Textile manufacture _____

- Other purposes (please specify) _____

2. Water source description _____

3. Water quality indicators and treatment requirements (please specify available data only, put dash if no data available):

No.	Indicator	Unit of measurement	Value	
			Source water	Required
1.	pH	units		
2.	Biological oxygen demand ₅	mg/l		
3.	Chemical oxygen demand _{Cr}	mg/l		
4.	Petroleum products	mg/l		
5.	Cu ²⁺	mg/l		
6.	Ni ²⁺	mg/l		
7.	Cr ³⁺	mg/l		

No.	Indicator	Unit of measurement	Value	
			Source water	Required
8.	Cr ⁶⁺	mg/l		
9.	Zn ²⁺	mg/l		
10.	Fe ²⁺	mg/l		
11.	Fe ³⁺	mg/l		
12.	Al ³⁺	mg/l		
13.	NH ⁴⁺	mg/l		
14.	Cyanides	mg/l		
15.	SO ₄ ²⁻	mg/l		
16.	NO ₃ ⁻	mg/l		
17.	NO ₂ ⁻	mg/l		
18.	PO ₄ ³⁻	mg/l		
19.	Cl ⁻	mg/l		

Note. If analysis data for the indicator marked with * are not available, the data may be not presented.

4. Sewage flow rate, m³:

- daily _____ - hourly _____

5. Operation mode (continuous, periodic, number of working shifts):

6. Equipment available on-site:

- Compressed air
- Reagent section
- Pure water tank
- Other equipment and facilities _____

7. Other initial specifications and special requirements (presented at the Customer's discretion):

Signature of the Authorised Employee: _____

Please send the Questionnaire filled in by the Authorised Employee to R&D Centre POTENTIAL-2 at the address: 197327, Russia, St.Petersburg, Gakkelevskaya st., h.18, bld.4

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Please Note:

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Removal of Iron for Household and Industrial Water Supply



GENERAL DESCRIPTION

UKOS-VOD is a combination unit operating on the principle of intensive oxidation of bivalent iron followed by removal of poorly soluble iron forms and other impurities by means of filtering through a modified polymer bed that is lighter than water. Depending on composition of initial water and outlet requirements, the unit can be supplemented with appropriate additional modules.

The UKOS-VOD is a compact non-pressure unit. It embodies new engineering solutions that have significantly improved its operating efficiency and reliability.

The UKOS-VOD unit is easy-to-use, does not require constant maintenance staff, has relatively low power consumption, can be operated in a continuous or periodical mode.

UKOS-VOD allows for efficient iron removal from water with a complex composition, when conventional filters do not ensure compliance with drinking water standards.

APPLICATIONS

UKOS-VOD unit is designed for iron removal from surface and subsurface waters including from centralised water supply systems in case water is polluted with external network pipeline corrosion products in water supply systems of inhabited localities and industrial enterprises in order to comply with the State Standard GOST 2874-84 «Drinking water» requirements and Sanitary Rules SanPiN 2.1.4.1074-01.

It can also be used for purification and post-treatment of industrial sewage to remove iron prior to discharge to municipal sewerage systems and water reservoir outlet, or prior to utilization of purified water in water-circulation systems of enterprises.

The UKOS-VOD unit can be used in the construction of new iron removal equipment and in the reconstruction or modernization of existing equipment in inhabited localities, recreation zones, holiday villages, boarding houses, vacation houses, health resorts, motels, camping lots and other objects equipped with centralised water supply systems.

The UKOS-VOD unit can be used for removing iron in water applied for production needs in the food industry, including alcoholic beverage facilities, breweries, and non-alcoholic beverage plants. UKOS-VOD units may be used for iron removal prior to ionite filters, including cationite filters for water softening in low- and medium-capacity boiler houses.

The UKOS-VOD unit can be a part of very high purity water production.

INITIAL SPECIFICATIONS

UKOS-VOD may be used with the following initial requirements:

- Water discharge, 10–2000 m³/day
- Concentration, not more than, mg/l:

• total iron	15
• ferrous iron	10
• hydrogen sulphide	2
• pH, units	at least 6.8
• alkalinity mg-ecv/l	at least 1.5

Other initial specifications of water discharge and composition for application of UKOS-VOD must be agreed with Potential-2.

DELIVERY SET

The basic delivery set includes the following:

- UKOS-VOD unit
- Air-separating reactor
- Air saturation system

MATERIALS

UKOS-VOD units are made of carbon or stainless steel, and polypropylene or polyethylene.

UKOS-VOD units are provided with manual or automated filter bed washing, and are self-washed.

DELIVERY SPECIFICATIONS

Delivery time – 0.5-6 months.

Transportation – motor or rail transport.

Equipment storage – shed warehousing.

WARRANTY

Warranty period for equipment – 12 months from the day of commissioning.

EXTENDED SERVICES

- Consultation
- Design work
- Installation of equipment or contract supervision
- Auxiliary components
- Start-up
- Service instruction training
- Maintenance
- Water quality control

TECHNICAL DATA

Version of the unit	Capacity, m/h	Dimensions, m	
		Diameter	Height
UKOS-VOD-0.6		0,6	2,8
UKOS-VOD-0.8		0,8	2,8
UKOS-VOD-0.9		0,9	2,8
UKOS-VOD-1	Determined by calculation	1,0	2,8
UKOS-VOD-1.1	depending of water	1,1	2,8
UKOS-VOD-1.2	composition, impurities	1,2	2,8
UKOS-VOD-1.3	concentration and	1,3	2,8
UKOS-VOD-1.5	requirements for purified	1,5	2,8
UKOS-VOD-1.8	water	1,8	2,8
UKOS-VOD-2		2,0	2,8
UKOS-VOD-2.2		2,2	2,8
UKOS-VOD-2.5		2,5	2,8

- Notes:
1. UKOS-VOD units are installed in the premise at least 4.0 m high.
 2. The number of units is taken not less than 2; for a water treatment station with a capacity up to 100 m³/day, one unit of appropriate capacity may be used.

Water Treatment for Household Water Use



DESIGNATED USE

The UKOS-VOD-FP modular water-treatment complex (UMWTC) is designed for treatment of natural water and sewage.

APPLICATIONS

The UKOS-VOD-FP unit is designed for use in natural water and sewage treatment systems.

The unit can be used in:

- Systems for two-stage reagent treatment of natural water after sedimentation tanks, clarification tanks with a suspended sediment layer, flotation chambers, contact pre-filters;
- Systems for single-stage reagent treatment of natural water;
- Systems for partial clarification of natural water used for technical purposes;
- Systems for removal of iron and/or fluoride from natural water, softening and removal of manganese;
- Systems for treatment of household and industrial sewage after mechanical, biological or physical-chemical pre-treatment facilities.

Treatment of natural water or sewage in the unit is achieved by non-pressure filtering through a single-layer, two-layer or multi-layer graded bed of density higher than that of water.

Conditions of application and operation of the unit (water-treatment module) comply with existing norms and standards for sand filters.

PRINCIPLE OF OPERATION

If necessary, the water to be purified is first pre-treated with reagents and later clarified.

After that, clarified water is supplied for further treatment to UKOS-VOD-FP UMWTC. The water being treated is delivered to the upper part of the filter through distribution troughs. Then the water moves down through the filtering bed and is collected by a drainage system. The purified water is delivered from the drainage system, through a filtrate discharge system to a pure water tank. From here it is supplied to the water supply system.

After UMWTC, the purified water may be passed through UV disinfection apparatus if necessary.

The filter is periodically washed with purified water taken from pure water tanks. Washing can be performed using a washing water tower or using special washing pumps. Water for washing is supplied to the built-in washing system of the filter. Washing water is collected by a distribution trough in a side pocket and then discharged to a sedimentation tank.

DESIGN OF THE COMPLEX

The UKOS-FP unit (module) consists of a casing with a side pocket, a drainage system for filtered water collection and washing water distribution, a distribution trough, a filtrate discharge system, and a graded filtering bed.

The unit is provided with connection pipes for the following:

- Source water supply;
- Filtered water outlet;
- Washing water supply;
- Washing water outlet;
- Discharge of first portions of filtrate;
- Overflow pipeline.

The unit (water-treatment module) is equipped with multipurpose valves for control and adjustment of its operating characteristics. The UMWTC casing has a filter medium charge hatch. The lower part of the casing accommodates a drainage-and-distribution system that serves both for collection of filtered water and for distribution of washing water.

Above the filtering charge of UMWTC, distribution troughs are arranged for collection of filtered water and distribution of washing water. The distribution trough is brought to the side pocket.

For maintenance, an inspection hatch is provided in the sidewall of the casing.

UKOS-VOD-FP units are manufactured with different filtering beds and drainage system designs.

The UKOS-VOD-FP unit is designed for purification of natural water, including grained bed, quartz sand, crushed anthracite and haydite or other grained filtering mediums complying with established sanitary and epidemiological requirements.

UKOS-VOD-FP can be manufactured in three versions: it can be made of carbon steel, stainless steel and plastics.

Due to continuous modernization of the UMWTC design, alterations may be made to its arrangement. Any such alterations will be represented in supplements to this Catalogue.

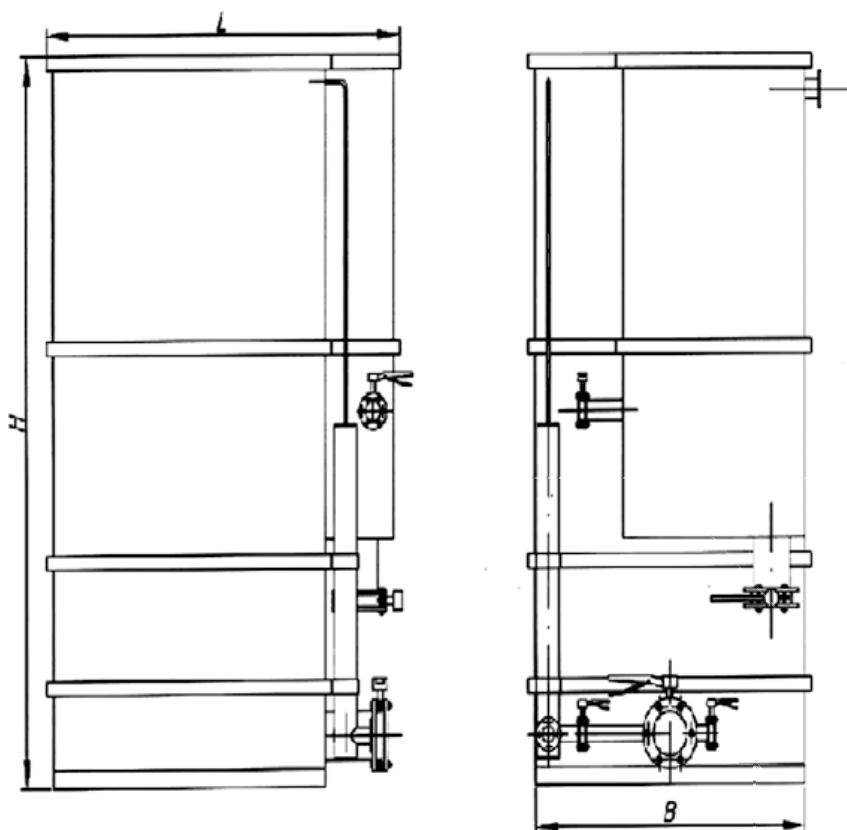
TECHNICAL DATA

No.	Parameter	Version of the Complex			
		UKOS-VOD-FP-150	UKOS-VOD-FP-250	UKOS-VOD-FP-500	UKOS-VOD-FP-750
1.	Capacity, m ³ /day	125	250	500	750
2.	Overall dimensions, mm				
	- length (L)	1400	1900	2500	3000
	- width (B)	1000	1500	2000	2300
	- height (H)	3900	4200	4200	4200
3.	Weight, t				
	- dry	3.5	6.8	11.2	17.6
	- water-filled	6.1	12.6	21.5	35.1
4.	Filtering cycle duration, hours	8			

Notes:

Outline drawings of UMWTC are presented in Appendices 1-4.

OUTLINE DRAWING



Preliminary Water Treatment



DESIGNATED USE

The UKOS-VOD-KPF modular water-treatment complex (UMWTC) is designed for treatment of natural water and sewage.

APPLICATIONS

The UKOS-VOD-KPF unit can be used in two-stage filtering for primary treatment of water before sand filters.

Treatment of natural water or sewage in the unit is achieved by non-pressure filtering through a multi-layer grained bed having a density higher than that of water.

Conditions of application and operation of the unit comply with existing norms and standards for contact pre-filters.

PRINCIPLE OF OPERATION

If necessary, the water to be purified is first pre-treated with reagents.

After that, water is supplied to clarification to UKOS-VOD-KPF UMWTC. Clarification takes place in the bulk of the filtering bed, as water moves bottom up, as a result of contact coagulation.

The pre-filter of UKOS-VOD-KPF UMWTC is periodically washed with purified water taken from the pure water tank. Washing can be performed using a washing water tower or using special washing

pumps. Washing water is supplied to the built-in washing pre-filter system. Polluted washing water is collected by a collection trough in a side pocket of UMWTC and then supplied to a sedimentation tank.

Clarified water is discharged to UKOS-VOD-KPF UMWTC and then delivered to the water supply system.

DESIGN OF THE COMPLEX

The UKOS-VOD-KPF unit consists of a casing with a side pocket, a pipe system for treated and washing water supply and distribution, clarified and washing water collection trough, a sand filtering bed, a gravel support layer.

The unit is provided with connection pipes for the following:

- Source water supply;
- Washing water supply;
- Filtered water outlet;
- Washing water outlet;
- Overflow pipeline.

The unit is equipped with multipurpose valves for control and adjustment of its operating characteristics.

The lower part of the casing accommodates a high-strength pipe distribution system that serves for uniform distribution of washing and clarified water.

Washing and clarified water collection troughs are arranged above the UMWTC filtering bed. The trough is brought to the side pocket. UKOS-VOD-KPF units are manufactured with different filtering beds and drainage system designs.

In the grained bed, the UKOS-VOD-KPF unit uses, quartz sand with various-size gravel in the support layer for purification of natural water.

UKOS-VOD-KPF can be manufactured in two versions: carbon and stainless steel.

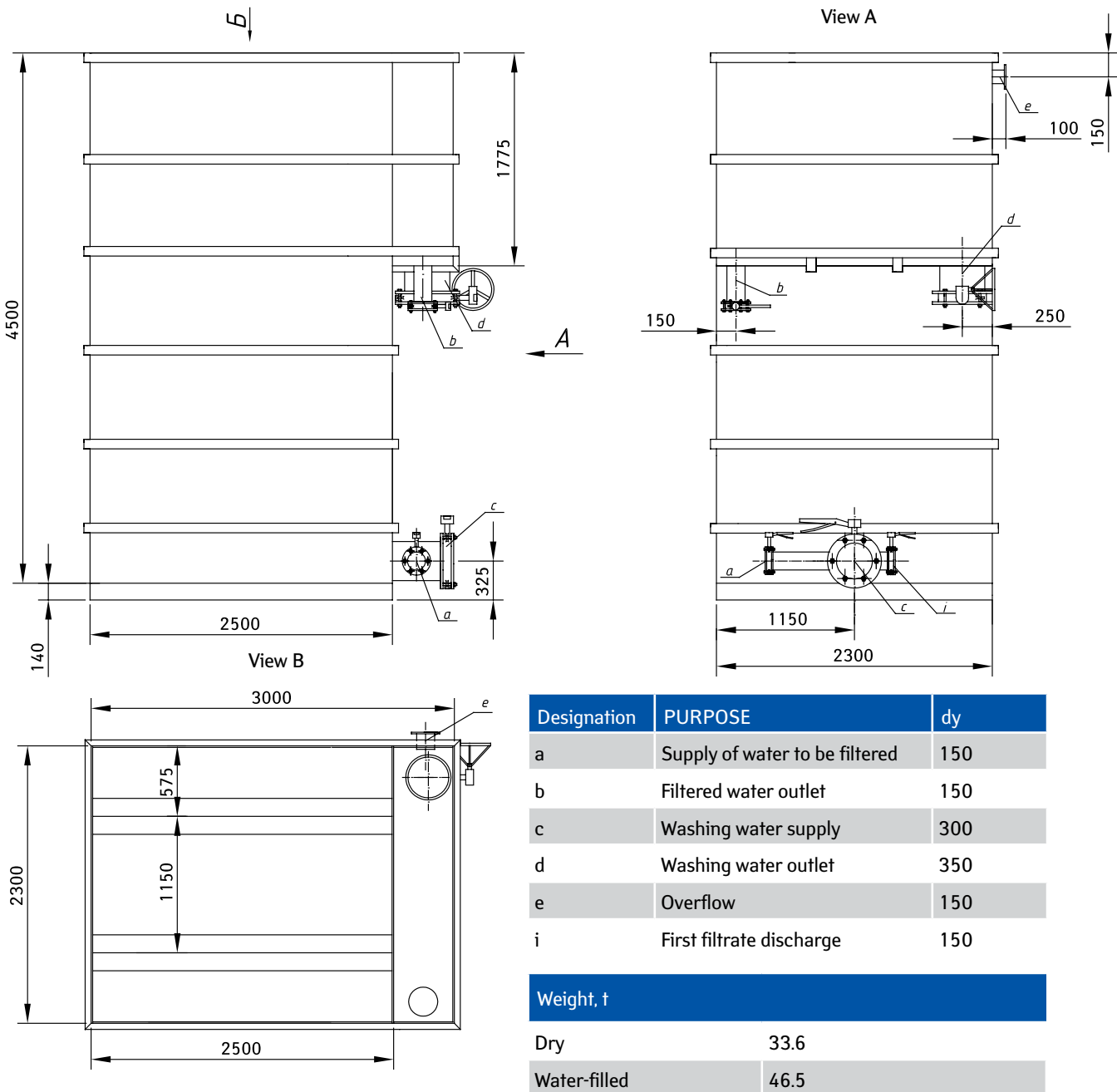
Due to continuous modernization of the UMWTC design, alterations may be made to its arrangement. Any such alterations will be represented in supplements to this Catalogue.

TECHNICAL DATA

No.	Parameter	Version of the complex			
		UKOS-VOD- KPF-150	UKOS-VOD- KPF-250	UKOS-VOD- KPF-500	UKOS-VOD- KPF-750
1.	Capacity, m ³ /day	150	250	500	750
2.	Overall dimensions, mm				
	- length (L)	1500	2000	2500	3000
	- width (B)	1000	1500	2000	2300
	- height (H)	4640	4640	4640	4640
3.	Weight, t				
	- dry	6.6	13.7	24.2	33.6
	- water-filled	9.1	19.3	33.9	46.5
4.	Filtering cycle duration, hours	8			

Note:
Outline drawings of UMWTC are presented in Appendices 1-4.

APPENDIX 1. UKOS-VOD-KPF-150 UMWTC. OUTLINE DRAWING



QUESTIONNAIRE

for natural water treatment & water conditioning

Name of CUSTOMER _____

Postal Address: _____

Position of the Authorised Employee _____

Name: _____

Phone No.: _____ Fax No.: _____ E-mail: _____

How did you find out about our Company?

- Internet
- Colleagues' recommendations
- Exhibition _____
- Publishing in printed media _____
- Other _____

1. Applications of the equipment

- Drinking water supply
- Industrial water supply
- Circulating water make-up
- Boiler supply
- Hot-water supply system make-up
- Other purposes _____

2. Water source description _____

3. Water quality indicators and treatment requirements:

No.	Indicator	Unit of measurement	Value	
			Source water	Required
1.	Temperature	°C		
2.	Suspended materials concentration	mg/l		
3.	Colour	deg.		
4.	pH	units		
5.	Total hardness	mg-ekv/l		
6.	Carbonate hardness	mg-ekv/l		
7.	Oxidation characteristic *	mg/l		
8.	Total iron	mg/l		
9.	Iron (II) *	mg/l		
10.	Iron (III) *	mg/l		
11.	Hydrogen sulphide	mg/l		
12.	Ammonium	mg/l		
13.	Manganese *	mg/l		
14.	Solid residue	mg/l		
15.	Other rated indicators			

Note.

If analysis data for the indicator marked with * are not available, the data may be not presented.

4. Water flow rate, m³:

- daily _____ - hourly _____

5. Operation mode (continuous, periodic, number of working shifts): _____

6. Equipment available on-site:

- Compressed air
- Reagent section
- Pure water tank
- Other equipment and facilities _____

7. Other initial specifications and special requirements (presented at the Customer's discretion):

AUTHORISED EMPLOYEE: _____

Please send the Questionnaire filled in by the Authorised Employee to R&D Centre POTENTIAL-2 at the address: 197327, Russia, St.Petersburg, Gakkelevskaya st., h.18, bld.4

tel.: +7(812) 342-67-16,

fax: +7(812) 342-67-36,

e-mail: info@ptl2.com

www.ptl2.com

Please Note:

The technical & commercial offer will be processed on the basis of data presented in the Questionnaire. In case the initial specifications are invalid or inaccurate, they can be defined more accurately upon signing the contract. Upon delivery of water-treatment equipment, all responsibility for consistency and completeness of the presented initial specifications shall be on the Customer.

CONTACTS



197327, RUSSIA, ST. PETERSBURG,
GAKKELEVSKAYA STREET 18, BLDG. 4, LETTER A

TELEPHONE: +7 (812) 342-67-16

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