


AERATION SYSTEMS

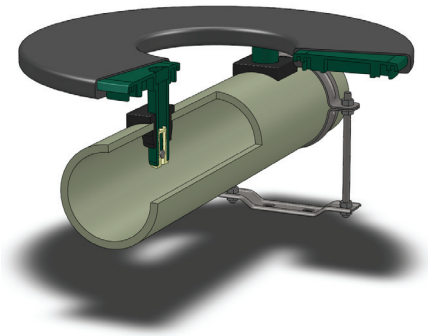
MODERN EQUIPMENT FOR WATER TREATMENT TECHNOLOGIES

FACTORY ECOPOLYMER

AQUA-TOR AERATION SYSTEM

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).

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.

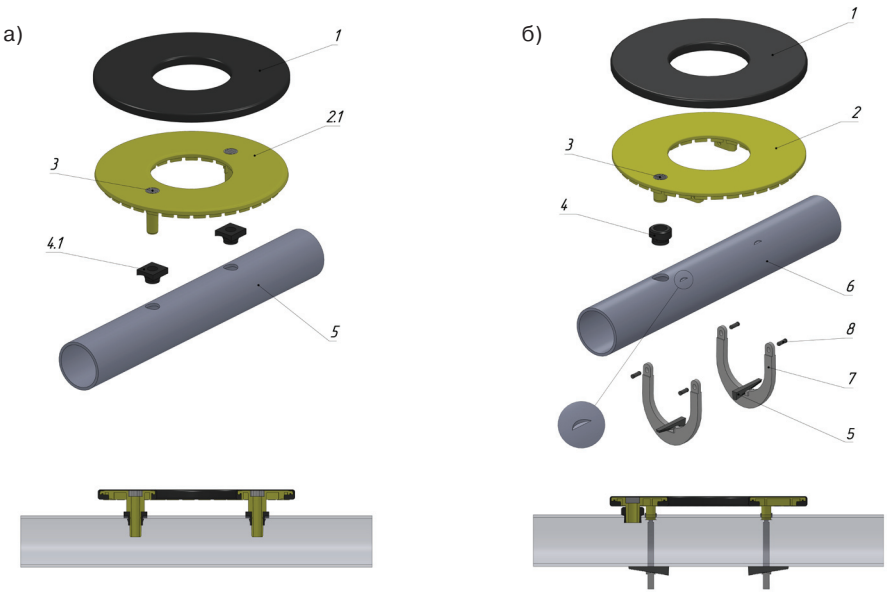


The AQUA-TOR diffusers in full measure possess all the advantages of disk diffusers. Up-to-date high performance diffusers possess unique properties.

Advantages:

- Fine-bubble aeration and high level of oxygen transfer efficiency (OTE) at low head losses;
- Capability of continuous and periodic modes of aeration;
- Aggressive chemical action resistance;
- Intensive mixing of activated sludge ensured due to airlift effect;
- Mud-resistant elastic membrane;
- High economic efficiency of one diffuser is equal to capacity of 3 standard 12» disc diffusers;
- Design, assemble and maintenance simplicity.

The basic design of the AR-420 N (left) and AR-420 T (right) diffusers



1. Membrane; 2.1, 2.2. Base plate; 3. Dissector; 4.1, 4.2. Rubber saddles;
5. PVC/PE air pipe (module), ∅ 90/110 mm; 6. PE air pipe (module), ∅110 mm;
7. Clamps; 8. Locking pin; 9. Wedges.

Structurally, perforated elastic membranes are unified for both models of diffusers, but can differ in properties due to the technology of production of the membrane itself and depending on operating conditions it is possible to use different materials namely:

- EPDM for operating in municipal and industrial wastewater;
- PTFE (polytetrafluoroethylene) for operating in chemically aggressive wastewater.

Main properties of diffuser

Parameter	Value
Outer diameter, mm	420
Inner diameter, mm	170
Perforated area, m^2	0,083
Aerated surface area, m^2	0,115
Oxygen transfer efficiency, % per 1 m	5,5 ÷ 7,1
Headloss, kPa	1,4 ÷ 4,0
Airflow, m^3/h:	
– minimum	4
– optimum	8 ÷ 15
– maximum	25
Bubble size, mm	1 ÷ 2

Storage:

Diffuser and/or rubber sleeves must be stored factory-packed in a dark, dry, ventilated and dust-free storage space according to DIN 7716. Avoid frost, heat, UV/radiation, dust and working which can cause damage of diffuser and/or packing. Do not store outdoors! The storage of rubber parts until installation/starting operation should not exceed one year. At on-site delivery, all rubber and plastic parts must be stored in their original packaging. Crates exposed to direct sunlight must be covered with tarpaulin to protect against UV-radiation.

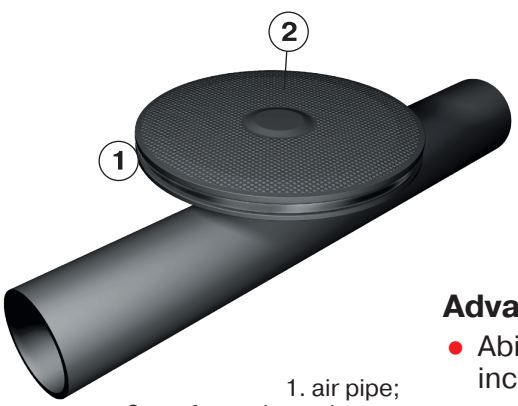
Maintenance:

Diffusers can only be checked, if the activated sludge tank is out of work and empty. That is why normal cleaning must be done at work. Formic acid is used very successfully against carbonating. To keep the pores open, formic acid is sprayed into the compressed air for a short time. Also a regular use with maximum air flow for a short time helps keep the diffuser in good conditions for a long time, (refer to Maintenance Manual)

Membrane lifetime:

- Lifetime is depending on waste water influent, plant design, operation conditions and preventive maintenance measures.
- Reference plants have achieved more than 5 year in municipal waste water. Please refer to our standard warranty terms and conditions which can download from our website.

AQUA-PLAST AERATION SYSTEM



1. air pipe;
2. perforated membrane.

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.

Advantages:

- 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;
- Simplicity of design, mounting and operation.

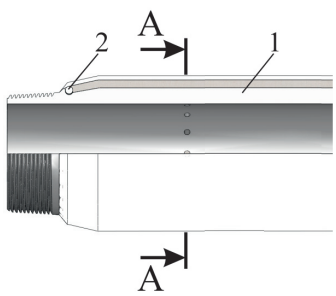
Main properties of diffuser

Parameter	Value
Outer diameter, mm	290
Aerated surface area, m^2	0,06
Oxygen transfer efficiency, % per 1 m	3,8 ÷ 5,0
Headloss, kPa	1,4 ÷ 4,0
Airflow, m^3/h:	
– minimum	2
– optimum	4 ÷ 6
– maximum	10
Bubble size, mm	1 ÷ 3

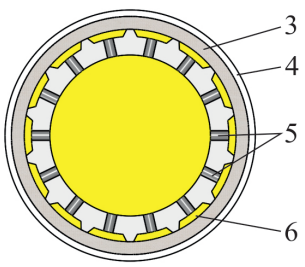
AQUA-PRO AERATION SYSTEM

AQUA-PRO aeration system based on tubular diffusers APM-128T with porous polymeric non-elastic membrane. The diffusers feature stable operation in tough operational conditions – within treatment of any kinds of industrial wastewater, uneven air supply, and significant variations of wastewater and air flow rates. The diffusers are capable to operate in aerobic mineralizers and aeration tanks within 8 years without any maintenance and trouble-free service under severe operating conditions.

The main element of the aeration system is diffuser produced on the basis of a profiled frame tube. These are universal fine-bubble diffuser with increased strength, durability and reliability.



A-A



1. PE tube;
2. Sealing rubber O-rings;
3. Inner diffuser layer (braid of polymer material around pipe);
4. Outer diffuser layer (porous PE);
5. Air holes;
6. Air pockets.

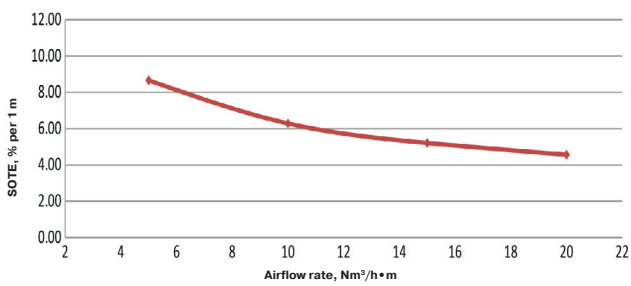
Advantages:

- Most reliable and durable diffusers in CIS;
- Long-term service life without regeneration;
- Simple design provides reliable, easy and quick mounting;
- Stable operation conditions during all service life;
- High mass-transfer design, confirmed with national and international certificates, operational experience at more than 1000 WWTP.

Main properties of diffuser

Parameter	Value
Diffuser nominal length, m	1; 1,5; 2,0
Outer diameter, mm	128
Internal diameter, mm	88
Oxygen transfer efficiency, % per 1 m	4,2 ÷ 9,0
Headloss, kPa	0,8 ÷ 2,6
Airflow, m3/h:	
– minimum	6
– optimum	10 ÷ 12
– maximum	21
Bubble size, mm	2 ÷ 5

Standard oxygen transfer efficiency (SOTE) of the aerators depending on airflow rate



Disclaimer: This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our General Condition of Sale.

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