


AERATION SYSTEMS
ECOPOLYMER ®

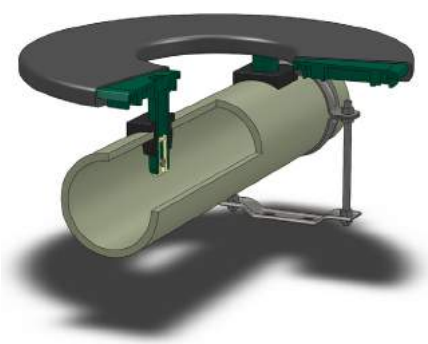
STATE-OF-THE-ART TECHNOLOGIES AND WATER TREATMENT EQUIPMENT

ecopolymer
TRADING AND MANUFACTURING
E N T E R P R I S E

AERATORS ECOPOLYMER, SERIES AQUA-TORUS/AKVA-TOR

AQUA-TORUS aeration systems based on torus-shaped aerators AR-420 T(N) [AP–420 T(H)] with an perforated elastic membrane are designed for aeration of sludge mixture (wastewater with activated sludge) in biological wastewater treatment systems.

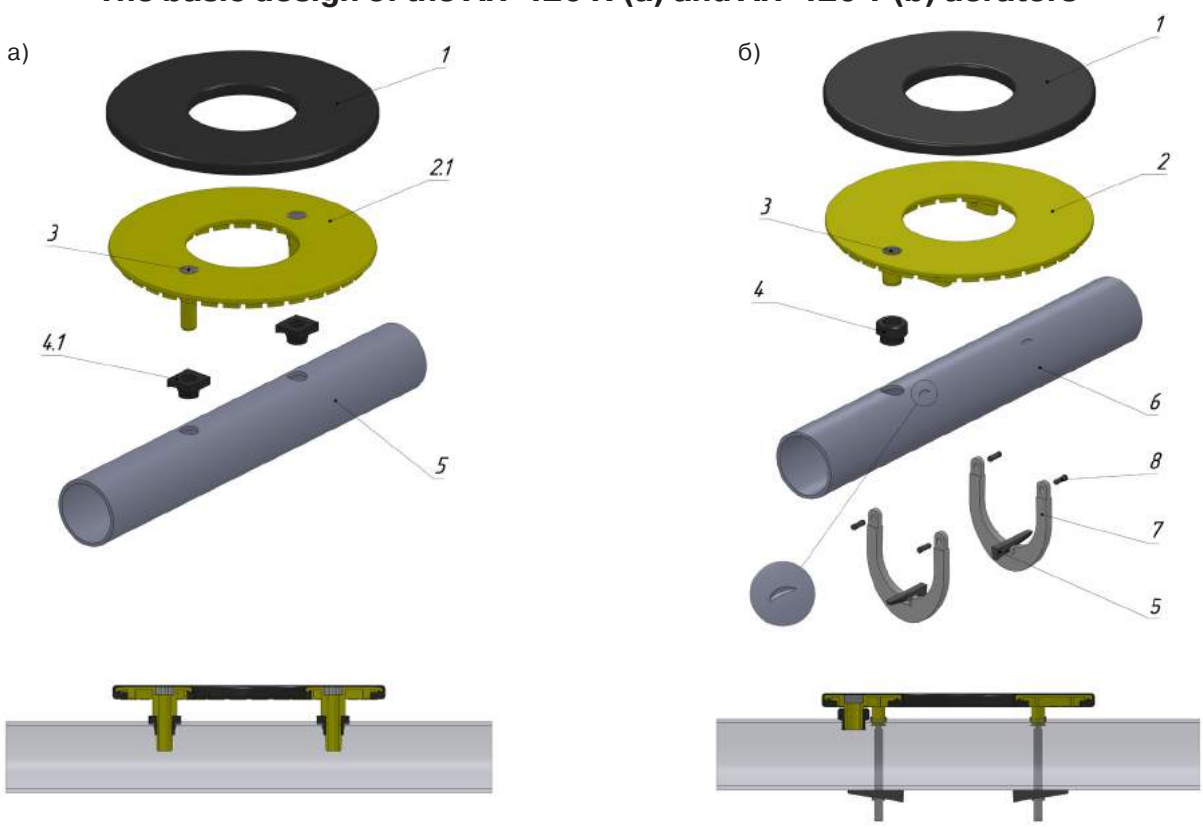
Also, it is possible to apply the AQUA-TORUS aeration systems to saturate natural waters with oxygen in fishponds and other waterbodies, including natural ones.



The AQUA-TORUS aerators in full measure possess all the advantages of disk aerators, for example, such as AQUA-PLAST aerators. But, besides this, they have a number of unique features as follows:

- high level of oxygen transfer efficiency (OTE) at low hydraulic resistance;
- intensive stirring of activated sludge due to airlift effect;
- high aeration efficiency: the performance of one AQUA-TORUS aerator is 2.5 times higher than standard 12» disc aerators.

The basic design of the AR-420 N (a) and AR-420 T (b) aerators



1. perforated elastic membrane; 2.1 and 2.2. aerator body; 3. distributor; 4.1, 4.2. rubber insert;
5. air-diverting pipe (module) of PVC-U /PE with a diameter of ∅ 90/110 mm;
6. air-diverting pipe (module) of PE with a diameter of ∅110 mm; 7. U-brace; 8. pin; 9. toothed wedges.

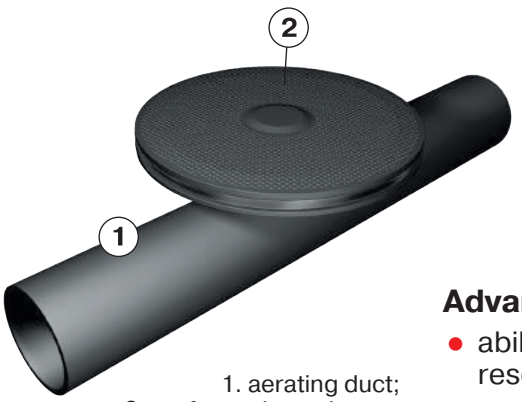
Structurally, perforated elastic membranes are unified for both models, but can differ in properties due to the technology of production of the membrane itself and depending on operating conditions it is possible to use different materials namely:

- EPDM (ethylene-propylene-diene monomer rubber) for operating in municipal and industrial wastewater;
- PTFE (polytetrafluoroethylene) for operating in chemically aggressive wastewater

Basic parameters of AQUA-TORUS aerator

Parameter	Amount
Outer diameter, mm	420
Internal bore diameter, mm	170
Aerated surface area, m^2	0,115
Oxygen transfer efficiency, % per 1 m	5,5 ÷ 7,1
Hydraulic resistance, w.c.m	0,15 ÷ 0,4
Aerator performance, m^3/h:	
– minimum	4
– optimum	8 ÷ 15
– maximum	25
Bubble size, mm	1 ÷ 2

AERATORS AR-300M, SERIES AQUA-PLAST [AKVA-PLAST]



1. aerating duct;
2. perforated membrane.

Aerator AR-300M [AP-300M] with a perforated elastic membrane are employed in multipurpose aeration systems.

The featured design of the rubber membrane ensures efficient operation of aerators for 10 years. The design of the system provides the possibility of extending the operating life of more than 20 years with minimal cost: by simple replacement of the membrane.

Advantages of the AQUA-PLAST aerators are the following:

- ability to operate in continuous and batch aeration modes, including in reserve zones of aeration tanks with nitrification and denitrification;
- reliable protection against the penetration of sewage into the system and resistance to aggressive conditions;
- non-colmated membrane;
- finely bubbled aeration and high mass-transfer characteristics;
- simplicity of design, installation and operation.

Basic parameters of AQUA-TORUS aerator

Parameter	Amount
Outer diameter, mm	290
Aerated surface area, m^2	0,06
Oxygen transfer efficiency, % per 1 m	3,8 ÷ 5,0
Hydraulic resistance, w.c.m	0,15 ÷ 0,4
Aerator performance, m^3/h:	
– minimum	2
– optimum	4 ÷ 6
– maximum	10
Bubble size, mm	1 ÷ 3

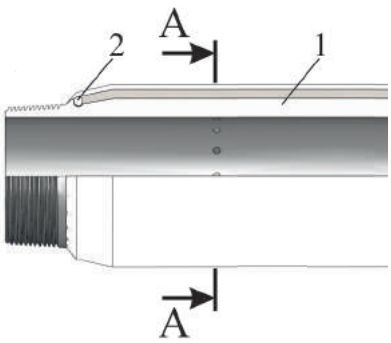
AERATORS ECOPOLYMER, SERIES AQUA-PRO [AKVA-PRO]

CAQUA-PRO aeration systems based on the tubular AFT APM-AF-128T [АФТ АПМ-АФ-128Т] aerators are designed for aeration of the sludge mixture (wastewater with activated sludge) in biological wastewater treatment systems.

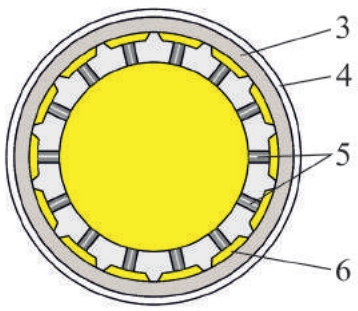
Also, it is possible to employ the AQUA-PRO aeration systems for the saturation of natural waters with oxygen in fishponds, including natural waterbodies.

The main element of the AQUA-PRO aeration systems are AFT APM-AF-128T aerators manufactured on the basis of a profiled frame tube. These are universal fine-bubble aerators with increased strength, durability and reliability.

Service life is 8 years in operation into aerobic mineralizers and activated sludge tanks with aggressive effluents, including wastewater from pulp-and-paper plants, without repair and regeneration.



A-A



1. the perforated frame of profiled PE tube;
2. tightening rubber O-rings;
3. the inner layer of disperser in the form of a braid of polymer material;
4. the outer layer of disperser of sputtered PE;
5. openings;
6. longitudinal air cavities.

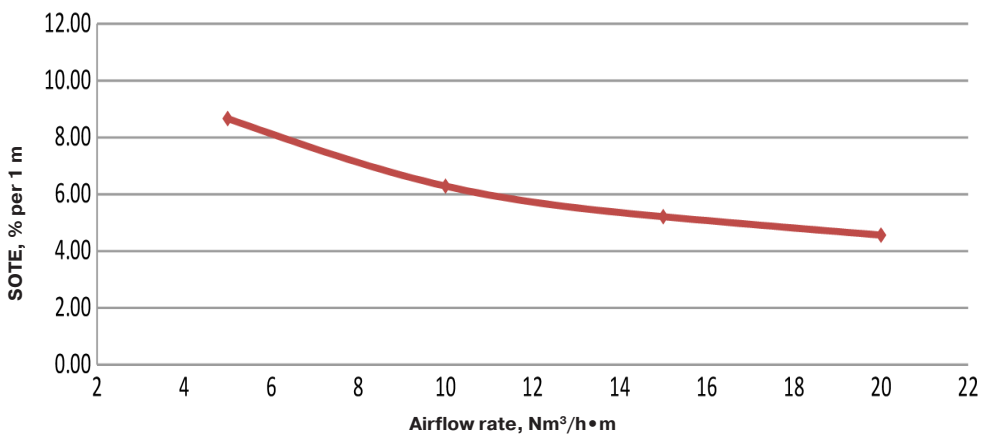
The AQUA-PRO aerators are characterized by the presence of a rigid ribbed frame, have the highest mechanical strength properties and trouble-free service under severe operating conditions:

- when processing any type of industrial wastewater;
- at interruptions in air supply;
- under significant fluctuations in the discharge of sewage and air.

Basic parameters of AQUA-PRO aerator

Parameter	Amount
Aerator nominal length, mm	1; 1,5; 2,0
Outer diameter, mm	128
Internal diameter, mm	88
Hydraulic resistance, w.c.m	0,085 ÷ 0,27
Operating pressure, w.c.m	1 ÷ 10
Aerator performance, m^3/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



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