HIGH EFFICIENCY without maintenance
The performance of all EKOTON operating aeration systems is over 15 000 000 m³/h

Over 20 years of its activity EKOTON Industrial group delivered more than 700 000 linear meters of aerators and continues this input increasing.

ADVANTAGES OF EKOTON TUBULAR AERATORS

- **Do not require cleaning and flushing.** Porous polyethylene layer provides a durable operation of the aeration system without the need of maintenance.

- **Effective mass transfer and sludge mixing.** EKOTON aerators generate bubbles with a diameter of 2-3 mm. This bubble size is optimal for both mass transfer and mixing of the sludge mixture.

- **Uniform air distribution throughout the aerotank corridor.** Due to use of perforated frame and air gap in the aerator design, the tubular EKOTON aerator provides uniform air distribution along the entire length of the corridor.

- **Additional resistance to hydraulic impacts, pressure drops and other mechanical impacts** is provided due to the special design of aerators.

- **EKOTON aeration system is simply and easily assembled.** Elements of the system are quickly assembled by threaded joints. Aerators are fastened to the bottom with the fastening step of 2 m.

- **Low capital costs.** The productivity of EKOTON tubular aerators is 2-2.5 times higher than the productivity of typical membrane aerator.

- **EKOTON aerators are resistant in a wide range of aggressive environments and temperatures** due to use of polymeric materials in manufacturing.
EKOTON aeration system, Khulan WWTP
(Harbin, China)

EKOTON aeration system installation
(Shanyin city WWTP, China)

EKOTON aeration system installation
(Herzliya city, Israel)
AERATION SYSTEMS on the basis of tubular aerators AP

The aerators are intended for uniform distribution of air flow supplied from compressor or air blower in aerating volume and for mixing of aerated liquid. This type of equipment is used in aeration systems at the different domestic and industrial wastewater treatment stages.

Lipetsk aeration station MUE
Capacity: 240 000 m³/d

For more than 400 water and sewage companies in 8 countries have chosen EKOTON tubular aerators

Herzliya WWTP, Israel
Capacity: 40 000 m³/d

The performance of all EKOTON operating aeration systems is over 15 000 000 m³/h
The aerators are used:

- In aerotanks, where biological wastewater treatment is carried out (for supplying of oxygen to the aerobic microorganisms and mixing of sludge);
- In aerobic stabilizers (to prevent the decay of sludge during its stabilization);
- In grit chambers (for destruction of aggregates and sand separation).
EKOTON provides up to 8-year guarantee for the aerators although the practice shows that they successfully operate after the expiry of this period.
Structure of EKOTON tubular aerators

Structurally EKOTON aerator it is two pipes concentrically inserted into each other with air gap between them.

External fibro-porous pipe (disperser) is made of high-pressure polyethylene (HDPE) produced by pneumatic extrusion method, the essence of which is to apply the aerodynamically formed fibers from the melted polyethylene on the form-maker.

Internal perforated pipe is made of low-pressure polyethylene (LDPE) or polyvinylchloride (PVC).

The gap between tubes is supported by cross ring insertions.

The connection of aerators to air supply system and connection between each other are performed by the corresponding internal and external threads.

The supplied air flows inside the framework tube and through the radial apertures flows into the gap, where through the outside porous tube is dispersed into the treated liquid, forming bubbles.

Such structure of aerators provides uniform distribution of the air in aerated liquid by the framework pipe perforation and lets to achieve the maximum efficiency of aeration at minimal energy costs.

From reference of Penza

“...Some advantages of EKOTON aeration systems have already appeared at the installation stage. Assembly of the system without additional couplings significantly reduced the period of reconstruction.

Practice of aeration system operation has shown good hydrodynamic stability, low biofouling, and therefore no clogging of aeration system.

Constructiveness and mass transfer characteristics have provided a more stable self-regulation of biocenosis system of aerotanks, the potential possibilities for anaerobic zones have considerably decreased.

Parameters of operation of the first reconstructed aerotank have been recognized as satisfactory therefore it was decided to replace aeration systems of other sections of aerotanks".
Form reference of CJSC “Municipal Treatment Facilities” (Tomsk, Russia):

“The overhaul of aeration systems in aerotanks was carried out in 2009-2010. The EKOTON aerators were installed in aerotanks. The total number of aerator arms in each aerotank is 10 (including 3 rows in the first and second corridors each and 2 rows in the third and fourth corridors each).

Eventually the following results have been reached:
• The uniform air distribution excluded the formation of stagnant zones, whereby the processes of decay of activated sludge stopped;
• The fine-bubble aeration enabled the more full saturation of the mixed liquor with air, and that increased the activity of microorganisms of the activated sludge.
• The electricity consumption for the operation of the aeration system reduced by 20 000 kWh/day;
• The effectiveness of the wastewater treatment on the nitrogen group increased.

Besides, simplicity and speed of the installation work can be attributed to the advantages of the EKOTON aerators.”

The use of tubular EKOTON aerators allows significantly reducing energy consumption at wastewater treatment plants.

The performance of all EKOTON operating aeration systems is over 15 000 000 m³/h
We offer our clients:

- Survey of wastewater treatment facilities before reconstruction (analysis of qualitative and quantitative composition of wastewater to choose the optimal scheme of treatment);
- Individual approach to each facility, the use of unconventional solutions and various methods of assembly;
- Selection of aerators based on calculated, experimental and laboratory data;
- The warranty period – 8 years with real service life 12 years;
- Assembly and commissioning of equipment

Over 20 years of work we have gained the unique experience that allows us to offer customers only the most effective solutions.

From reference of the Chief of wastewater treatment facilities and pump stations in Herzliya city (Israel):

"... In November 2013 we launched the first section of the reactor with EKOTON tubular aerators.

The results have exceeded all of our most optimistic forecasts. The quantity of consumed air as well as the energy was significantly reduced.

Liquid saturation with oxygen was stable and uniform in the whole basin. After 2 months, without waiting for the end of 6-month period of supervision of aerator operation, as agreed earlier, it was decided to replace the diffusers installed in two other sections with EKOTON aerators, and that was done gradually.

Today the entire reactor (3 sections) operates with EKOTON aerators and we are very pleased with the received results. The desired concentration of oxygen (about 2 mg/l) is maintained in all sections with much lower energy consumption.

Most of the day (14-16 hours) we work using one air blower (4500 m3) and during peak hours (8-10 hours) with two blowers, whereas before replacing aerators we had to work with 2-3 air blowers".
Assembly

According to wishes of the customers, there are three options of aerators fixation.

1. Adjustable fixation.
   It is recommended, if leveling of aeration system is necessary during installation. Such fixation is carried out by using anchor bolts.
   1. Fastening elements.
   2. Adjusting nuts.
   4. Fastening for anchor bolts.

2. Non-adjustable fixation without surcharging:
   It provides the fixation with anchor bolts:
   1. Fastening elements.
   2. Pins.
   3. Fastening for anchor bolts.

   It is recommended when aerators are installed without repair of aerotank bottom. It is carried out by concreting the weight of fastening to the bottom of aerotank.
   1. Fastening elements.
   2. Embedded element.
   3. Concrete weight.

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**Technical characteristics of aerators**

- **Bubble diameter, mm**: 1-3
- **Active surface area, m²/m**: 0.22
- **Material of disperser**: LDPE
- **Body material**: PVC
- **Max. inlet air temperature, till °C**: 100
- **Aerator diameter, m**: 0.12
- **Aerator length, m**: 1-2

**Mass transfer characteristics**

Aeration intensity \( J \) \( m^3/(m^3/h) \)

**Pressure loss characteristics**

**Air Flow per 1 meter of aerator length, Nm³(m/h)**

**SSOT, %/m**

**Pressure loss, mbar**
The EKOTON Industrial Group was founded in 1995 by wastewater treatment specialists. The Company started its activity from aeration system only with 8 employees, but already in 1999 Company has started the production of the mechanized equipment, from year to year increasing its production capacity and involving new professionals into Company’s team.

Today EKOTON Industrial Group employs more than 300 specialists.

Factories of the Company are located in Poland, Ukraine and Russia; more than 30 types of equipment created by the Company for wastewater treatment are manufactured on these factories.

Nowadays EKOTON equipment is used at wastewater treatment facilities in 13 countries in the world: in Belarus, Bulgaria, Hungary, Israel, Kazakhstan, China, Poland, Moldova, Netherlands, Russia, Turkmenistan, Uzbekistan and Ukraine.

The main areas of EKOTON activity are the development, production and implementation of highly efficient technologies and equipment for wastewater treatment at water supply and sewage disposal facilities of municipal organizations and industrial enterprises.

The Company is certified on the conformity to the ISO international standards and has IQNet ISO 9001:2008, Quality Austria ISO 9001:2008, GOST ISO 9001-2008, GOST ISO 14001-2007 quality management system and environmental protection certificates and also it is the owner of more than 25 patents for the manufactured products.