

FUCHS AEROSTAR Aerator



General

High-speed surface aerators with vertical shaft are used to introduce oxygen into aerated lagoons, equalization basins and activated sludge plants. In addition to aeration they provide for the circulation and mixing of the treated wastewater. They have a high reputation as sturdy machines operating reliably at low maintenance in municipal and industrial wastewater.

The well-known low-speed surface aerators comprise heavy, expensive reducers and create strong forces and torques. Therefore, they need extensive support structures (bridges or float systems). Their gear boxes need frequent maintenance.

The **new AEROSTAR Aerator** is the result of many years of experience in the field of mechanical aerators, hydraulic research and consistent development. It is a vertical-shaft surface aerator operating smoothly at high speed at favourable oxygen transfer rates without draft tube. This is due to a new impeller.

Compared to other surface aerators the FUCHS AEROSTAR Aerator has the following advantages:

- small forces, torques and weights
- no gear box
- smooth, stable operation
- favourable oxygen transfer rates
- low investment costs
- highly cost-effective

Description

The AEROSTAR Aerator mainly consists of an air-cooled, vertically mounted electric motor with drip cover, base plate, drive shaft and impeller. The impeller has blades at its rear side which are spirally curved and have a vertical height gradient as well as a tear-off edge.

Method of operation

The rotating impeller sucks the liquid to be aerated from underneath and then centrifuges it above the liquid level radially to all sides.

The oxygen transfer mainly takes place in the turbulent area around the impeller. In addition to that fine bubbles are introduced when the spray water hits the surface.

Materials and design

The design of the AEROSTAR Aerator is simple and sturdy. It is made of corrosion-resistant materials.

Drive shaft, impeller and base plate are made of stainless steel. The protective housing (option) is made of GRP.

The electrical drive consists of a high-class AC-motor as used for agitators. It is characterised by high efficiency, amply sized bearings, a drip cover and an additional protective coating.

The drive shaft is made of stainless steel. It is directly connected to the shaft end of the motor. A feather key transmits the torque to the shaft. The drive shaft is balanced dynamically together with the impeller. Thus soft, vibration-free operation is obtained. Each AEROSTAR Aerator is tested in our basin before delivery.

Float assembly

The float assembly for the AEROSTAR Aerators essentially consists of a framework with float tanks, supports and an anti-swirl cross.

The frame is a hot-dip galvanized, welded steel construction. The mechanically sturdy float tanks are made of PE.

The supports, anti-swirl cross and all small parts are made of stainless steel.

The supports enable the AEROSTAR Aerator to be set on land without the risk of tipping over and also prevent the impeller from touching the bottom when the tank is emptied.

On aerated lagoons the AEROSTAR Aerator is fixed with mooring cables to pickets or small concrete foundations at the lagoon bank. Short mooring cables are made of stainless steel, long cables of plastic.

In equalization basins the float assembly is secured at the sidewall by means of a fixing bar, whereby linkages on both ends enable the machine to go up and down unrestrictedly with a varying water level.

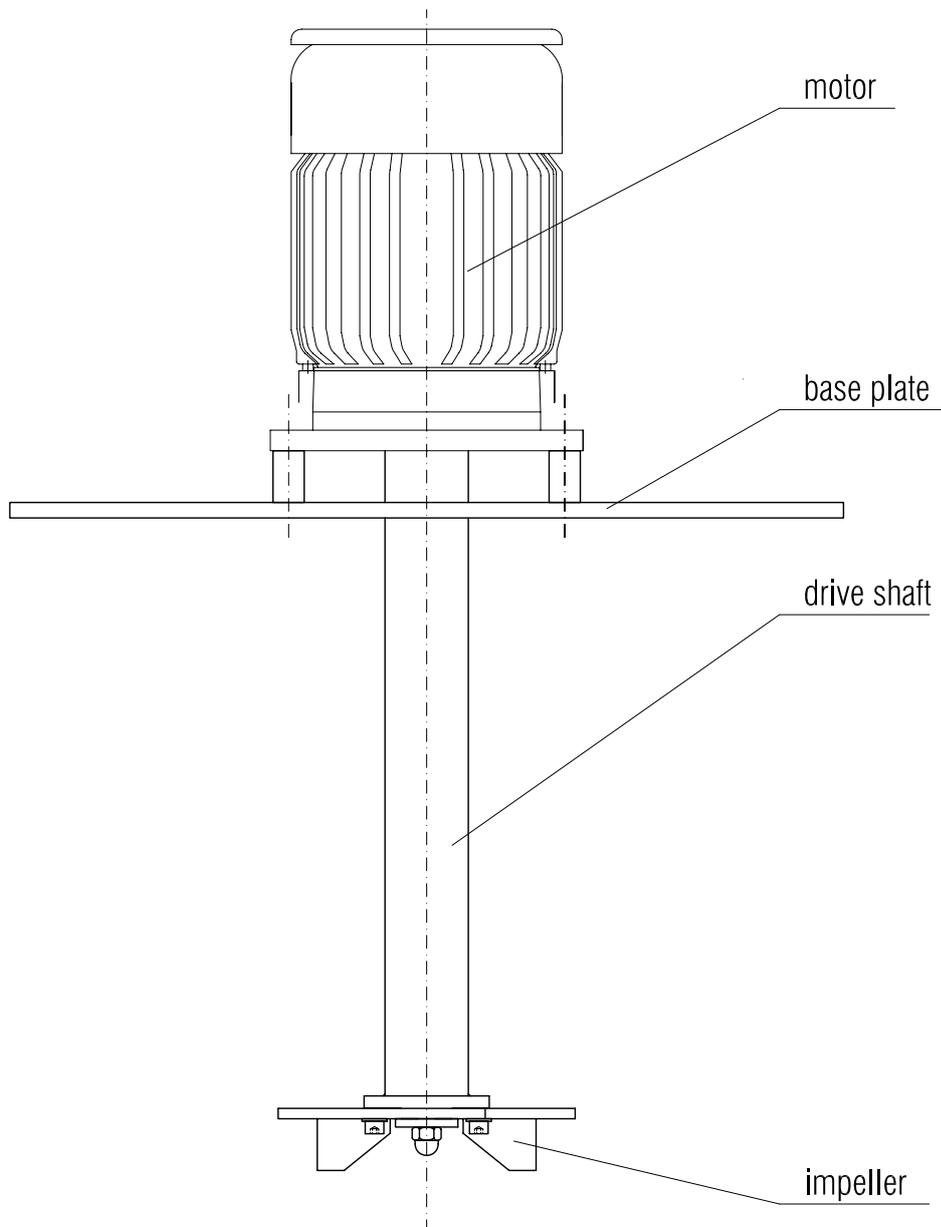
Basins with small surface and varying water level have to be equipped with guiding rails.

Installation

In circular or square basins the AEROSTAR Aerator has to be positioned in the centre. In case of large or rectangular basins a higher quantity of such machines has to be arranged equidistantly on the surface.

Technical data

FUCHS AEROSTAR Aerators are available in all IEC motor sizes from 3.0 kW to 30.0 kW.



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