



OxyStar[®] Aerator

Efficient Aeration and Mixing



FUCHS
A Metawater Company

Aeration
Mixing
Experts

Description

FUCHS OxyStar Aerators are used to introduce oxygen into lagoons, equalization tanks or activated sludge basins. In addition to a fine-bubble deep aeration they also provide for circulation and thorough mixing of the wastewater in the basins.

OxyStar Aerators essentially consist of an air-cooled a.c.-motor in mounting position B 35, a coupling with air-intakes, a hollow shaft and a sophisticatedly designed three-blade propeller.

The hollow shaft rotates at motor speed inside a protective housing which is flange-mounted to the drive motor.

OxyStar Aerators are either installed on flotations or mounting brackets.

Method of Operation

In operation OxyStar Aerators draw atmospheric air through the hollow shaft and discharge it into the water stream created by the rotating propeller.

Due to high turbulence fine-bubble aeration is achieved and the oxygen transfer efficiency is excellent. The protective housing prevents any spray.

Materials and Design

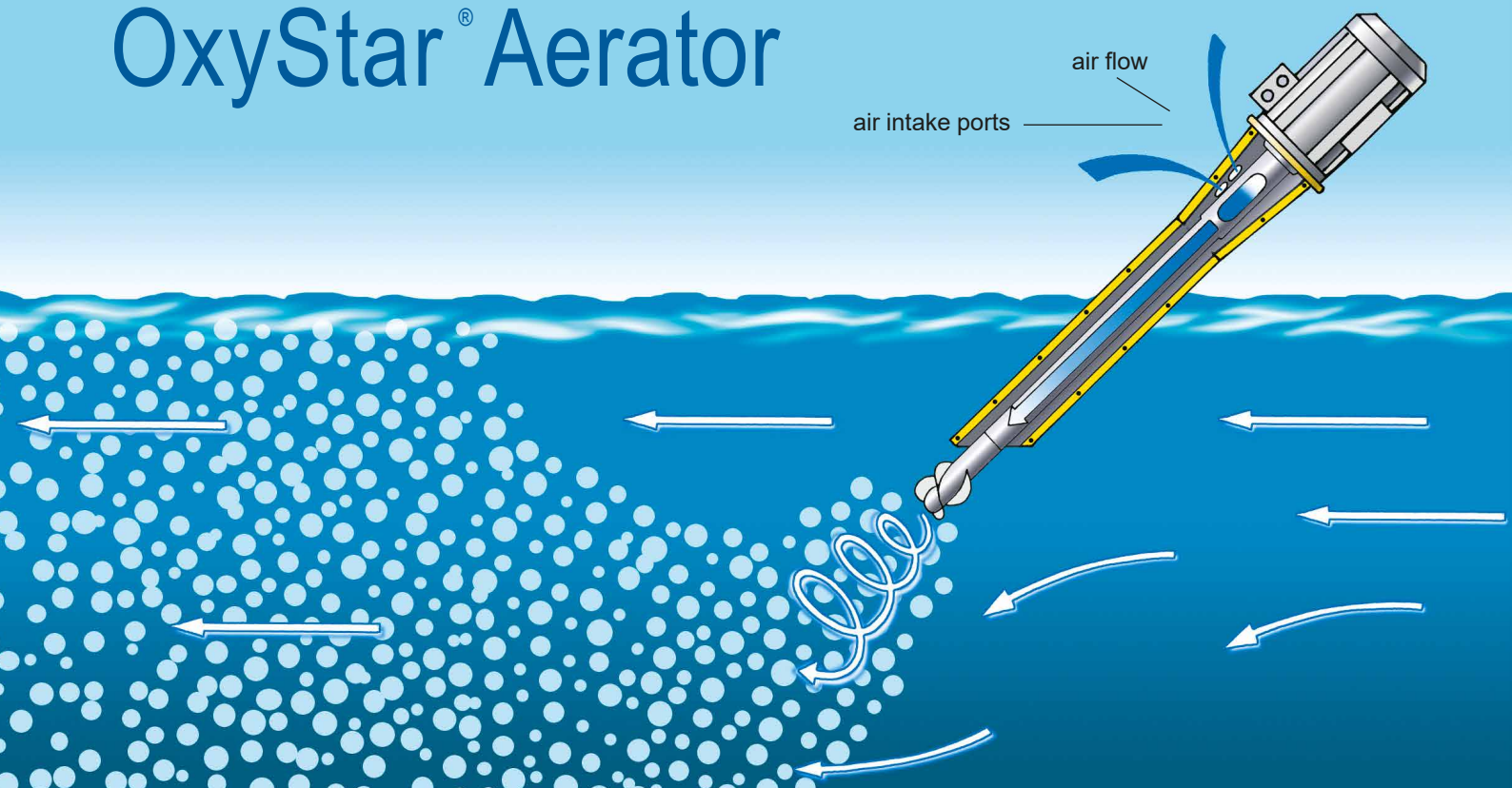
OxyStar Aerators are intelligently but simply designed and very sturdy. They are manufactured from non-corrosive materials. Standard material for the hollow shaft, the propeller and all small parts is stainless steel AISI 304 which is appropriate in most cases. If required, stainless steel AISI 316 Ti is available as well. The protective housing is made of glass fibre reinforced plastics.

The drives are a.c.-motors supplied by well-established manufacturers in the European Community. They are highly efficient, adequately rated and equipped with permanently-lubricated grooved ball bearings. The motor housings are made of high-quality cast iron or aluminium with an additional coat of protective paint.

The hollow shaft is connected to the drive motor by means of a special conical coupling which can easily be mounted and disassembled. This precision-turned component is produced on numerically-controlled machines. An extruded seamless steel tube with tight production tolerances is used for the hollow shaft. Dynamical balancing of coupling and propeller in conjunction with the motor ensures smooth operation.

The immersion section does not contain any seals or bearings. Consequently, OxyStar Aerators are almost maintenance free.

OxyStar® Aerator



Wide-Ranging Applications

OxyStar Aerators are outstanding units for effective aeration and mixing not only of municipal and industrial wastewater but also of ponds, lakes and rivers.

OxyStar Aerators are preferably installed in wastewater lagoons. These are typically applied for municipal, food processing as well as pulp and paper wastewater. Furthermore, OxyStar Aerators are ideal for activated sludge basins and equalization tanks. Almost all shapes of basins can be equipped, such as oval oxidation ditches, concentric basins (donuts) and circular tanks.

In addition, OxyStar Aerators are optimal for the upgrading, retrofitting or replacing of aeration devices no longer operating efficiently (e.g. mammoth rotors, brushes, surface aerators, diffused air systems and inferior aspirator aerators).

Installation

All OxyStar Aerators can be handled easily thanks to their low weight. There is no need for buildings for blowers, compressed air pipes, covers and adjustable weirs.

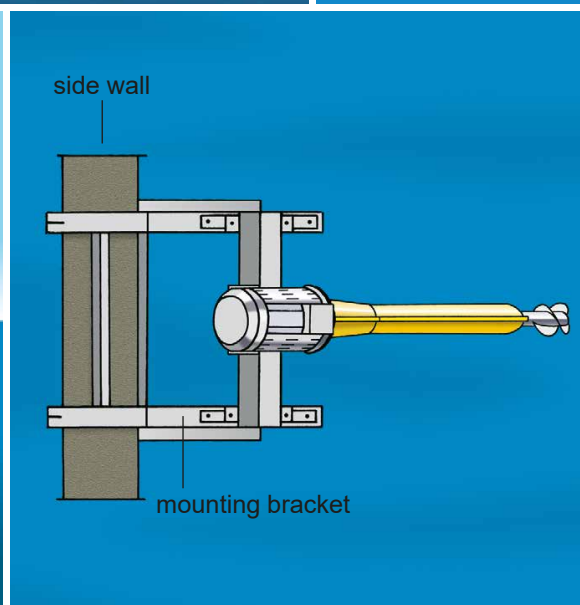
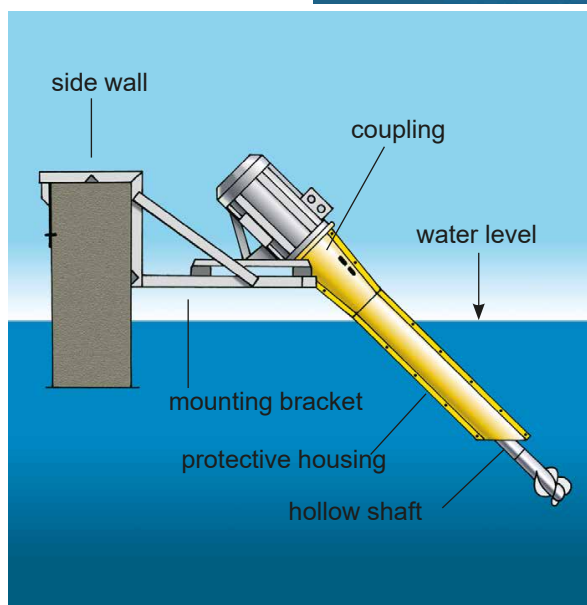
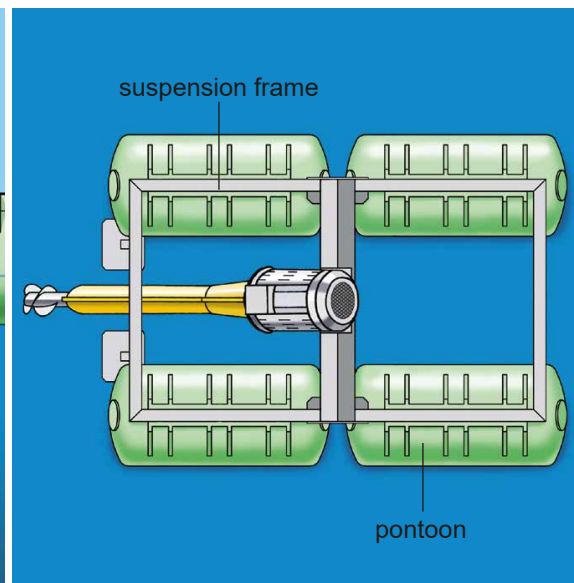
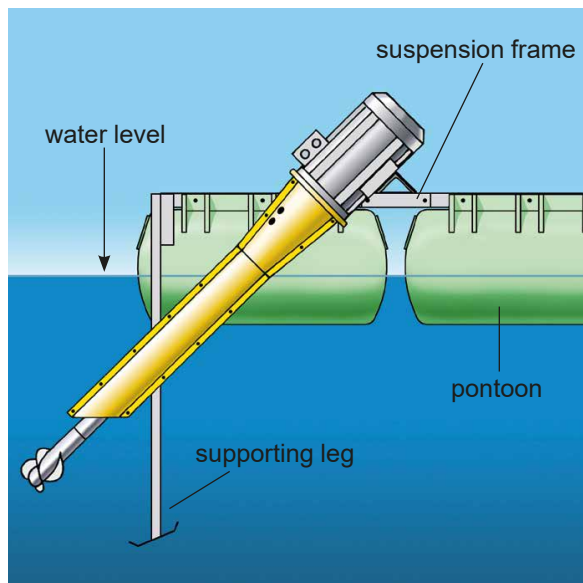
Due to easy installation, the operation of the treatment plant will not be interrupted and no basin has to be emptied when an existing aeration needs to be retrofitted or upgraded. In lagoons or equalization basins OxyStar Aerators are installed on sturdy flotations kept in position by mooring cables.

Flotations for OxyStar Aerators essentially consist of at least two pontoons and a hot-dip galvanized framework.

The pontoons are made of high-quality LDPE.

In activated sludge basins OxyStar Aerators will mainly be fixed with mounting brackets to bridges or basin walls.

OxyStar[®]
Aerator
on flotation



OxyStar[®]
Aerator
at side wall



Aerated Wastewater Lagoon System in North Africa (270,000 p.e.)



The OxyStar® Aerator: Advantages

- Efficient oxygen transfer.
- Self-cleaning propeller ensures permanent high performance.
- High-efficiency mixing and circulation.
- No spray water, calm water surface.
- Negligible noise level.
- Easy handling and mounting due to low weight.
- High-quality flotations, trouble-free installation.
- Almost maintenance free.



Industrial Application (Thailand)



Technical Data

OxyStar Aerators are available with all IEC motor sizes from 1.5 kW to 37.0 kW. Standard motors are 230/400 V resp. 400/690 V, 50 Hz, 3-phase. Other nominal powers, voltages and 60 Hz are available. Motor speed is $\leq 1,500$ rpm at 50 Hz resp. $\leq 1,800$ rpm at 60 Hz. In comparison to other aspirator aerators OxyStar Aerators have a highly competitive performance in mixing, air-flow and oxygen transfer.



FUCHS
A Metawater Company

FUCHS Enprotec GmbH

Stocktal 2 • 56727 Mayen • Germany
phone +49 2651 8004 0
fax +49 2651 8004 135
info@fuchswater.com
www.fuchswater.com