



**KUSTERS WATER**

a division of KUSTERS ZIMA



# OXYSTAR<sup>®</sup> Aerator

Efficient Aeration and Mixing



Air



Water



Biosolids



**FUCHS**  
Clean Solutions

## 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.

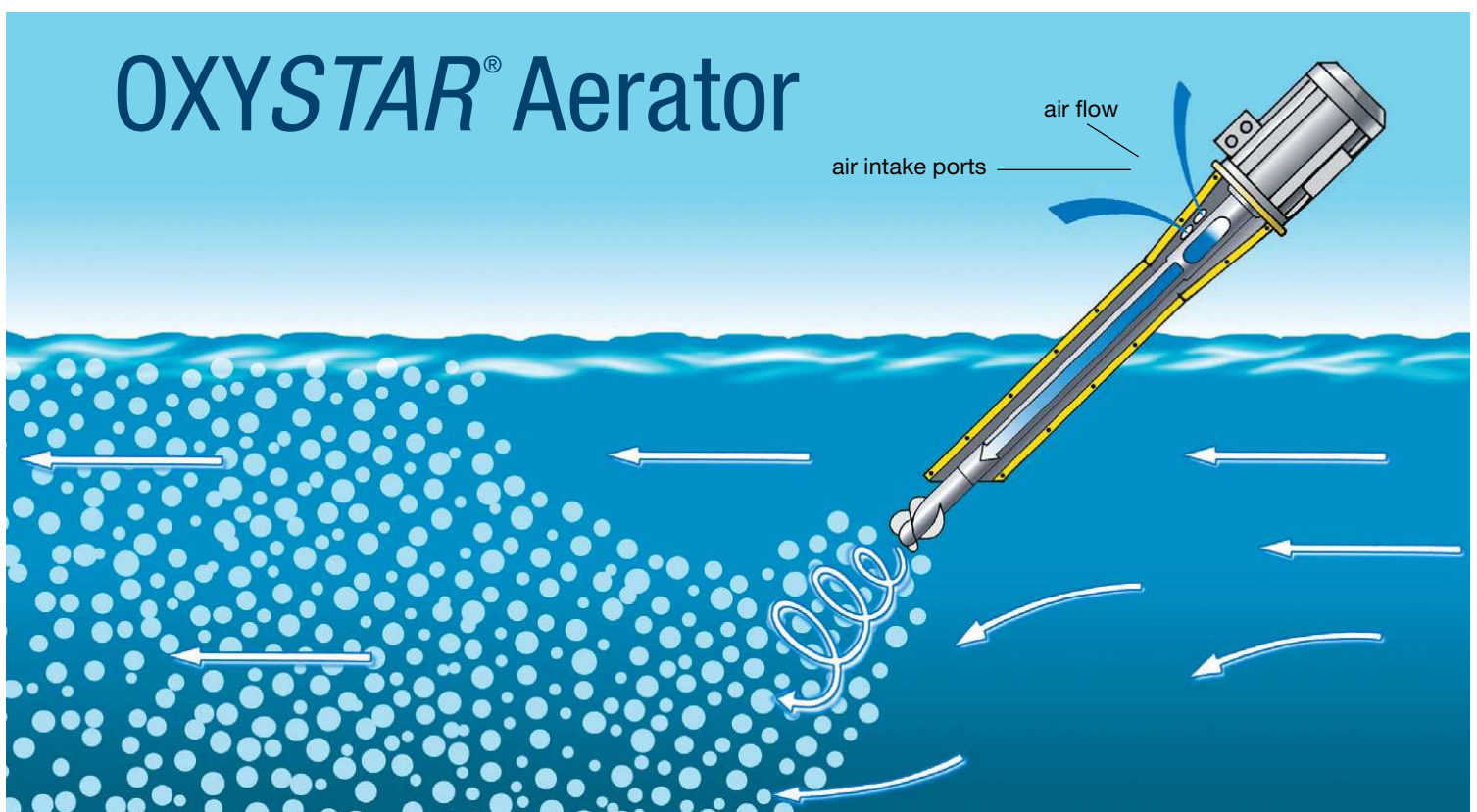
## Materials and Design

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.



## 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

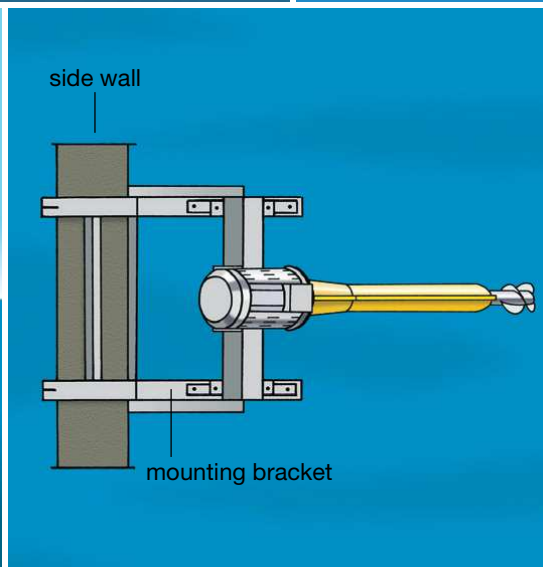
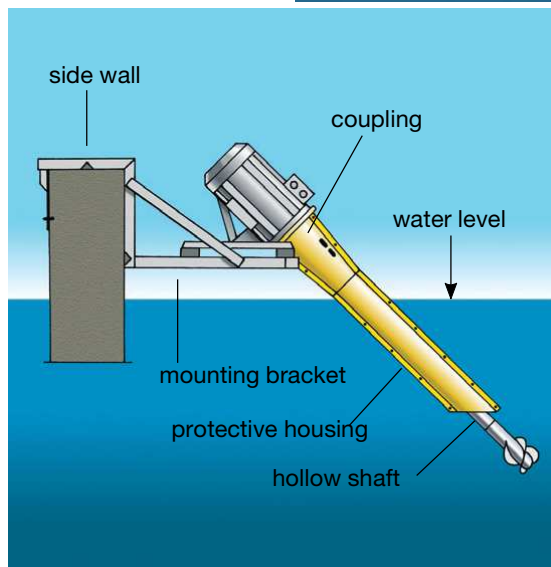
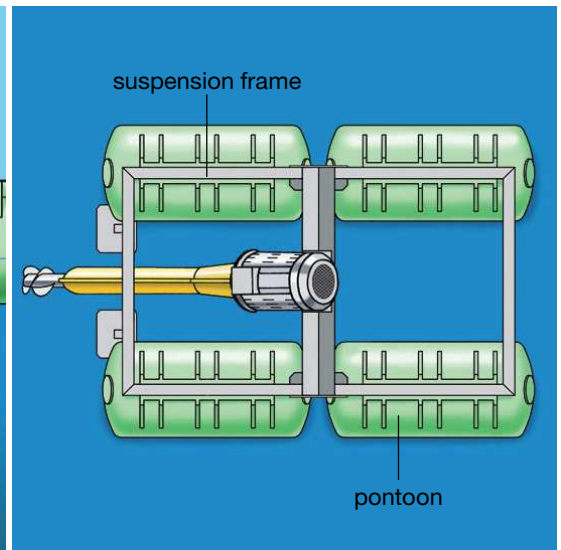
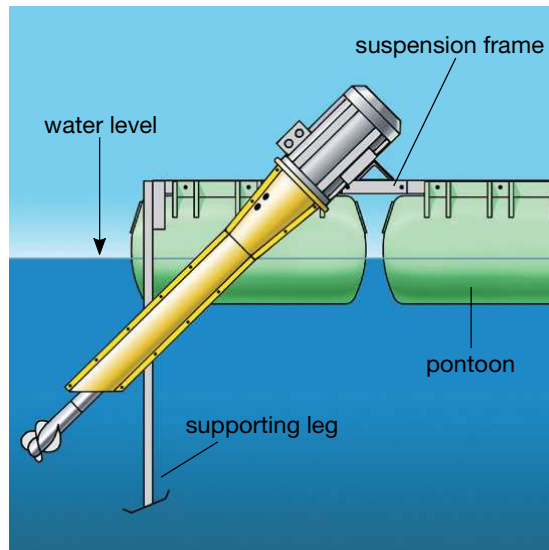
All OXYSTAR Aerators can be handled easily thanks to their low weight. There is no need for buildings for blowers, compressed air pipes, covers and adjustable weirs.

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



## 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.

## Technical Data

OXYSTAR Aerators are available with all IEC motor sizes from 2.2 kW to 22.0 kW. Standard motors are 230/400 V resp. 400/690 V, 50 Hz, 3-phase. Other 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.

OXYSTAR		Nominal Power		Nominal Current A	Total Length mm	Weight kg	Immersion Depth mm	Air Flow m <sup>3</sup> /h
Type		kW	hp					
OS	3.0	2.2	3.0	4.6	1,530	48	500	65
OS	4.0	3.0	4.0	6.3	1,580	51	500	85
OS	5.5	4.0	5.5	9.6	1,590	61	500	115
OS	7.5	5.5	7.5	10.5	1,750	80	600	130
OS	10.0	7.5	10.0	14.3	1,750	82	600	155
OS	15.0	11.0	15.0	20.5	2,170	117	800	190
OS	20.0	15.0	20.0	28.5	2,230	136	800	230
OS	25.0	18.5	25.0	35.0	2,270	171	800	280
OS	30.0	22.0	30.0	41.0	2,270	185	800	350

Data for standard motors 400 V/50 Hz. Other voltages, 60 Hz as well as larger units on request.  
The data are subject to technical change.



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