



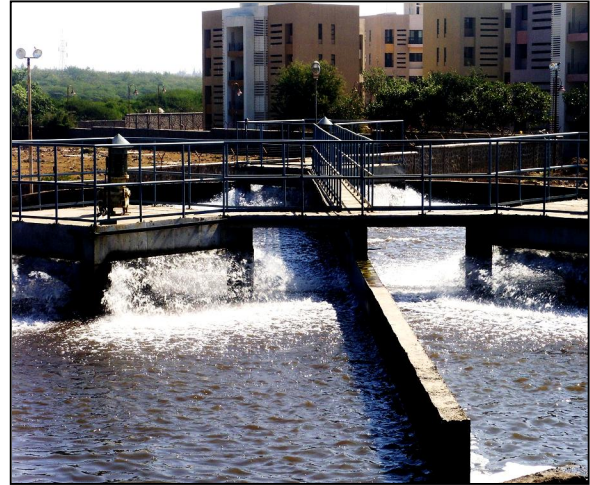
SURFACE AERATORS

(Fixed and Floating Types)

Aerators are used in biological treatment to convert organic matter into biological cell mass thereby reducing the BOD. The biological matter consumes dissolved oxygen for respiration and mechanical surface aerators are provided to replenish oxygen thus used up.

Mechanism

Aerators are efficient circulators, drawing liquid from below and distributing it with intense disturbance over the liquid surface. This positive circulating action is the reason for continuous, rapid and complete mixing which occurs in an aeration tank and which is fundamental to the success of the activated sludge method of treatment.



Fixed Surface Aerator

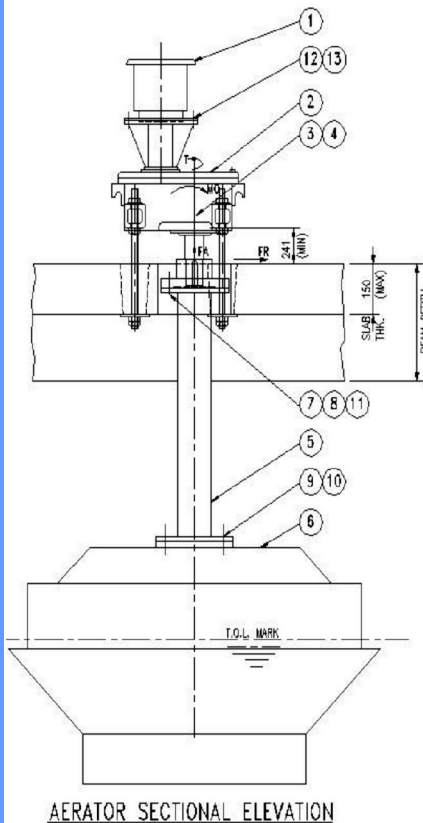
Conventional methods of aeration involve the use of reinforced concrete tanks or channels with fixed aerators supported by substantial bridges spanning the tank or channel in which they operate.

An alternative to this is the floating aerator in which the unit is mounted on a catamaran-type or four-pod support structure depending on the degree of stability demanded by the application.

There are currently two kinds of structures for floating aerators based on the best marine engineering concepts.

The first type is the four-pod type and is akin to sea-moored drilling rigs. It is suitable for applications where severe weather situations need to be met.

The second type of floating aerator is the catamaran type. It finds application in circumstances that do not demand extreme stability.



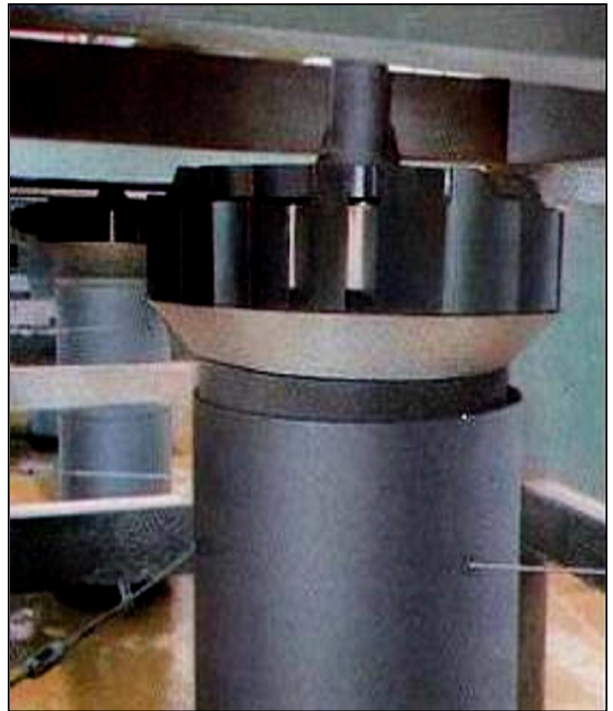
AERATOR SECTIONAL ELEVATION

PART NO.	DESCRIPTION
1	MOTOR
2	GEARBOX (HELICAL TYPE)
3	STUD
4	ANCHOR PLATE
5	DRIVE TUBE
6	AERATOR CONE
7	HEX.HD.BOLT
8	HEX.HD.NUT
9	HEX.HD.SCREW
10	SPRING WASHER
11	WASHER
12	HEX. HD. BOLT,NUT & WASHER
13	SPRING WASHERS

General Arrangement of Fixed Aerator

Special Features

- Low speed (56 to 41 RPM), thus facilitating smooth movement of biomass without fragmentation.
- Non-clogging type impeller
- Curved vanes in impeller to provide smooth water gliding and thus no erosion
- Conical skirt provides automatic reduction in power consumption with drop in water level
- High tank depths up to 9m possible with draft tube
- Adjustable weir available for water level control
- Various flow combinations can be done to avoiding vortexes and stilling zones
- Highly efficient gear box with drywell arrangement
- Modular design that can be upgraded without much change
- Better oxygen control can be achieved by the use of two speed motors
- Can be easily used in round tanks and high depths and thus civil work costs can be reduced.
- Treatment of MLSS up to 15000 is possible by using draft tube along with the aerators.
- Aerator cones are statically/ dynamically balanced (if required).

**Aerator with Draft Tube****Applications**

Aerators are typically used for wastewater applications like sewage and effluent treatment. Typical applications for floating aerators include oxygenation of harbours, rivers, canals, lakes and reservoirs but they can be used equally well for sewage and effluent treatment in balancing tanks, in concrete aeration channels or in low cost lagoon type aeration systems.

Range

Voltas has aerators ranging from 2 HP (1.5 kW) to 120 HP (90 kW) motor capacities.

**Floating Aerator****Material of Construction (Aerator Cones and Under Water Parts)**

Mild Steel Epoxy Coated/ Galvanized/ FRP Coated/ Stainless Steel 304/ Stainless Steel 316

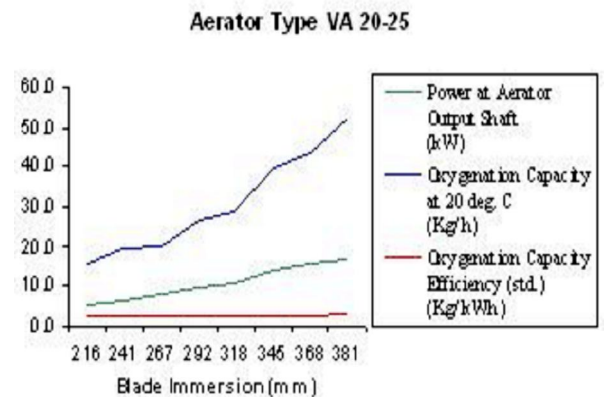
Performance

Voltasø aerators have an oxygenation capacity averaging between 1.8 Kg/ kWh and 2.0 Kg/ kWh at standard conditions depending on the model.

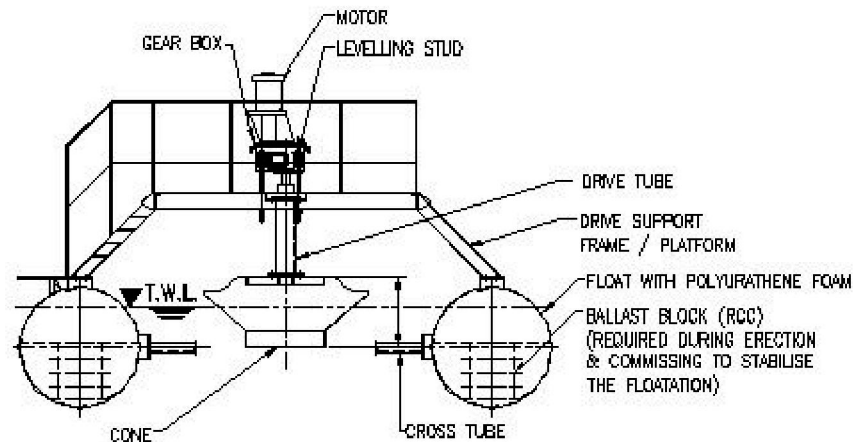
Typical Aerator Performance Curves

Model: VA 20 –25

Blade Immersion (mm)	Power at Aerator Output Shaft (kW)	Oxygenation Capacity at 20 deg. C (Kg/ h)	Oxygenation Capacity Efficiency (std.) (Kg/ kWh)
216	5.7	15.60	2.76
241	6.6	19.50	2.96
267	7.7	20.00	2.60
292	9.5	26.80	2.83
318	10.6	29.30	2.75
345	13.7	39.60	2.90
368	15.7	44.00	2.81
381	16.8	52.20	3.10



Note: Details of other models of aerators will be available on request.

Typical Floating Aerator General Arrangement

For more information contact:

Voltas Limited

Water Management Business Division
Voltas House B, T. B. Kadam Marg
Chinchpokli, Mumbai 400033

Tel: +91 (0) 22 66656666 (Board)
+91 (0) 22 66656571 (Direct)

Fax: +91 (0) 22 66656592

E-mail: dkelapur@voltas.com