



Sismat Uluslararası
Arıtma Makinaları
İnşaat Mühendislik
Sanayi ve Tic. A.Ş.



**VERTICAL SHAFT
SURFACE AERATORS**



VERTICAL SHAFT SURFACE AERATORS (GYROX - with Lurgi GmbH licence)

Wastewater aeration is the process of introducing oxygen into wastewater to facilitate the aerobic bio-degradation of pollutants. Surface aerators agitate the wastewater vigorously, entraining air in the wastewater and causing a rapid change of the air-water interface to facilitate solution of the air. The oxygen-enriched water is dispersed and mixed, resulting in highly effective aeration.

Sismat Uluslararası aerators provide high efficient aeration, while maintaining sufficient mixing in the basin.

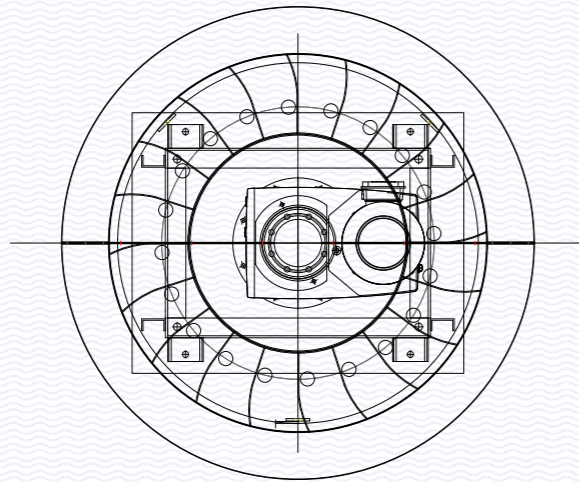
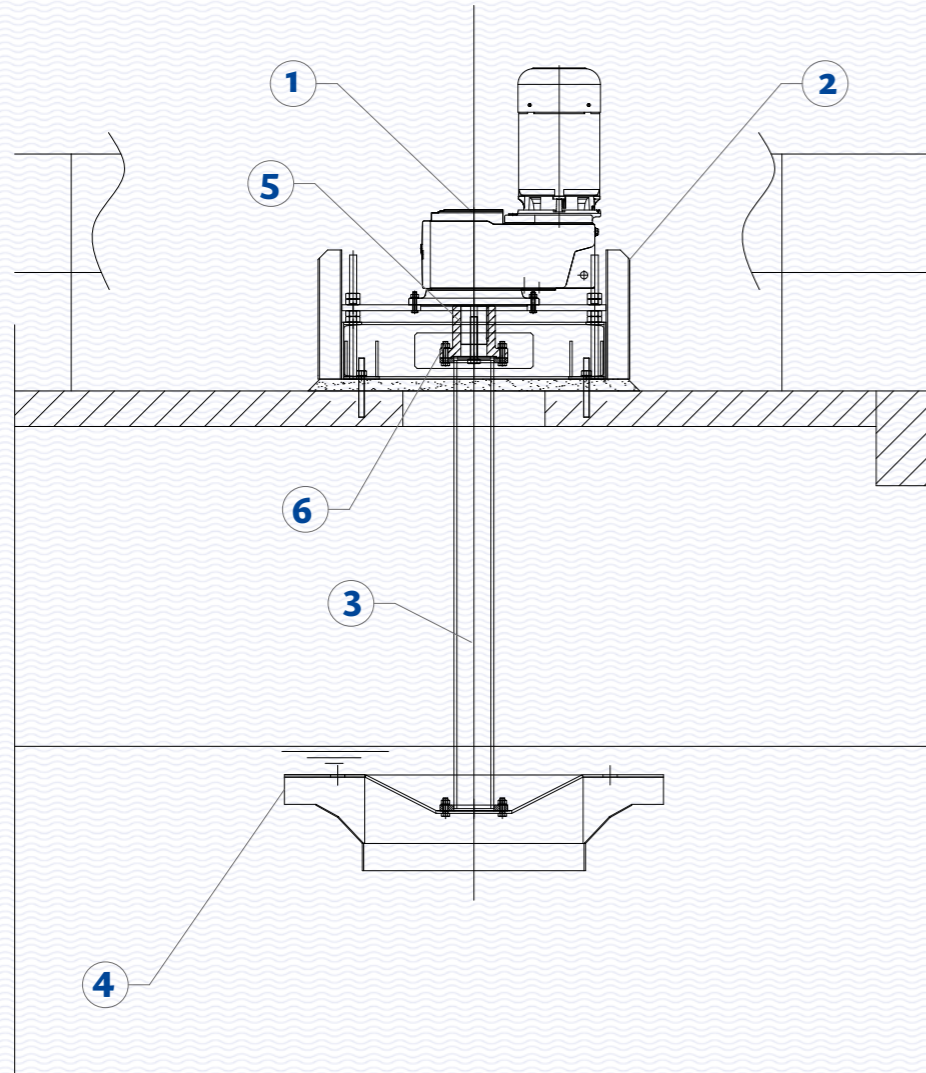
Vertical shaft surface aerators consist of submerged or partially submerged impellers, which are mounted in the aeration tank. The simple mechanical structure consisting of actuator, shaft and fan allows easy operation. It can either be easily mounted on fixed bridge, or be attached to the side of the basin by means of a special barge system in cases where water level can vary.

They are produced in 18 different models, varying in capacity and fan diameter depending on motor power changing between 1.5-132 kW. Depending on the basin configuration, there may be the necessity of using accessories such as suction pipe, suction nozzle and baffle.

FEATURES AND BENEFITS OF SISMAT ULUSLARARASI VERTICAL SHAFT SURFACE AERATORS:

- Low operating and maintenance costs
- Trouble-free performance
- High oxygen transfer efficiency
- Resistant to corrosion and abrasion
- Fixed or floating assembly
- Long life-time

Typical Vertical Shaft Surface Aerator & Components



OUR VERTICAL SHAFT SURFACE AERATOR COMPONENTS

	Vertical Shaft Surface Aerator Components	Materials Available
1	Drive unit	---
2	Mounting plate	Carbon steel
3	Shaft	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
4	Fan	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
5	Coupling between shaft and reductor	Carbon steel
6	Fastening materials	A2, A4 , DUPLEX or SUPER DUPLEX

VERTICAL SHAFT SURFACE AERATOR

- Vertical shaft surface aerator has a simple mechanical structure consisting of electrical motor, reducer, shaft and impeller.
- Reducer is designed for continuous operating conditions and service factor varies between 2 or 3 according to aerator type.
- Besides high oxygen efficiency, agitation is also achieved satisfactorily. Velocity of 50 cm/s can be satisfied even at the bottom of the basin.
- Vertical shaft surface aerators are easily assembled on all types of fixed bridges. If water level is subject to any changes, Vertical shaft surface aerators can be equipped with floating structure.
- Vertical shaft surface aerator impeller design enables reaching high efficiencies with low energy consumption. To obtain optimum peripheral velocity, highest rotation speed and smallest impeller diameter ratio is applied.
- Suction nozzle below the impeller increases the effective depth. If the ideal water depth is exceeded, the effective depth of Vertical shaft surface aerator can be increased by extending the suction nozzle or providing a draft tube.
- Thanks to its special impeller design, water sucked by Vertical shaft surface aerator impeller is discharged in sprays parallel to water surface without blocking or settling risks. Fine bubbles formed by ejection of water to air and by mixing effect at surface provide the longest contact time, reaching to the lowest points of the basin.
- Vertical shaft surface aerators are manufactured in 18 different power ratings from 1.5 kW to 132 Kw.
- Immersion depth of standard Vertical shaft surface aerator can be adjusted between ± 40 mm and ± 100 mm depending on the aerator model.
- Vertical shaft surface aerator impeller speed can be no gradually adjusted to %10 of its nominal speed or Vertical shaft surface aerator can be equipped with double speed motor.
- Vertical shaft surface aerator speed can be automatically adjusted according to the oxygen requirement or if there is more than one aerator, it is possible to operate only the necessary one.
- If more than one aerator is operated, various combinations can be made by means of electronic time control.

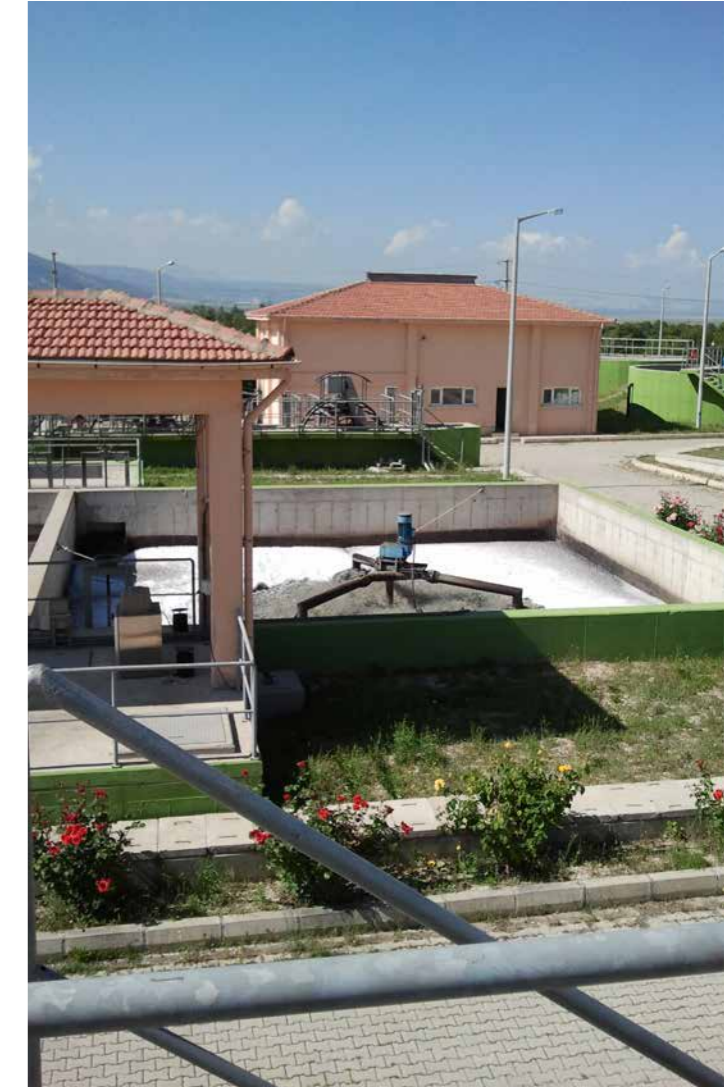
GYROX – Vertical Shaft Surface Aerator Selection Table

Type	Rated Power (Kw)	Impeller Diameter (m)	Rotation Speed (rpm)	Peripheral Speed (m/s)	Immersion Depth (mm)	O2 Efficiency (kg/h)w	Effective Depth (m)	
							Max.	Min.
71S100	1.5	0.71	98	3.6	80	2.7	1.20	2.00
81S85	2.2	0.81	85	3.6	80	3.9	1.20	2.00
81S100	3.0	0.81	98	4.2	80	5.4	1.20	2.00
81S115	4.0	0.81	115	4.9	80	7.2	1.20	2.00
93S90	5.5	0.93	90	4.4	100	9.9	1.20	2.50
93S104	7.5	0.93	104	5.1	100	13.5	1.20	2.50
107S95	11.0	1.07	95	5.3	100	19.8	1.50	2.50
124S84	15.0	1.24	84	5.5	100	27.0	1.50	3.00
144S68	18.5	1.41	68	5.1	120	33.3	2.00	3.00
160S58	22.0	1.60	58	4.9	120	39.6	2.00	3.50
160S65	30.0	1.60	65	5.4	120	54.0	2.00	3.50
206S46	37.0	2.06	46	5.0	120	66.6	2.00	4.00
240S41	45.0	2.40	41	5.2	150	81.0	2.00	4.00
240S45	55.0	2.40	45	5.7	150	99.0	2.00	4.00
272S37	75.0	2.72	37	5.3	150	135.0	2.00	4.50
330S30	90.0	3.30	30	5.2	150	162.0	3.00	6.00
360S26	110.0	3.60	26	4.9	150	198.0	3.00	6.00
360S29	132.0	3.60	29	5.5	150	237.0	3.00	6.00

- All values are for information only. Please contact SU Sales Engineers for the selection of your equipment.
- All values are given for square or rectangular shaped basins similar to square. Gyrox aerators can also be used in circular tanks by additional measures. In such a case, please refer to SU Sales Engineers.
- The ratio between tank length and water depth must be between 2/1 and 4/1 and maximum water depth should not be exceeded.
- Aerator efficiency will increase if the ratio between tank length and impeller diameter decreases.
- Besides tank dimensions, various criteria such as aerator location point and weir width may affect the aeration efficiency.
- We can also help you to find the right solution to your special requirements with bottom cones, suction nozzles, baffle assembly, etc.

FLOATING SYSTEM

Vertical shaft surface aerator floating system is a three armed system consisting of floats, central structure and assembly platform. Floats are made of carbon steel and epoxy coated. Float sizes and distances to the platform center are designed in accordance with Vertical shaft surface aerator's effective area. The system is balanced by floats filled with ballast oil. Floating system arms are made of spirally welded carbon steel pipes which are epoxy coated. Arms are made fragmental for easy transportation and erection. Connection bolts and nuts are stainless steel. Epoxy coated carbon steel assembly platform is a part of Vertical shaft surface aerator's structure where aerated base plate is mounted. Carbon steel anchorage parts for tensioning ropes are provided by Sismat Uluslararası to be assembled on the aeration tank during civil works. Sismat Uluslararası also specifies the anchorage places on the aeration tank. Synthetic tension ropes and electrical cabling are water resistant. Tensioning rope lengths must be fixed when the aeration tank is empty. You are always welcome to ask for Sismat Uluslararası supervision surfaces during your installation.





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www.sisnat.com.tr

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