

# Submersible Aerator TA

System Frings™

Self-aspirating submersible aerators for wastewater and water treatment in municipal and industrial treatment plants

- easy installation, even in existing basins
- no aerosol effect
- low noise level
- self-cleaning system
- no sedimentation on the bottom of the basin
- good oxygen utilisation and transfer efficiency values
- replaceable wear parts
- frost-proof
- continuous, automatic seal monitoring
- continuous, automatic motor temperature monitoring



## Applications

These submersible aerators are suitable for all gas-liquid reactions at temperatures below 70°C and pressures below 2 bar absolute.

Applications in sewage treatment and water treatment:

### Mixing and equalizing basins:

Equalization of waste water pollution load and waste water quantities, as well as avoidance of odour problems.

SBR reactors and activated sludge basins:

Degradation of organic substances.

### Sludge stabilization:

Avoidance of odour problems as well as further oxidation of the organic substances.

### Flotation:

Flotation of oil and grease.

### Lagoon aeration:

Improvement of natural aeration.

### Neutralization:

Neutralization of alkaline waste water with CO<sub>2</sub> or flue gas.

### Special applications:

Aeration with pure oxygen or ozone

## Installations



## Operation

The submersible aerator type TA is a submerged motor, blower, pump and mixer, all combined in one unit. It consists of a star-shaped impeller directly connected to the motor shaft, a stator surrounding the impeller as well as an air pipe to atmosphere.



The impeller rotates inside the stator creating a vacuum and automatically aspirating air through the air pipe.

At the same time, water flows into the impeller, is thoroughly mixed with the air and radially discharged through the channels of the stator. This system ensures fine bubbles.

## Freestanding Portable Submersible Aerators

The submersible aerator is positioned on the bottom of the basin without anchorage. For maintenance and inspection work the aerator can be lifted by means of a mobile crane.

The photo shows a submersible aerator in a mixing and equalization basin of a fruit juice company.

## Fixed Submersible Aerators

For larger, deeper basins aerators are positioned precisely between two guide tubes.

It can be lifted and lowered by means of a lifting device without emptying the basin.

The photo shows submersible aerators in activated sludge basins in a municipal sewage plant.

## Floating Submersible Aerators

For aeration of basins without concrete base, lagoons, lakes and rivers.

The aerator can be mounted on a float to either move in an arc from side to side on a restraining rope or be self-propelled to move back and forth on a taught guide wire.

The photo shows a float mounted aerator in the effluent lagoon of a sugar mill.

## Technical description

**Motor:** three-phase asynchronous motor, 400 V, 50 Hz, 4-pole, protection type IP68, stator winding with insulation class F, designed for 155°C. DOL or YD start possible.

**Rotor shaft** is carried on lubricated-for-life maintenance-free ball-bearings.

**Shaft sealing** between motor and aerator by means of high quality sealing unit using a silicon carbide mechanical seal, unaffected by direction of rotation and resistant to temperature shock.

**Seal monitoring: DI-System** with a sensor in the oil chamber to give an early indication that an inspection is due and that leakage at the shaft seal has occurred.

**Temperature monitoring: TCS-Thermo-Control-System** with thermal sensors in the stator to give a warning of overheating and to switch the motor off via the control panel.

### Materials

Motor housing \_\_\_\_\_ Cast iron GG-25  
 Motor shaft \_\_\_\_\_ St. st. 1.4021 (AISI 420)  
 Fasteners in contact to medium \_ St. st. 1.4401 (AISI 316)  
 Aerator parts \_\_\_\_\_ St. st. 1.4301(AISI 304)  
 Bushing \_\_\_\_\_ Bronze

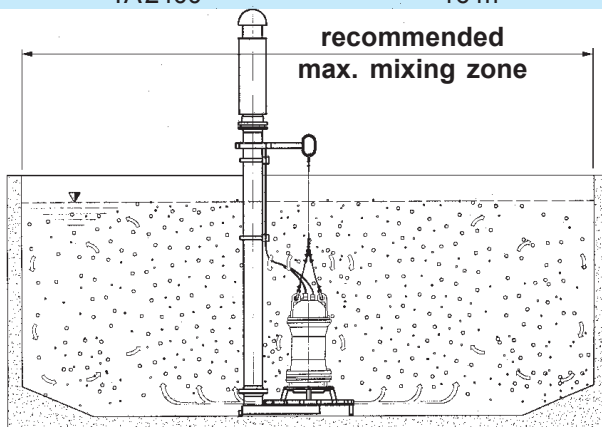
### Options

Exposed aerator parts hard chrome plated  
 Special materials on request

## Range of operations

Mixing zone = max. diameter or length for standard application (aeration and mixing)

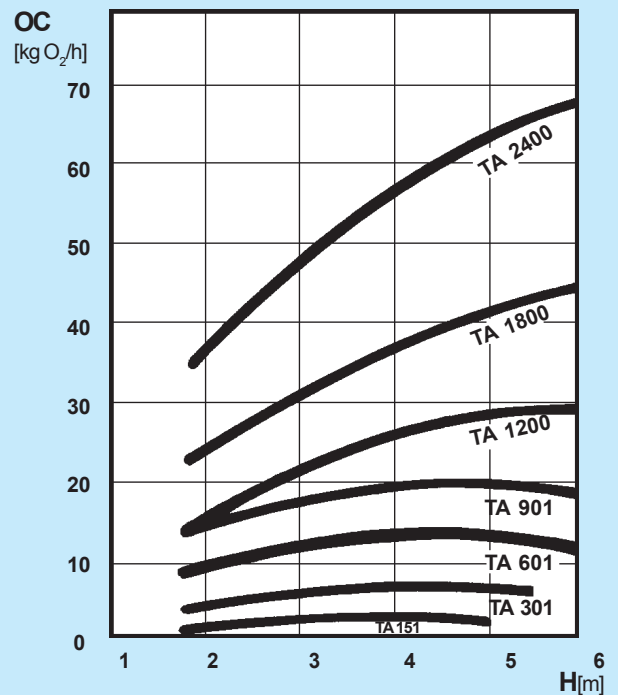
Aerator type	Mixing zone
TA 151	6 m
TA 301	8 m
TA 601	10 m
TA 901	11 m
TA 1200	12 m
TA 1800	14 m
TA 2400	16 m



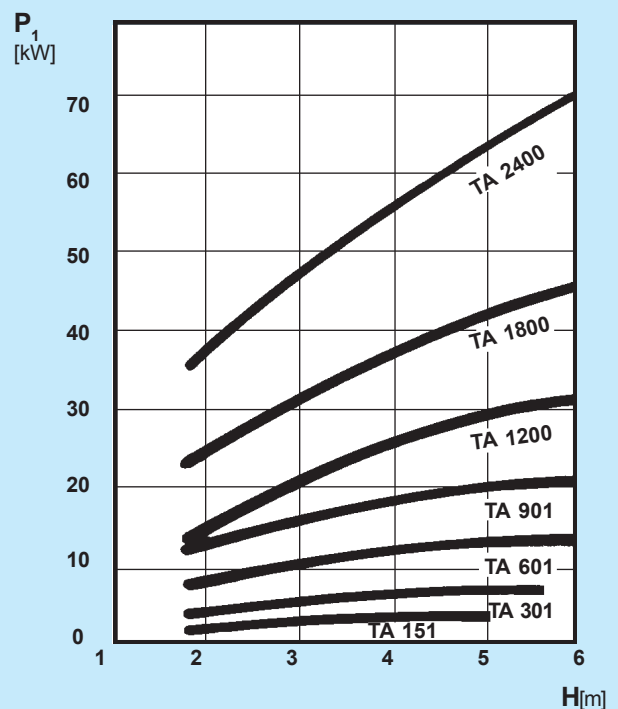
The aeration in smaller basins will give a 20 to 30 % higher oxygen transfer in comparison to the recommended max. mixing zone. ABS is glad to assist with applicational aids. Contact your ABS representative with your requirements. The standard motors maybe used for nominal voltages of 380, 400 or 415 V. All data for standard motors 400 V, 50 Hz.

## Oxygen transfer, self-aspirating

Under standard conditions (20°C, 1013 mbar), optimal positioning



## Power consumption, self-aspirating



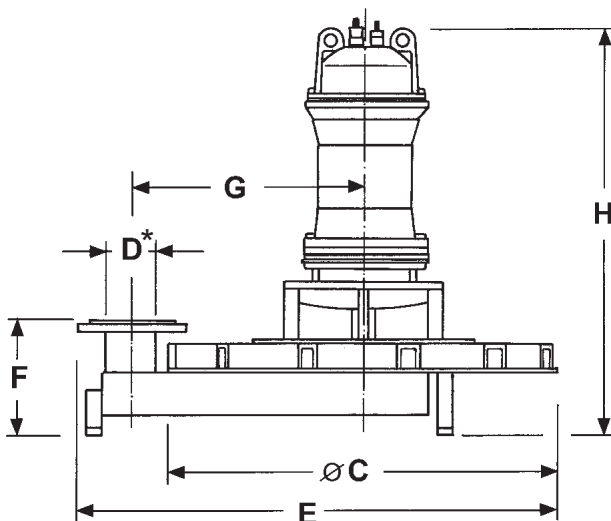
Technical Data		Rated Motor Power		Speed at 50Hz	Rated Voltage	Rated Current	Cable Type**	Immersion Depth max	Weight
Hydraulics	Motor	P <sub>1</sub> kW	P <sub>2</sub> kW	min <sup>-1</sup>	V 3~	A		m	kg
TA 151	M 30-4	3.98	3.0	1322	400	7.21	(1)	3.0	80
TA 151	M 40-4	5.00	4.0	1408	400	8.87	(1)	5.0	97
TA 301	M 60-4	7.19	6.0	1428	400	12.50	(1)	4.0	131
TA 301	M 90-4	11.40	9.0	1401	400	20.10	(2)	6.0	141
TA 601	M110-4	13.30	11.0	1422	400	23.00	(3)	4.0	254
TA 601	M150-4	18.10	15.0	1430	400	31.70	(4)	7.0	284
TA 901	M185-4	21.10	18.5	1458	400	37.70	(4)	4.5	405
TA 901	M220-4	25.00	22.0	1460	400	44.00	(4)	8.0	415
TA 1200	M220-4	25.00	22.0	1460	400	44.00	(4)	3.0	470
TA 1200	M300-4	34.10	30.0	1459	400	61.50	(5)+(6)	6.5	520
TA 1800	M370-4	41.60	37.0	1460	400	72.30	(5)+(6)	4.0	535
TA 1800	M450-4	50.00	45.0	1480	400	85.90	(7)+(9)	6.0	800
TA 1800	M550-4	59.60	55.0	1480	400	98.50	(7)+(9)	8.5	840
TA 2400	M550-4	59.60	55.0	1480	400	98.50	(7)+(9)	4.3	880
TA 2400	M750-4	81.50	75.0	1480	400	137.0	(8)+(9)	7.5	975

\*P<sub>1</sub> = Power taken from mains;  
P<sub>2</sub> = Power at motor shaft

\*\*Cable Type (1) A07RN-F10G1.5 (5) 2x H07RN-F4G6 (9) A07RN-F8G1.5  
(2) A07RN-F10G2.5 (6) H07RN-F4G1.5  
(3) H07RN-F10G2.5 (7) 2x H07RN-F4G10  
(4) 2x S07RN-F4G4+2x 0.75 (8) 2x H07RN-F4G16

Aerators are supplied as standard with 10 m cable with free cable ends.

## Dimensions



\*Flanges DN 50-DN150 according to DIN 2633, PN 16  
Flanges DN200 according to DIN 2632, PN 10

Aerator Type	C	D	E	F	G	H
TA 151/M 30-4	500	DN50	637	180	300	565
TA 151/M 40-4	500	DN50	637	180	300	665
TA 301/M 60-4	690	DN80	862	217	405	665
TA 301/M 90-4	690	DN80	862	217	405	710
TA 601/M110-4	720	DN100	920	240	435	950
TA 601/M150-4	720	DN100	920	240	435	1050
TA 901/M185-4	840	DN125	1065	240	510	1100
TA 901/M220-4	840	DN125	1065	240	510	1210
TA 1200/M220-4	950	DN150	1195	261	575	1240
TA 1200/M300-4	950	DN150	1195	261	575	1240
TA 1800/M370-4	950	DN150	1195	261	575	1235
TA 1800/M450-4	950	DN150	1195	261	575	1590
TA 1800/M550-4	950	DN150	1195	261	575	1590
TA 2400/M550-4	1050	DN200	1345	286	650	1600
TA 2400/M750-4	1050	DN200	1345	286	650	1750

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COST-EFFECTIVE PUMPING

ABS reserves the right to alter specifications due to technical developments.

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