



Submersible Jet Aerators

BER



BER/TOS-BER

SUBMERSIBLE JET AERATORS

FEATURES

The powerful single direction jet current is unrivaled in vertical stirring convection. And its required shaft power is not so much changed when the depth changes.

APPLICATIONS

- Pre-aeration and mixing at wastewater treatment plant
- Supplying oxygen to water in aquatium

MAJOR COMPONENTS & SPECIFICATIONS

Air-Inlet Bore	mm	25	32	50
Treating Fluid	Type of Fluid	Wastewater and Sewage		
	Fluid Temperature	0 to 40°C		
Pump	Impeller	Channel		
	Structure	Double Mechanical Seal (with Oil Litter)		
	Bearing	Double-shielded Ball Bearing		
	Diffuser *	Structure Steel + Nylon Coated		
Materials	Impeller	Gray Cast Iron		
	Suction Cover	Gray Cast Iron		
	Casing	Gray Cast Iron		
	Shaft Seal	Silicon Carbide		
Type, Pole	Dry Type Submersible Induction Motor			
Insulation	2, 4-pole			
	Class E, F (1,5kW and 5,5kW only)			
	Three-phase			
	Protection Device (built-in)			
Motor	Lubricant	Circle Thermal Protector		
	Frame	Turbine Oil (ISO VG32)		
Materials	Shaft	Gray Cast Iron		
	Cable	Stainless Steel 403, 420 (1,5kW and above)		
Air-Inlet Connection	Chloroprene Rubber (6,5kW only)			
	Screwed Flange			

* Available in stainless steel 304 upon request

MODEL SELECTION

Air-Inlet Bore	Frequency	Free Standing	Model	Motor Output	Speed	Starting Method	Air Flow Rate	Mixing Capacity	Max. Tank Dimension	Max. Water Depth	Dry Weight			
mm	Hz		Guide Rail Fitting	kW	(s.s.) mm ⁻¹		-Water Depth	m ³ /h-m	Length	Width	Depth	Standing	Guide Rail Fitting	
							m	m ³ /h	m	m	m	m	kg	
25	50	8-BER4	TOS-8BER4	0.75	3000	D.O.L.	11-3	22	3	2	4	4	28	23
	60	8-BER4	TOS-8BER4	0.75	3600	D.O.L.	9-3	21	3	2	3.5	3.5	28	23
	50	15-BER3	TOS-15BER3	1.5	3000	D.O.L.	28-3	41	4	3.5	4	4	43	34
32	60	15-BER3	TOS-15BER3	1.5	3600	D.O.L.	24-3	40	4	3.5	4	4	43	34
		22-BER5	TOS-22BER5	2.2	1500	D.O.L.	45-3	63	5	5	4.5	4.5	75	61
	50	37-BER5	TOS-37BER5	3.7	1500	D.O.L.	80-3	94	6	6	5	5	91	77
50		55-BER7	TOS-55BER7	5.5	1500	D.O.L.	120-3	126	7	7	6	6	149	132
		22-BER5	TOS-22BER5	2.2	1800	D.O.L.	38-3	60	5	5	4.5	4.5	75	61
	60	37-BER5	TOS-37BER5	3.7	1800	D.O.L.	70-3	90	6	6	5	5	91	77
		55-BER7	TOS-55BER7	5.5	1800	D.O.L.	105-3	120	7	7	6	6	149	132

* 1 The air flow rates are expressed at the standard condition, i.e. temperature 20°C, 1 atm

* 2 All weights excluding cable

* 3 Weights of guide rail fitting model excluding duckfoot bend

STANDARD ACCESSORIES

Free Standing

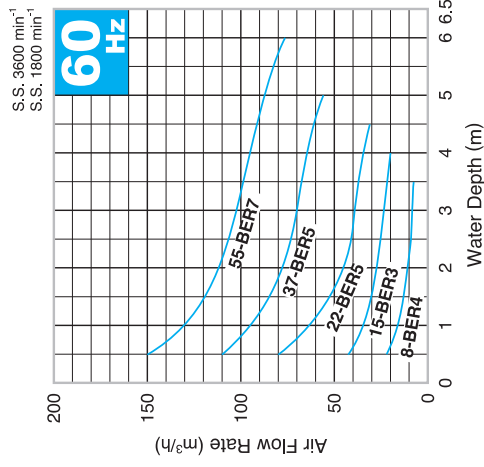
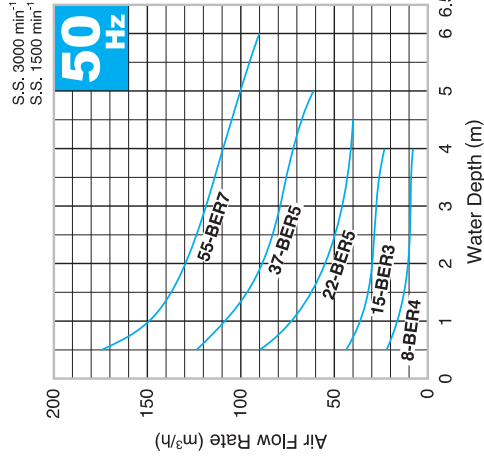
- 1 set Silencer & Valve Set
- 1 set Lifting Chain (5m / with Shackles)
- 1 set Suction Casing (with Nozzle Ring, Packing & Bolts)
- 1 set Screwed Flange (with Packing & Bolts)
- 1 set Diffuser (with Packing & Bolts)
- 1 set Diffuser Base (with Nuts)

Guide Rail Fitting

- 1 set Silencer & Valve Set
- 1 set Lifting Chain (5m / with Shackles)
- 1 set Guide Support (with Bolts & Nuts)
- 1 set Air-Inlet Pipe Support (with Bolt & Nuts)
- 1 set Guide Hook (with Bolts)
- 1 set Nozzle (with Nozzle Ring, Packing & Bolts)
- 1 set Suction Casing
- 1 set Guide Connector (with Bolts)
- 1 set Screwed Flange (with Packing & Bolts)
- 1 set Diffuser (with Packing & Bolts)

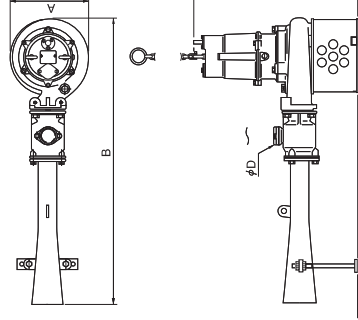
AIR FLOW RATE - WATER DEPTH CURVES

(The air flow rates are expressed at the standard condition, i.e. temperature of 20°C, 1 atm and may vary by up to approximately 5%.)

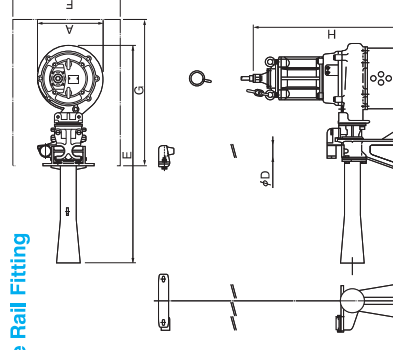


DIMENSIONS

Free Standing



Guide Rail Fitting



Silencer & Valve Set

Pipe Bore	A	B	C
φ25	147	91	210
φ32	180	116	275
φ50	230	154	370

Material of silencer: PVC

Free Standing	8-BER4	15-BER3	22-BER5	37-BER5	55-BER7
Guide Rail Fitting	TOS-8BER4	TOS-15BER3	TOS-22BER5	TOS-37BER5	TOS-55BER7
A	194	222	316	325	391
B	674	895	1158	1163	1415
C	464	562	679	753	942
D *	25	32	50	50	50
E	674	910	1162	1167	1422
F	350	450	450	450	500
G	550	650	700	700	750
H	514	603	767	836	1006

(Unit: mm)
* Nominal size

BER/TOS-BER SUBMERSIBLE JET AERATORS

The Tsurumi Submersible Jet Aerator, as shown in the figure, draws air in from the vicinity of jet nozzle by means of the water power discharged from the submersible pump. A mixture of air and water is then produced inside the diffuser. This mixture is pressurized just to the point where the pressure exceeds the water pressure around the ejection outlet, and then it forcibly jets into the surrounding water.

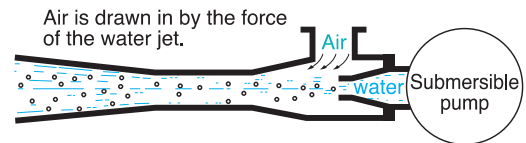
As a result, the ejected current is jetted in a single direction for a comparatively long range, enabling the generation of an extremely large churning effect.

Furthermore, even if the water depth fluctuates, the required shaft power hardly changes. The air quantity is freely adjusted as well. Because of this, the submersible jet aerator is also ideal as a aerator in equalizing tanks where the fluctuation in the water level is comparatively great.

A particularly large sales point is the fact that due to the air/water collision that occurs while the suction-induced air is in a minutely particulated, pressurized state, the oxygen dissolution efficiency is remarkably high.

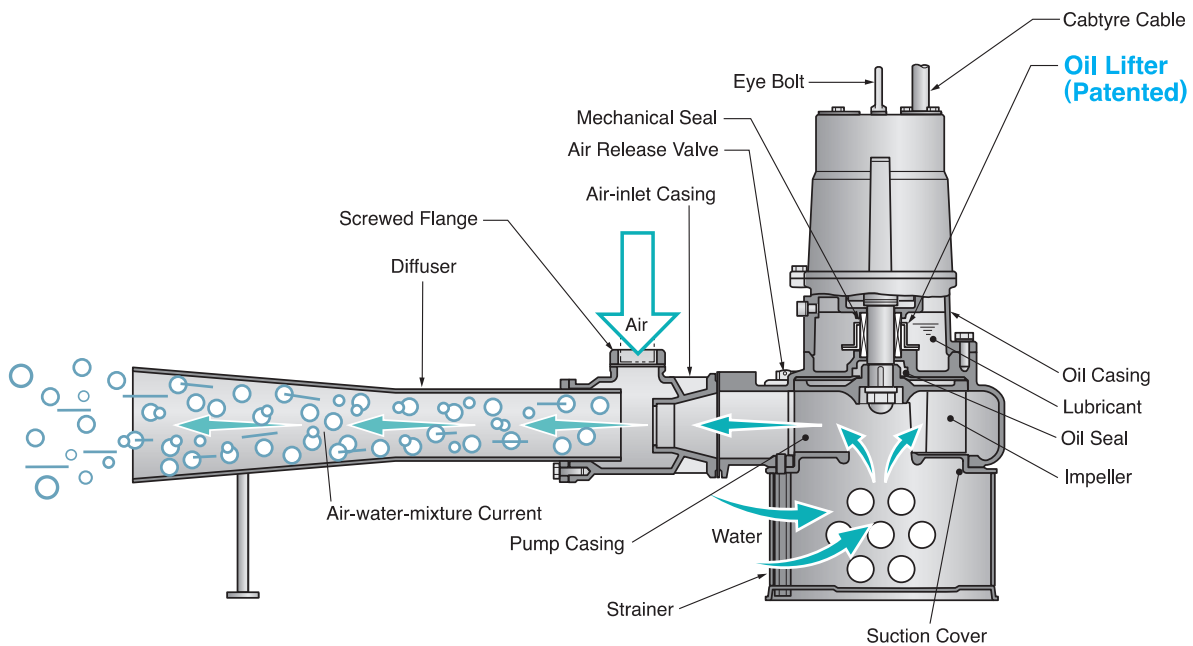
The principle of the jet aerator system

This system is a combination of a submersible pump and a jet pump. By the action of the ejection current of the submersible pump, a self-feeding force is generated, which draws air from the surface of the water through an air-inlet pipe. This air is mixed with the water and the mixture is ejected. The churning force caused by this ejection current is remarkably strong, with the result that exceptionally efficient oxygen dissolution is produced.



The mixture is pressurized to the point (exceeding the water pressure), where it can be ejected.

As a result, minute air bubbles and water are ejected in a pressurized state, enabling a large amount of oxygen to be dissolved in the water.



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