



Submersible Aerator

TRN



MODEL TRN

SUBMERSIBLE AERATOR

Features of the TRN Series Submersible Aerator

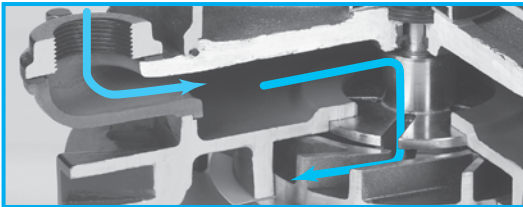
Self-Aspirating Design

The TRN's specially designed impeller creates a vortex, which draws in air from above the water surface. As a result, this equipment aerates without the need for a blower. (A blower is required for deep-water aeration.) In addition, no diffuser piping is required; the aerator requires air intake piping only.

High Efficiency Dissolution of Oxygen

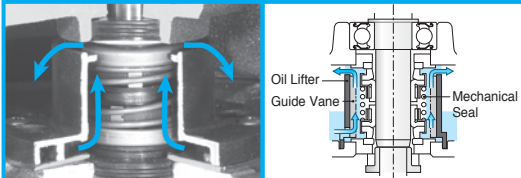
The air drawn into the aerator is pressurized by the liquid impelled by the impeller. Both the liquid and the pressurized air are pushed toward the discharge port by the guide vane. As part of this process, the air and liquid are mixed at a pressure higher than that produced by the depth of the water. This innovation contributes to highly efficient dissolution of oxygen.

Air Seal Mechanism



The air seal mechanism prevents pressure on the shaft seal during its operation.

Double Mechanical Seal & OIL LIFTER



Being located in a clean environment, the mechanical seal assures reliable sealing. The OIL LIFTER stabilizes and enhances mechanical seal lubrication and cooling effect.

Semi-open Impeller (special)



Excellent Stirring Performance

The air contained in the air/liquid mixture discharged from the aerator gives buoyancy to the mixture, and the upward flow of the buoyant liquid generates convection current in the tank. The current stirs the liquid so that it may even out the oxygen translation throughout the tank.

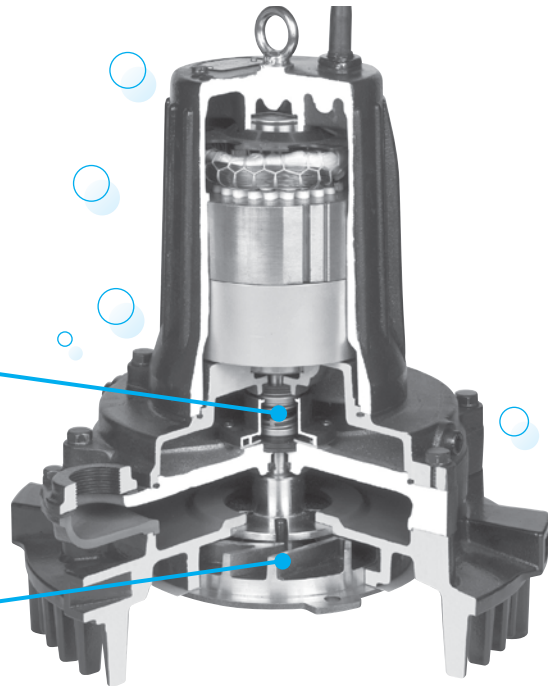
Outstanding Durability

This aerator incorporates a double mechanical seal, Tsurumi's field-proven shaft seal mechanism. An Oil Lifter is also provided to extend the service life of the mechanical seal.

In addition, this aerator includes Tsurumi's proprietary air seal mechanism, which significantly extends the service life of the shaft seal mechanism.

• Additional Features

This aerator features the same unique technologies adopted in Tsurumi's submersible pumps. These include the anti-wicking cable entry, which protects the motor from water intrusion through the cable conductors; motor protection device, which protects motor from overload; and an oil seal that protects the mechanical seal from abrasive particles.



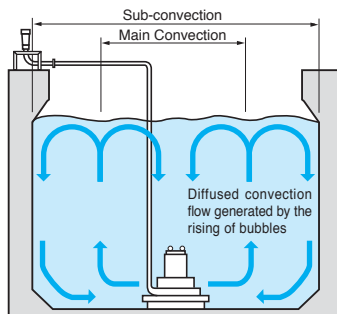
CONVECTION PATTERN

• Main Convection

Convection made by rising bubbles. (The minimum distance that must be provided between each aerator)

• Sub-convection

The maximum convection that can keep solids suspended to prevent sedimentation of solids.



Model	Max. Water Depth ft	Main Convection Øft	Sub-convection	
			Circular Tank Øft	Square Tank ft
32TRN2.75	11.5	4.6	11	10
32TRN21.5	11.5	5.9	15	13
50TRN42.2	11.8	7.9	20	18
50TRN43.7	13.1	9.8	23	21
50TRN45.5	13.1	12.5	30	26
80TRN47.5	14.8	14.4	33	30
80TRN412	19.7	17.1	39	36
80TRN417	19.7	18.4	43	38
100TRN424	19.7	20.1	48	43
150TRN440	19.7	24.0	56	49

MAJOR STANDARD SPECIFICATIONS

Treating Fluid	Type of Fluid		Wastewater and Sewage
	Fluid Temperature		32 to 104°F
Aerator	Structure	Impeller	Semi-open Impeller (special)
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)
		Bearing	Double-shielded Ball Bearing
	Materials	Impeller	410 Stainless Steel Casting
		Air Passage	Gray Iron Casting
		Guide Vane	Gray Iron Casting
		Suction Cover	410 Stainless Steel Casting
	Shaft Seal	Silicon Carbide	
Motor	Type, Pole		Dry Type Submersible Induction Motor 2, 4-pole (3HP and above)
	Insulation		Class F
	Phase		Three-phase
	Starting Method		Direct on Line (10HP and below) Star-Delta (16HP and above)
	Protection Device (built-in)		Circle Thermal Protector (10HP and below) Miniature Thermal Protector (16HP and above)
	Lubricant		Turbine Oil (ISO VG32)
	Materials	Frame	Gray Iron Casting
		Shaft	420 Stainless Steel
Cable		PVC (5HP and below) Chloroprene Rubber (7.5HP and above)	
No. of Outlets			6 (23HP and below) 8 (32HP and 54HP)

APPLICATIONS

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

STANDARD ACCESSORIES

Silencer & Valve Set	1 set
Screwed Flange	1 set
(with Packing & Bolts / 23HP and below)	



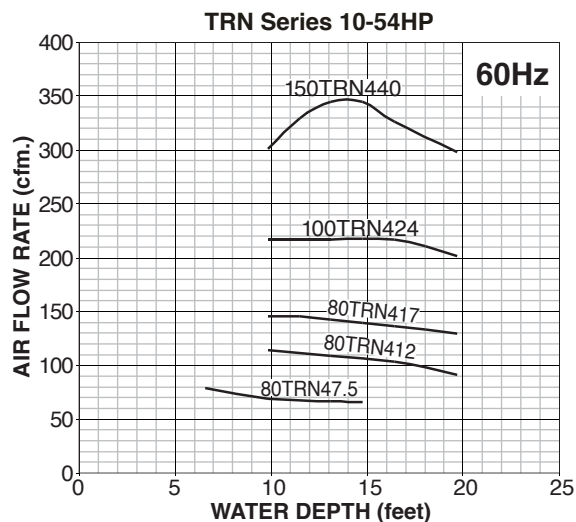
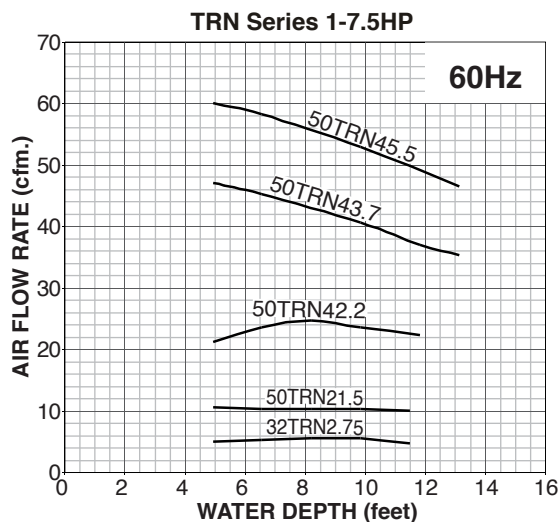
STANDARD SPECIFICATIONS

Air-inlet Bore inches	Model	Motor Output HP	Speed (S.S.) RPM	Starting Method	Max. Water Depth ft	Air Flow Rate* Max. Water Depth cfm	No. of Outlets	Impeller Passage inches	Dry Weight** lbs	Cable Length ft
1 1/4	32TRN2.75	1	3600	D.O.L.	11.5	4.7	6	0.394	121	32
	32TRN21.5	2	3600	D.O.L.	11.5	10.0	6	0.394	121	32
2	50TRN42.2	3	1800	D.O.L.	11.8	22.4	6	0.472	309	32
	50TRN43.7	5	1800	D.O.L.	13.1	35.3	6	0.472	331	32
	50TRN45.5	7.5	1800	D.O.L.	13.1	46.5	6	0.591	375	32
3	80TRN47.5	10	1800	D.O.L.	14.8	65.9	6	0.591	419	32
	80TRN412	16	1800	Star-Delta	19.7	91.2	6	0.591	441	32
	80TRN417	23	1800	Star-Delta	19.7	129.5	6	0.591	485	32
4	100TRN424	32	1800	Star-Delta	19.7	201.3	8	0.866	960	32
6	150TRN440	54	1800	Star-Delta	19.7	297.8	8	0.866	1280	32

*The air flow rates are expressed at the standard condition. : Temperature 68°F, 1 atm

**Weights excluding cable

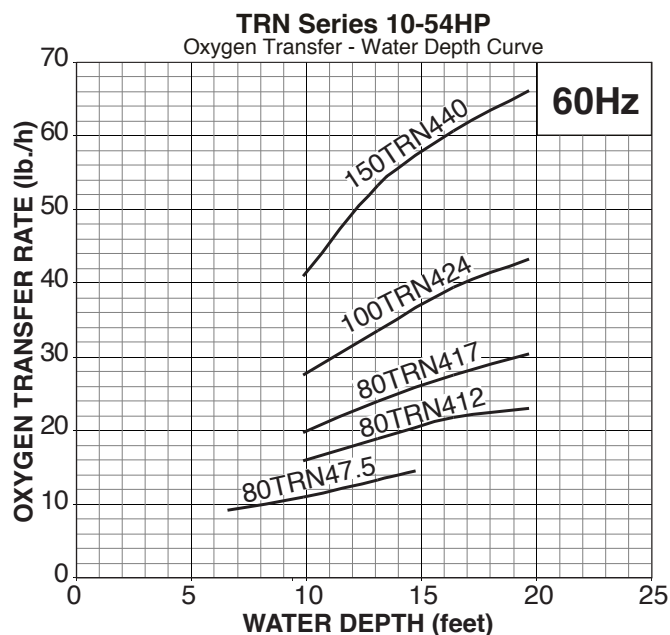
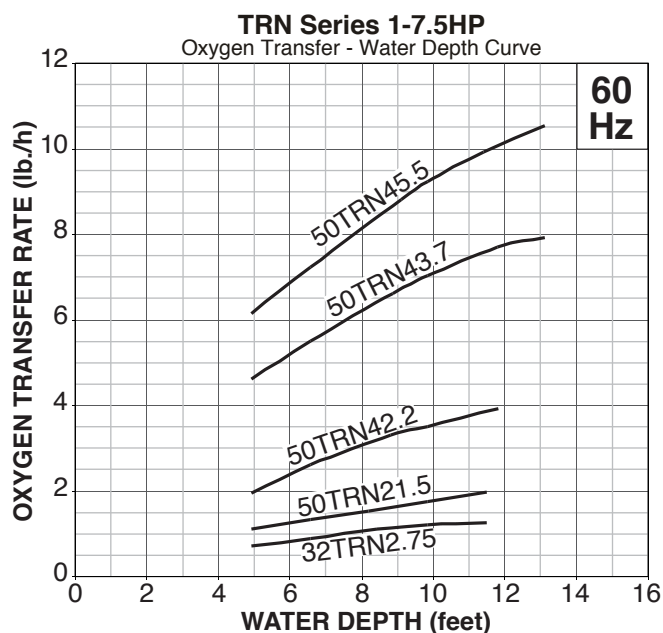
AIR FLOW RATE - WATER DEPTH CURVES



Note:

The air flow rates are expressed at the standard condition, i.e. temperature of 68°F (20°C), 1 atm. (Result may vary by up to approximately 5%.)

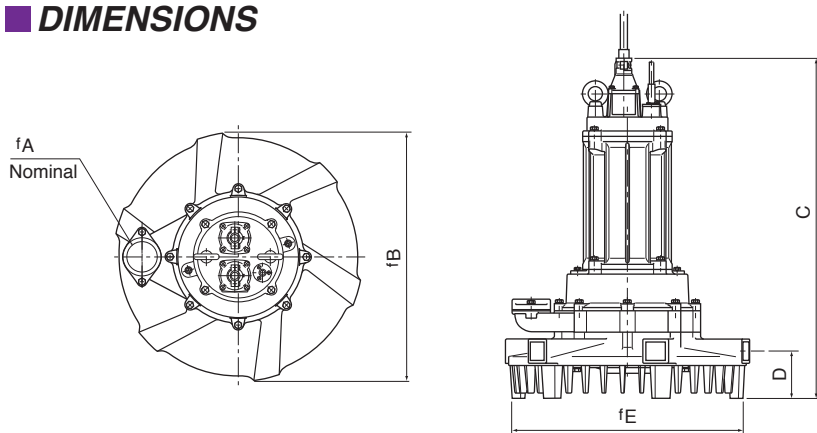
OXYGEN TRANSFER - WATER DEPTH CURVE



Note:

The oxygen transfer rates are expressed at the standard condition, i.e. temperature of 68°F (20°C), 1 atm. (Result may vary by up to approximately 10%.)

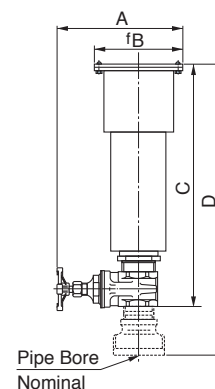
DIMENSIONS



(Units: inches)

MODEL	A	B	C	D	E
32TRN2.75	1 1/4	15 3/4	18 5/8	3 3/16	14 5/8
32TRN21.5	1 1/4	15 3/4	18 5/8	3 3/16	14 5/8
50TRN42.2	2	27 9/16	27 1/8	4 13/16	26
50TRN43.7	2	27 9/16	27 5/16	4 13/16	26
50TRN45.5	2	27 9/16	32 7/8	4 13/16	26
80TRN47.5	3	27 9/16	34 3/16	5 1/4	26
80TRN412	3	27 9/16	35 3/8	5 1/4	26
80TRN417	3	27 9/16	37 11/16	5 1/4	26
100TRN424	4	39 3/8	48 1/4	10 11/16	38 9/16
150TRN440	6	39 3/8	57 7/16	10 9/16	38 9/16

Silencer & Valve Set



(Units: inches)

Pipe Bore	A	B	C	D
Ø1 1/4	7 1/16	4 9/16	10 13/16	—
Ø2	9 1/16	6 1/16	14 9/16	—
Ø2	9 5/8	7 1/16	—	23 1/16
Ø4	13 9/16	10 1/16	—	29 15/16
Ø6	17 5/8	14 9/16	29 1/8	36 5/8

We reserve the right to change the specifications and designs for improvement without prior notice.



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