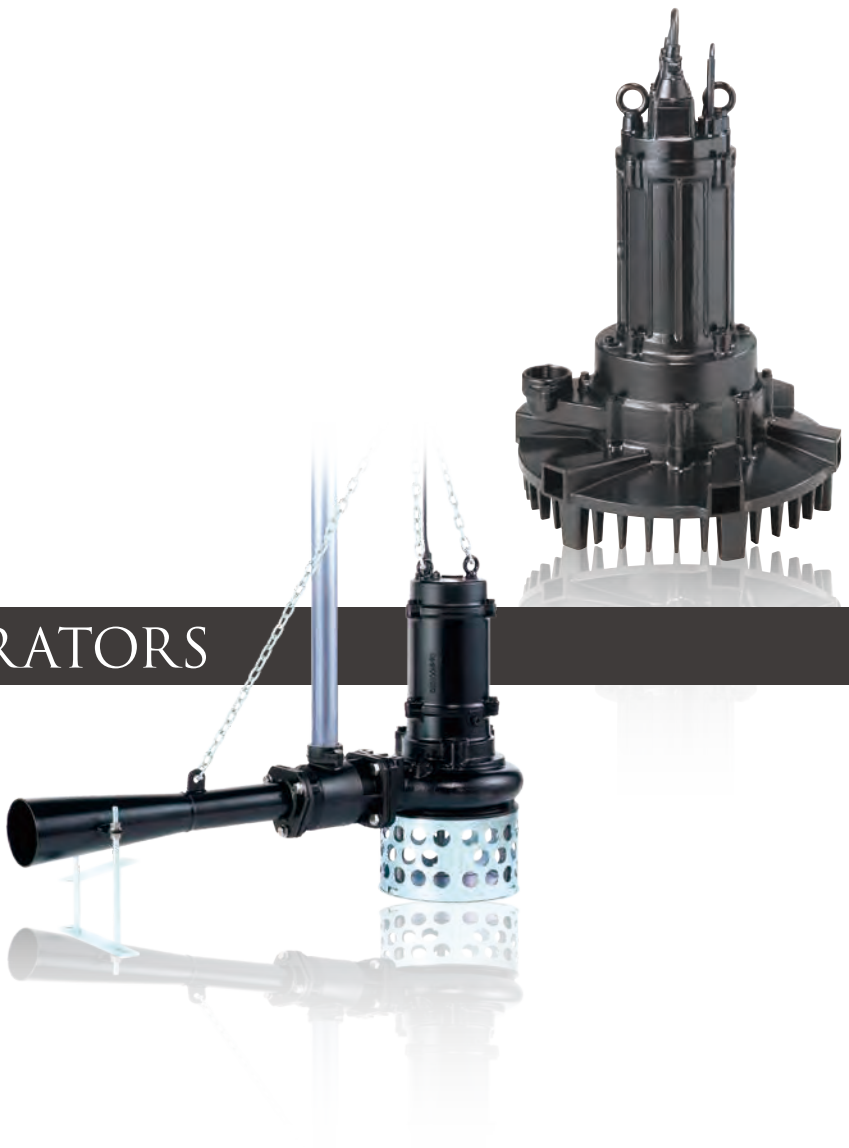
TSURUMI PUMP

For The **Earth**, For All The **People**

SERIES

TRN BER

SUBMERSIBLE AERATORS



Submersible Self-aspirating Aerators

Tsurumi's submersible aerators are used at wastewater treatment facilities to aerate and agitate industrial wastewater, livestock wastewater and other water that needs treating. More specifically, they provide the primary aeration in reactor tanks and aeration tanks at the heart of the water treatment process, and aeration and agitation in flow regulating tanks. These aerators produce tiny bubbles in the wastewater by furiously mixing in air they draw from above the wastewater's surface, and discharge the aerated wastewater to the outside. The mixed flow of air and water contains a high amount of dissolved oxygen and makes aeration and agitation very efficient.

Tsurumi offers two kinds of aerators. The TRN-series features Tsurumi's baseline submersible aerators that produce a high amount of dissolved oxygen and enable efficient aeration and agitation, while the BER-series consists of submersible jet aerators that generate a powerful unidirectional flow. Both series are built to draw air themselves while submerged in wastewater, so they can aerate and agitate wastewater without requiring a blower, which greatly reduces both installation space and noise.

TRN

BER

The TRN-series is built to draw air on its own by generating negative pressure behind a special semi-open impeller with the flow the impeller creates. The air drawn from above the wastewater's surface is furiously mixed in with the wastewater under the mechanical force of the impeller and guide vanes, to form tiny bubbles. The aerated flow is equally discharged in all directions and the synergistic effect of the airlift and convection that this mechanism causes produces a high amount of dissolved oxygen and enables efficient aeration and agitation.

The BER series combines a submersible pump and venturi-jet based diffuser. It draws in air from above the wastewater by generating negative pressure around the nozzle with the flow from the pump. The air is mixed into the wastewater by this jet injector mechanism and sprayed underwater by the diffuser, to aerate and agitate the wastewater at the same time. In the process, tiny bubbles form inside the diffuser and increase the amount of dissolved oxygen in the wastewater. The powerful unidirectional jet that results can efficiently agitate long narrow tanks, as well as wider areas when multiple units are used.

Despite their simple structures, Tsurumi submersible aerators are packed with original technologies that have been tested and proven over many years of R&D and market use, such as an anti-wicking cable, dual inside mechanical seals with silicon carbide faces and Oil Lifter. Moreover, they are designed and built for the degree of reliability and durability required for 24 hour-a-day continuous operation. Plus, when it is time for maintenance, it suffices to raise just the pump from the tank; the tank does not need to be drained as is the case of a plate/tube diffuser, so these aerators are economically beneficial in terms of running costs.

TRN: Submersible aerators that generate tiny bubbles to produce a high amount of dissolved oxygen and enable efficient aeration and agitation

BER: Submersible jet aerators optimized for pre-aeration and prevention of bacterial spoilage

Selection Table

		Submersible Aerators	Submersible Jet Aerators
		TRN	BER
Air-inlet Bore	mm	32 - 150	25 - 50
Motor Output	kW	0.75 - 40	0.75 - 5.5
Pole		2 • 4	2 • 4
Impeller		Special Semi-open	Channel
Max. Water Depth	m	3.5 - 6.0 (Capable of deeper water tank in combination with a blower)	3.5 - 6.0
No. of Outlets		6 • 8 (Multiple Directions)	1 (One Direction)
Guide Rail Fitting System			●
Features		• Built with a special semi-open impeller to draw in air on its own. Can aerate and agitate wastewater without requiring a blower. (Not capable of anaerobic agitation.) • Discharges mixed flow of air and water radially in multiple directions and generates a powerful agitational force from the synergetic action of the airlift and convective flow. • Obtains a high level of dissolved oxygen by furiously mixing air and water with the impeller and guide vanes to form tiny bubbles. • Capable of deep-water aeration in combination with a general-purpose blower. Does not require a high-pressure blower.	• Simple structure consisting of a submersible pump and venturi-jet based diffuser. Can aerate and agitate wastewater without requiring a blower. (Capable of anaerobic agitation.) • Powerfully ejects a mixed flow of air and water in one direction. • Obtains a high level of dissolved oxygen because tiny bubbles slowly rise as the air and water mix. • The pump can be easily lowered and hoisted using guide rail fitting system, so maintenance and inspection can be performed without entering the sump.
Applications		• Aeration, pre-aeration and mixing at wastewater treatment plant • Oxygen supply at aquariums and fish farms (Requires lubricant change to liquid paraffin.)	• Pre-aeration and mixing at wastewater treatment plant • Oxygen supply at aquariums and fish farms (Requires lubricant change to liquid paraffin.)
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Guide Rail Fitting System (BER-series only)

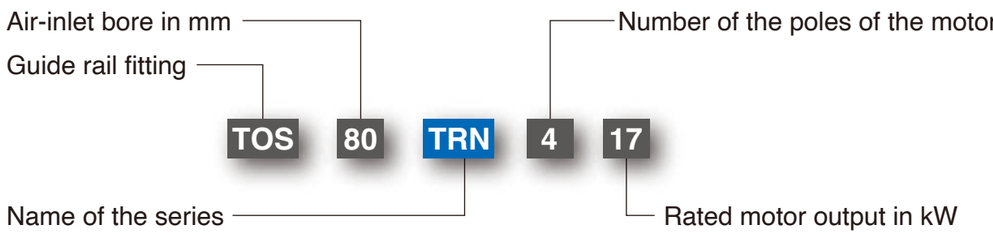
The guide rail fitting system connects the pump to and from the piping easily just by lowering and hoisting the pump, allowing easy maintenance and inspection without the need to enter the sump.

Accessories

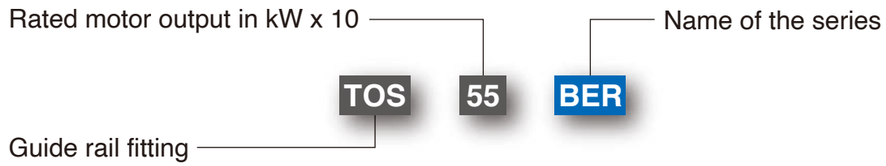
- Silencer & Valve Set
- Lifting Chain 5m (with Shackles)
- Guide Support
- Guide Hook
- Suction Casing
- Threaded Oval Flange
- Diffuser

Model Number Designation

TRN / BER series



BER series (55-BER only)



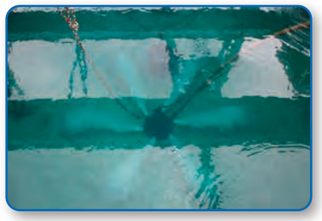
Mixed flow of air-water profile during operation

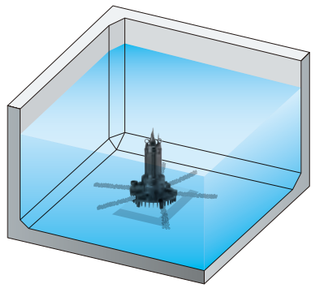
Aerator Operation

Submersible Aerators: TRN series

Start of operation

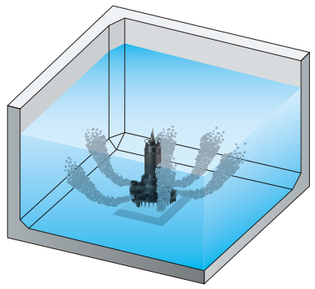
Mixed flow of air-water is discharged in multiple directions.





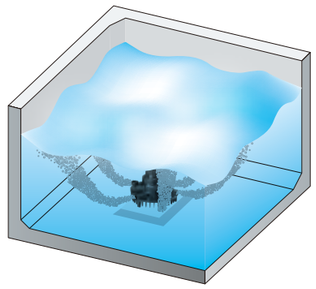
Rising by airlift

Tiny bubbles produce a high amount of dissolved oxygen.



Agitation by convection

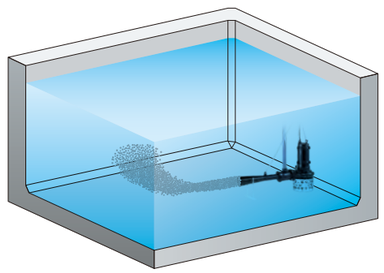
The rising bubbles enable efficient aeration and agitation.



Submersible Jet Aerators: BER series

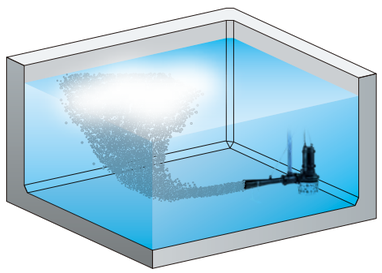
Rising by airlift

Mixed flow of air-water is jetted in one direction. Tiny bubbles produce a high amount of dissolved oxygen.



Agitation by convection

The rising bubbles enable efficient aeration and agitation.



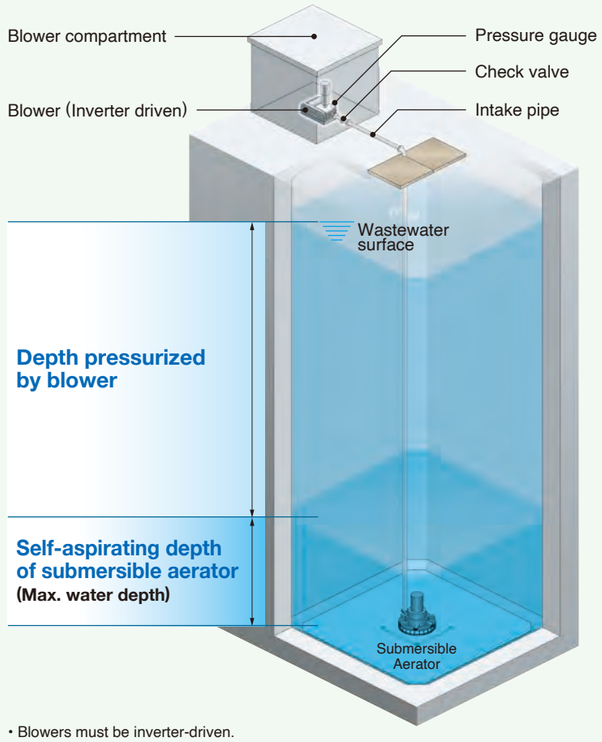
Special Offer for TRN series

How to aerate in tank deeper than max. water depth

In combination with a blower

(Example of installation in a 10 m-deep tank)

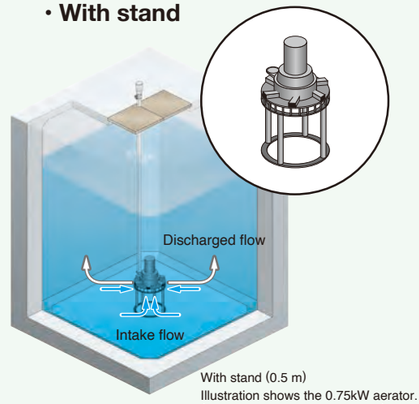
Applicable for deep tank aeration beyond max. water depth. Because it draws air on its own, the aerator works with a general-purpose blower instead of a high-pressure blower.



- Blowers must be inverter-driven.
- Provide 1 blower for each submersible aerator.

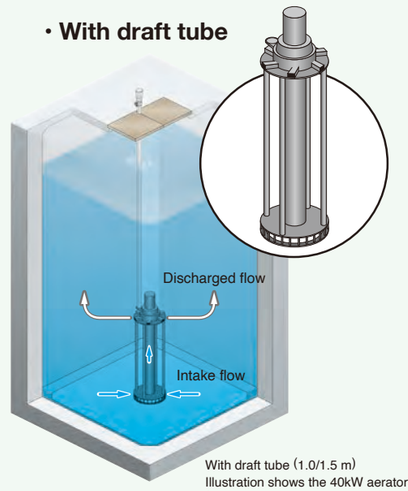
Optional specifications

• With stand



With stand (0.5 m)
Illustration shows the 0.75kW aerator.
(Applicable output: 0.75 - 40kW)

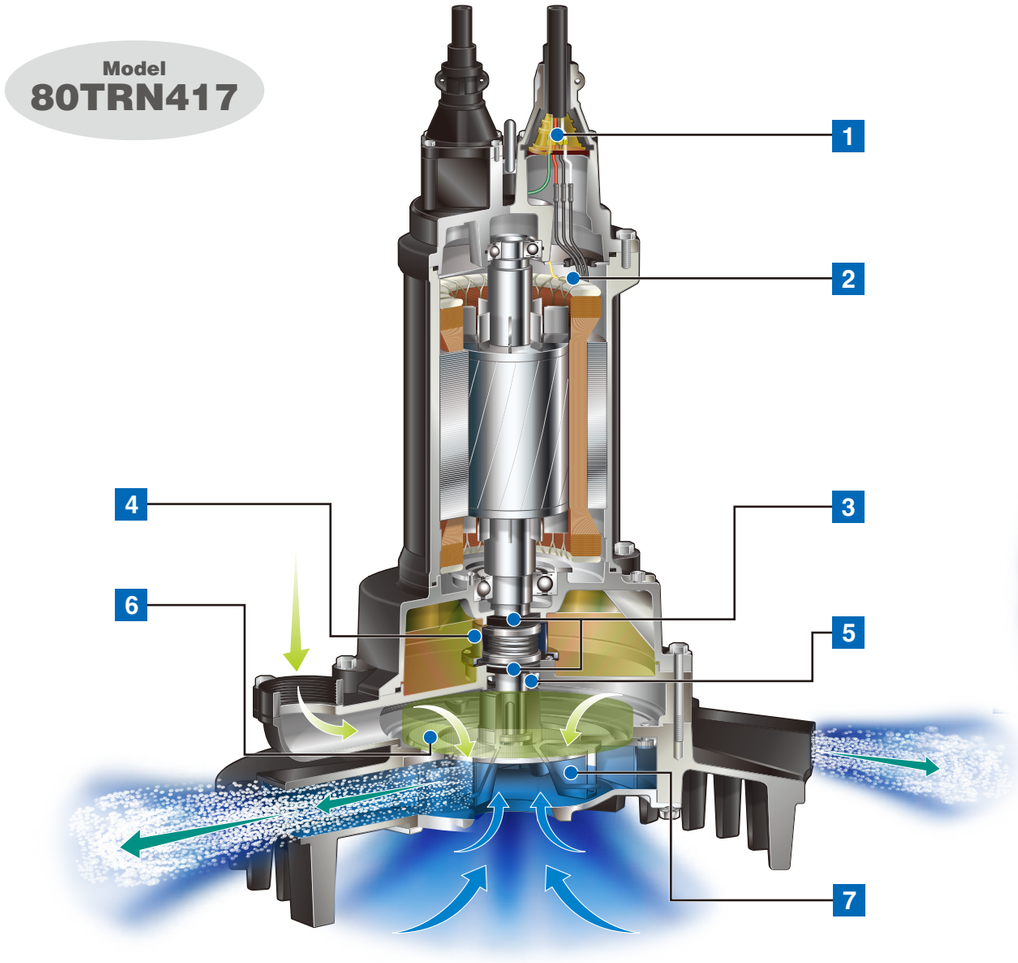
• With draft tube



With draft tube (1.0/1.5 m)
Illustration shows the 40kW aerator.
(Applicable output: 2.2 - 40kW)

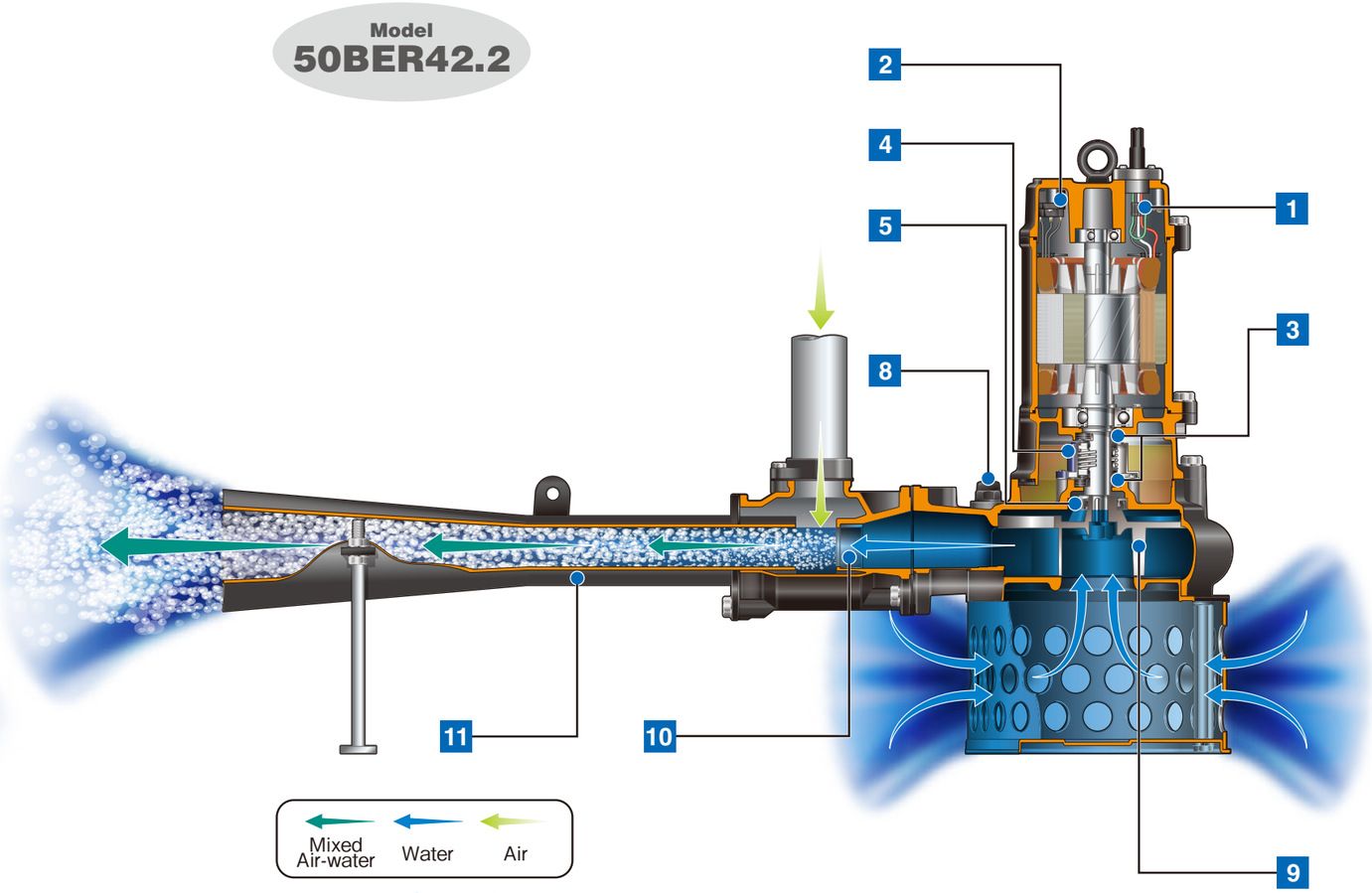
Submersible Self-aspirating Aerators: TRN series

The aspirated air, mixed with water viciously by mechanical forces inside the impeller and guide vane, transforms into tiny bubbles. Moreover, the mixed flow of air and water is evenly discharged in multiple directions along the circumference.



Submersible Self-aspirating Jet Aerators: BER series

With the jet injector mechanism, the aspirated air mixes with water and is ejected through the diffuser, simultaneously agitating and aerating the ponded water. The mixed air-water is ejected powerfully in one direction, which effectively agitates the water across a wide area.



Mixed Flow of Air-water

Tiny bubbles are discharged in multiple/one direction, whereby creating convective currents that agitate the water. As the bubbles rise, a large amount of oxygen dissolves in the water.

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1 **Anti-wicking Cable Entry**
Prevents water incursion due to capillary action should the cable sheath be damaged or the end of cable submerged. Also prevents moist air from infiltrating the motor housing and condensation from forming inside the housing due to temperature differences between the housing and outside air.

2 **Motor Protector**
Circle Thermal Protector (7.5kW and below)
Directly cuts the motor circuit if excessive heat builds up or overcurrent occurs in the motor.

Miniature Thermal Protectors (12kW and above)
React to excessive heat caused by dry-running. The bimetal strip opens to cause the control panel to shut the power supply.

3 **Dual Inside Mechanical Seals with Silicon Carbide Face**
Isolated in the oil chamber where a clean, non-corrosive and abrasion-free lubricating environment is maintained. Compared with the water-cooled outside mechanical seal, it reduces the risk of failure caused by dry-heating and adhering matter. The silicon carbide provides 5 times higher corrosion, wear and heat resistance than the tungsten carbide. Rubber parts are made of NBR or FPM (FKM) which provides higher resistance to heat and chemicals.

4 **Oil Lifter**
Provides lubrication and cooling of the seal faces down to 1/3 of normal oil level, thus maintaining a stable shaft sealing effect and extending seal life. The Oil Lifter is Tsurumi original design.

5 **Oil Seal**
Used as a “Dust Seal,” it protects the mechanical seal from abrasive particles.

6 **Air Seal Mechanism** (TRN)
Protects the mechanical seals by flooding the air passage with an “air seal” that prevents water from contacting the mechanical seals during operation. This proprietary technology helps to prolong the service-life of the mechanical seals.

7 **Special Semi-open Impeller & Suction Cover** (TRN)
Generates a liquid flow that causes negative pressure to form on the backside of the impeller vanes and draw in air from above the water’s surface. Both the impeller and suction cover are highly wear-resistant 410 stainless steel casting.

8 **Air Release Valve** (BER)
Fitted on the pump casing to prevent the air lock. When air flows through the valve, the ball stays at the bottom, but when the pumped water starts to flow, the ball closes the outlet because of its buoyancy.

9 **Semi-open Channel Impeller** (BER)
Minimizes the possibility of trouble due to clogging by solids.

10 **Nozzle Ring** (BER)
Channels the water discharged from the pump into a jet, as part of the jet injector mechanism.

11 **Diffuser** (BER)
Creates a mixed flow of air and water by injecting the aspirated air into the water.

TRN –Submersible Self-aspirating Aerators–

Submersible aerators that generate tiny bubbles to produce a high amount of dissolved oxygen and enable efficient aeration and agitation

The TRN-series is a submersible self-aspirating aerator designed for aeration and mixing of wastewater. The liquid flow generated by Tsurumi's special semi-open impeller causes negative pressure to form on the backside of the impeller vanes and draw in air from above the water's surface. The aspirated air, mixed with water viciously by mechanical forces inside the impeller and guide vane, transforms into tiny bubbles. Moreover, the mixed flow of air and water is evenly discharged in multiple directions along the circumference. The compounded action of the air lift and convective currents that are generated in the process makes aeration and agitation very efficient and increases the amount of oxygen dissolved in the water.

50TRN45.5

80TRN417

150TRN440

Model	Air-inlet Bore mm	Motor Output kW	Phase	Starting Method	Solids Passage mm	Max. Water Depth *2 m	No. of Outlets	Dimensions L x H mm	Dry Weight *3 kg	Cable Length m
32TRN2.75	32	0.75	Three	D. O. L.	10	3.5	6	420 x 473	55	6
32TRN21.5	32	1.5		D. O. L.	12	3.5	6	420 x 473	55	6
50TRN42.2	50	2.2		D. O. L.	12	3.6	6	700 x 694	140	6
50TRN43.7	50	3.7		D. O. L.	12	4	6	700 x 694	150	6
50TRN45.5	50	5.5		D. O. L. *1	15	4	6	700 x 835	150	8
80TRN47.5	80	7.5		D. O. L. *1	15	4.5	6	700 x 868	175	8
80TRN412	80	12		Star-Delta	15	6	6	700 x 898	192	8
80TRN417	80	17		Star-Delta	15	6	6	700 x 958	213	8
100TRN424	100	24		Star-Delta	22	6	8	1000 x 1285	470	10
150TRN440	150	40		Star-Delta	25	6	8	1050 x 1474	608	10

*1 Star-Delta available upon request

*2 Max. water depth indicates the load limit of the motor. As installation depth increases, the load on the motor also increases. Operating the aerator beyond the max. water depth may cause the motor protection device to trip, stopping continuous operation.

*3 Weights excluding cable

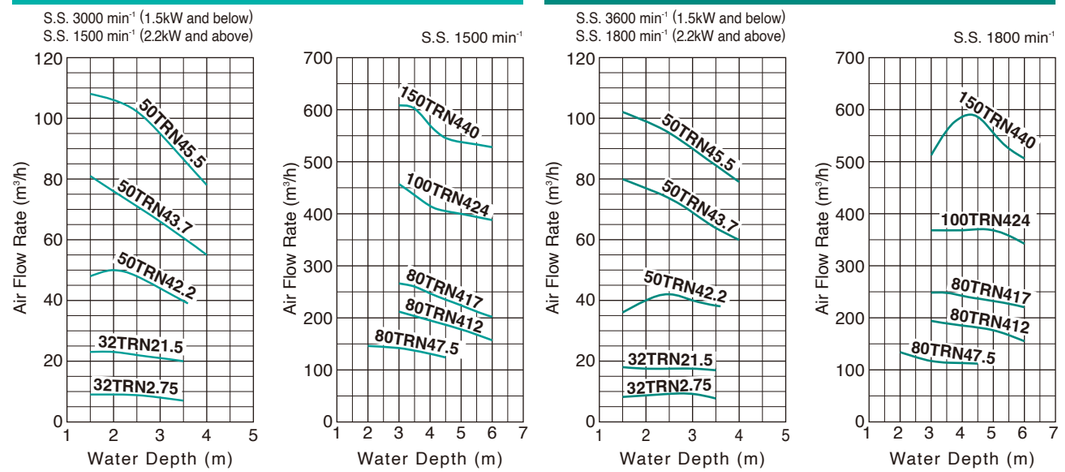
Accessory

- Silencer & Valve Set

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%.

50Hz

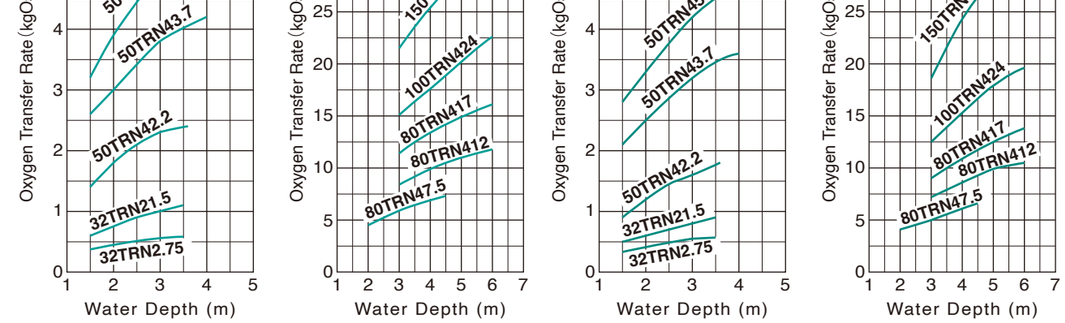


60Hz

Oxygen Transfer Rate - Water Depth Curves

Conditions: Clean water, 20˚C, 1 atm, 0 mg/L Dissolved Oxygen.
The Oxygen Transfer Rate may vary by approximately 10% due to factors such as water temperature, tank shape, water quality, and others.
Select a model with this variation in mind to ensure a sufficient oxygen supply for your application.

50Hz

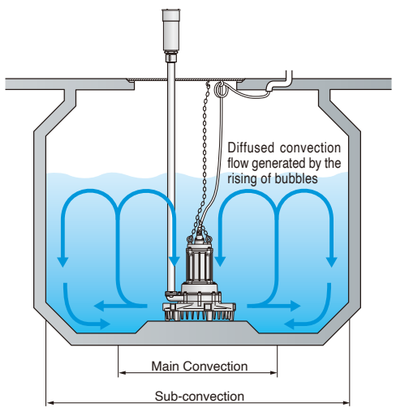


60Hz

Convection Pattern & Recommended Tank Dimensions

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 sus-pended to prevent sedi-mentation of solids.



Model	Motor Output kW	Max. Water Depth m	Main Convection Φm	Sub-convection Circular Tank Φm	Sub-convection Square Tank m
32TRN2.75	0.75	3.5	1.4	3.5	3
32TRN21.5	1.5	3.5	1.8	4.5	4
50TRN42.2	2.2	3.6	2.4	6	5.5
50TRN43.7	3.7	4	3	7	6.5
50TRN45.5	5.5	4	3.8	9	8
80TRN47.5	7.5	4.5	4.4	10	9
80TRN412	12	6	5.2	12	11
80TRN417	17	6	5.6	13	11.5
100TRN424	24	6	6.3	14.5	13
150TRN440	40	6	7.3	17	15

- Tank dimensions are given at max. water depth. Dimensions will vary according to equipment depth.
- For good quality aeration and agitation, it is recommended to install a haunch on the bottom of the tank.

BER –Submersible Self-aspirating Jet Aerators–

Submersible jet aerators optimized for pre-aeration and prevention of bacterial spoilage

The BER-series is a submersible self-aspirating jet aerator combined a submersible pump with a venturi-jet based diffuser. The liquid flow generated by the submerged pump causes negative pressure to form around the nozzle, whereby drawing in air from above the water's surface. With this jet injector mechanism, the aspirated air mixes with water and is ejected through the diffuser, simultaneously agitating and aerating the ponded water. The mixed air-water is ejected powerfully in one direction, which effectively agitates the water across a wide area.

50BER42.2

TOS32BER21.5

Model		Air-inlet Bore	Motor Output	Phase	Starting Method	Solids Passage	Max. Water Depth *1 50 / 60Hz	Dimensions L x H mm		Dry Weight *2 kg		Cable Length
Free Standing	Guide Rail Fitting	mm	kW			mm	m	Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	m
25BER2.75	**TOS25BER2.75**	25	0.75	Three	D. O. L.	20	4 / 3.5	674 x 464	674 x 514	28	23	6
32BER21.5	**TOS32BER21.5**	32	1.5	Three	D. O. L.	20	4	895 x 562	910 x 603	43	34	6
50BER42.2	**TOS50BER42.2**	50	2.2	Three	D. O. L.	35	4.5	1191 x 717	1195 x 796	80	80	6
50BER43.7	**TOS50BER43.7**	50	3.7	Three	D. O. L.	35	5	1191 x 767	1195 x 846	95	96	6
55-BER	**TOS-55BER**	50	5.5	Three	D. O. L.	35	6	1415 x 942	1422 x 1006	142	126	8

*1 Max. water depth indicates the load limit of the motor. As installation depth increases, the load on the motor also increases. Operating the aerator beyond the max. water depth may cause the motor protection device to trip, stopping continuous operation.

*2 Weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

Accessories

Free Standing

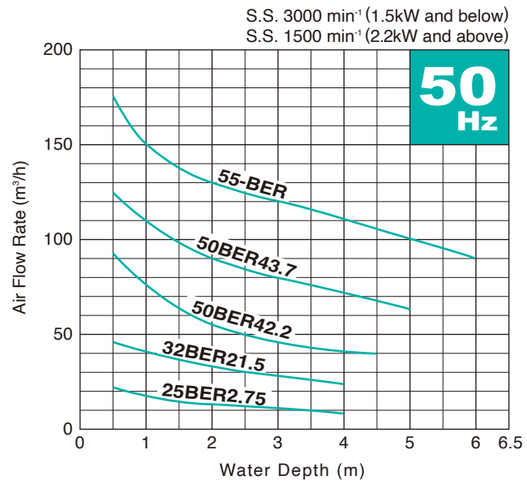
- Silencer & Valve Set
- Lifting Chain 5m (with Shackles)
- Suction Casing
- Threaded Oval Flange
- Diffuser
- Diffuser Base

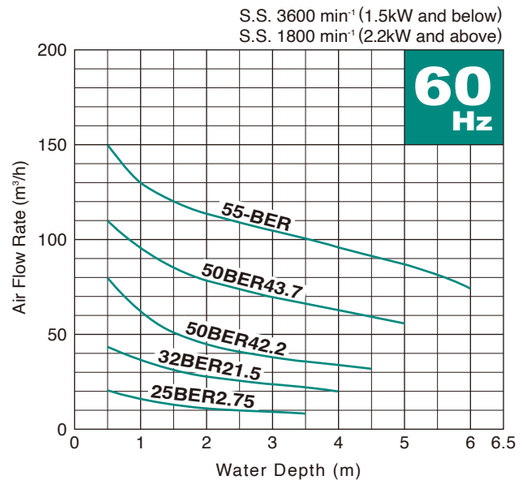
Guide Rail Fitting

- Silencer & Valve Set
- Lifting Chain 5m (with Shackles)
- Guide Support
- Guide Hook
- Suction Casing
- Threaded Oval Flange
- Diffuser

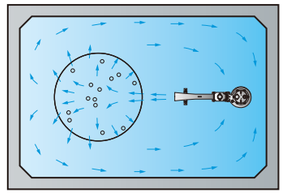
Air Flow Rate - Water Depth Curves

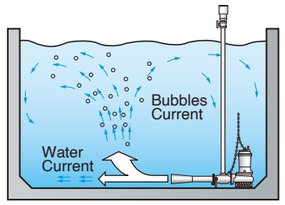
The air flow rates are expressed at the standard condition, i.e. temperature of 20°C, 1 atm and may vary by up to approximately 5%.





Convection Pattern & Recommended Tank Dimensions





Model	Motor Output kW	Max. Water Depth 50/60Hz m	Max. Tank Dimensions 50/60Hz		
			Length m	Width m	Depth m
25BER2.75	0.75	4 / 3.5	3	2	4 / 3.5
32BER21.5	1.5	4	4	3.5	4
50BER42.2	2.2	4.5	5	4.5	4.5
50BER43.7	3.7	5	6	5	5
55-BER	5.5	6	7	7	6

Specifications

		TRN								TRN		BER				
		32TRN2.75	32TRN21.5	50TRN42.2	50TRN43.7	50TRN45.5	80TRN47.5	80TRN412	80TRN417	100TRN424	150TRN440	25BER2.75	32BER21.5	50BER42.2	50BER43.7	55-BER
PUMP	Air-inlet Bore mm	32		50			80			100	150	25	32	50		
	Air-inlet Connection	Threaded Oval Flange								JIS 10kg/cm² Flange		Threaded Oval Flange				
	Diffuser	—								—		Structure Steel + Nylon Coated				
	Solids Passage mm	10	12			15				22	25	20		35		
	Impeller	Special Semi-open								Special Semi-open		Channel				
		304 Stainless Steel Casting	410 Stainless Steel Casting							410 Stainless Steel Casting		Gray Cast Iron				
	Suction Cover	410 Stainless Steel Casting								410 Stainless Steel Casting		Gray Cast Iron				
	Middle Plate	—	410 Stainless Steel						410 Stainless Steel Casting	410 Stainless Steel Casting		—				
	Oil Seal	Nitrile Butadiene Rubber								Nitrile Butadiene Rubber						
	Air Passage & Guide Vane / Casing	Gray Cast Iron								Gray Cast Iron						
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)								Dual Inside Mechanical Seals (with Oil Lifter)						
		Silicon Carbide								Silicon Carbide						
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor								Continuous-duty Rated, Dry-type Induction Motor						
	Output kW	0.75	1.5	2.2	3.7	5.5	7.5	12	17	24	40	0.75	1.5	2.2	3.7	5.5
	Phase	Three								Three						
	Pole	2	4							4		2		4		
	Speed (S.S.) 50/60Hz min⁻¹	3000/3600	1500/1800							1500/1800		3000/3600		1500/1800		
	Insulation	F								F						
	Starting Method	D.O.L.			D.O.L.*3		Star-Delta			Star-Delta		D.O.L.				
	Motor Protector (built-in)	CTP					MTP			MTP		CTP				
	Lubricant ml	1400	5100		6000					10000	16000	440	900	1300		4300
		Turbine Oil (ISO VG32)								Turbine Oil (ISO VG32)						
	Frame	Gray Cast Iron								Gray Cast Iron						
	Shaft	420 Stainless Steel								420 Stainless Steel						
	Power Cable m	6			8					10		6				8
		PVC			Chloroprene Rubber					Chloroprene Rubber		PVC				Chloroprene Rubber
Max. Water Depth *1 50/60Hz m		3.5	3.6	4.0		4.5	6.0			6.0		4.0 / 3.5	4.0	4.5	5.0	6.0
No. of Outlets m		6 (Multiple Directions)								8 (Multiple Directions)		1 (One Direction)				
Dry Weight *2	Free Standing kg	55	140	150		175	192	213		470	608	28	43	80	95	142
	Guide Rail Fitting kg	—								—		23	34	80	96	126

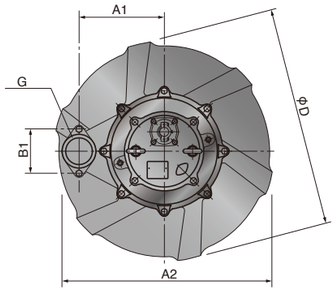
*1 Max. water depth indicates the load limit of the motor. As installation depth increases, the load on the motor also increases. Operating the aerator beyond the max. water depth may cause the motor protection device to trip, stopping continuous operation.

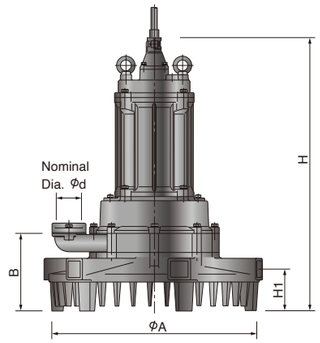
*2 All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

*3 Star-Delta available upon request

Dimensions

TRN

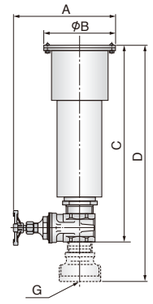




Unit: mm

Model	d	G	A	A1	A2	B	B1	D	H	H1
32TRN2.75	32	Rp 1-1/4	371	184	420	146	90	400	473	81
32TRN21.5	32	Rp 1-1/4	371	184	420	146	90	400	473	81
50TRN42.2	50	Rp 2	660	271	–	226	140	700	694	123
50TRN43.7	50	Rp 2	660	271	–	226	140	700	694	123
50TRN45.5	50	Rp 2	660	271	–	226	140	700	835	123
80TRN47.5	80	Rp 3	660	271	–	226	140	700	868	133
80TRN412	80	Rp 3	660	271	–	226	140	700	898	133
80TRN417	80	Rp 3	660	271	–	226	140	700	958	133
100TRN424	100	Rp 4	980	385	–	417	–	1000	1285	272
150TRN440	150	Rp 6	980	410	1050	452	–	1000	1474	269

< Silencer & Valve Set >



Unit: mm

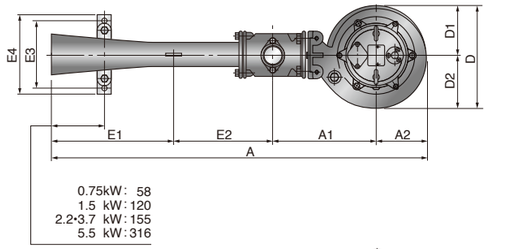
Pipe Bore	A	B	C	D	G
Φ32	180	116	275	–	Rc 1-1/4
Φ50	230	154	370	–	Rc 2
Φ80	245	180	–	585	Rc 3
Φ100	345	256	–	760	Rc 4
Φ150	448	370	–	930	Rc 6

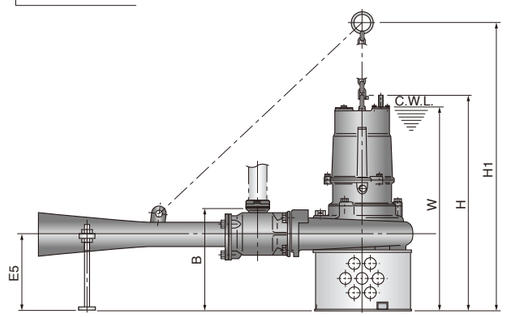
Material of Silencer : PVC (24kW and below)
Rolled Steel (40kW only)

BER

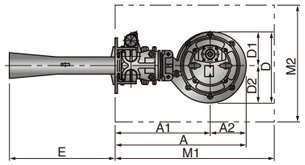
C.W.L.: Continuous Running Water Level

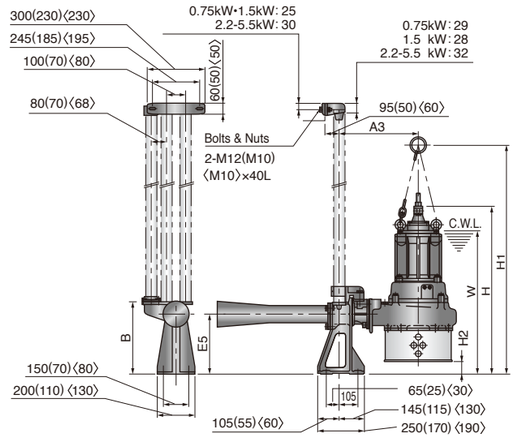
< Free Standing >





< Guide Rail Fitting >





* Figure in ( ) shows the dimensions of model TOS25BER2.75
Figure in 〈 〉shows the dimensions of model TOS32BER21.5

Free Standing

Unit: mm

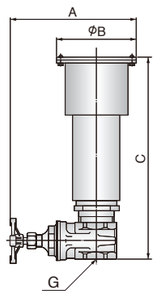
Model	A	A1	A2	B	D	D1	D2	W	H	H1	E1	E2	E3	E4	E5
25BER2.75	674	200	97	195	194	97	97	435	464	595	208	169	150	180	150
32BER21.5	895	244	114	225	222	111	111	490	562	–	270	267	150	180	160
50BER42.2	1191	337	167	322	334	155	179	680	717	1110	380	307	220	260	242
50BER43.7	1191	337	167	322	334	155	179	730	767	1139	380	307	220	260	242
55-BER	1415	360	194	341	391	188	203	820	942	1169	460	401	220	260	256

Guide Rail Fitting

Unit: mm

Model	A	A1	A2	A3	B	D	D1	D2	W	H	H1	H2	M1	M2	E	E5
TOS25BER2.75	385	288	97	238	238	194	97	97	485	514	645	50	550	350	289	200
TOS32BER21.5	467	353	114	293	250	222	111	111	530	603	–	41	650	450	443	200
TOS50BER42.2	649	482	167	387	385	334	155	179	755	796	1027	78	700	450	546	320
TOS50BER43.7	649	482	167	387	385	334	155	179	805	846	1071	78	700	450	546	320
TOS-55BER	711	517	194	422	385	391	188	203	885	1006	1368	65	750	500	711	320

< Silencer & Valve Set >



Unit: mm

Pipe Bore	A	B	C	G
Φ25	147	91	150	Rc 1
Φ32	180	116	208	Rc 1-1/4
Φ50	230	154	285	Rc 2

Material of Silencer : PVC

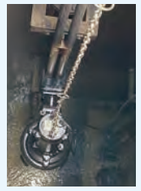
Pumps and Wastewater Treatment Equipment

Tsurumi can supply pumps and wastewater treatment equipment as a total package.

BN

Submersible Smashing Cutter Pumps

- Smashing cutter pumps incorporated crushing and shredding mechanism
- Innovative scissor-like mechanism combining original heart-shaped suction cover and unique impeller
- Prevents clogging of the pump by crushing and shredding solids more finely
- Available in guide rail fitting system



Discharge Bore: 100 mm
Max. Head: 33 m
Motor Output: 1.5 - 15 kW
Max. Capacity: 4 m³/min

B / BZ

Submersible Sewage Pumps / Channel Impeller

- Tsurumi basic sewage pumps, wide range lineup
- Wide solids passage of over 3 inches (76.2 mm) in diameter **[BZ]**
- Available in guide rail fitting system

Discharge Bore: 50 - 350 mm
Motor Output: 0.4 - 75 kW
Max. Head: 70 m
Max. Capacity: 18 m³/min

C

Submersible Cutter Pumps / Cutter Impeller

- Incorporated cutting mechanism
- Impeller and suction cover of the “CR” type made of high-chromium cast iron
- Available in guide rail fitting system

Discharge Bore: 50 - 200 mm
Motor Output: 0.75 - 37 kW
Max. Head: 70 m
Max. Capacity: 7.1 m³/min

PU / PN / PSF / TM / OM

PLS

Submersible Resin Made Pumps

- "VANCS"; corrosion-resistant pumps made of special resin
- Fish friendly lubricating oil suitable for water feature, fish farm
- Wide variation; large solids type, high head type, horizontal type
- Available in seawater pumps made of titanium & special resin **[TM]**
- Available in automatic model and guide rail fitting system

Discharge Bore: 32 - 80 mm
Motor Output: 0.15 - 3.7 kW
Max. Head: 34 m
Max. Capacity: 0.95 m³/min

SFQ

Submersible Stainless Steel Casting Pumps

- Corrosion-resistant pumps made of 316 stainless steel casting
- Suitable for acidic, chemical fluids of low pH value
- Available in guide rail fitting system

Discharge Bore: 50 · 80 mm
Motor Output: 0.4 - 11 kW
Max. Head: 44 m
Max. Capacity: 2.08 m³/min

MR

MRL

Submersible Mixers

- Generate powerful jet of water using a propeller
- Low water level type designed to operate in water as shallow as 500 mm **[MRL]**
- Available in wide variations, including cast iron or stainless steel casting construction

Flow Rate: 1.32 - 42 m³/min
Motor Output: 0.25 - 7.5 kW

FSP

Floating Scum Skimmers

- Collection of floating scum in the wastewater treatment
- Water, air and scum are drawn simultaneously by jet-injector mechanism
- Keep suction mouth relative position with the water surface

Discharge Bore: 50 mm
Motor Output: 0.4 · 0.75 kW

MDQ / MDC

JD / XJD

Multi-disc Dehydrators

- Wide product lineup; treating capacity in a range of 3 to 427 kgDS/h
- Utilize both gravity filtration and screw displacement compression systems **[MDQ / MDC]**
- Utilize both gravity filtration and compression dehydration systems **[JD / XJD]**
- Major parts made of stainless steel

Treating Capacity: 3 - 427 kgDS/h
Total Motor Output: 0.6 - 3.5 kW

TSR

Rotary Air Blowers

- Precisely machined, well-balanced 3-lobe rotor reduces the pulsating noise and vibration.
- Double-sided oil chamber design effectively maintains lower temperatures during high-pressure and high-speed operations in comparison to traditional models.

Discharge Bore: 50 - 300 mm
Air Volume: 0.90 - 120.66 m³/min

KE / KS / KM / KW

Bar Screens

- Screening wastewater
- Available in front screen type or rear screen type
- Major parts made of stainless steel

Bar Spacing: 1 - 50 mm
Motor Output: 0.09 · 0.1 kW
Max. Capacity: 223 m³/h

TSURUMI PUMP

For The **Earth**, For All The **People**

We reserve the right to change the specifications and designs without prior notice. The OO series and model OO are indicated with our series/model codes in this catalog.

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