TSURUMI PUMP

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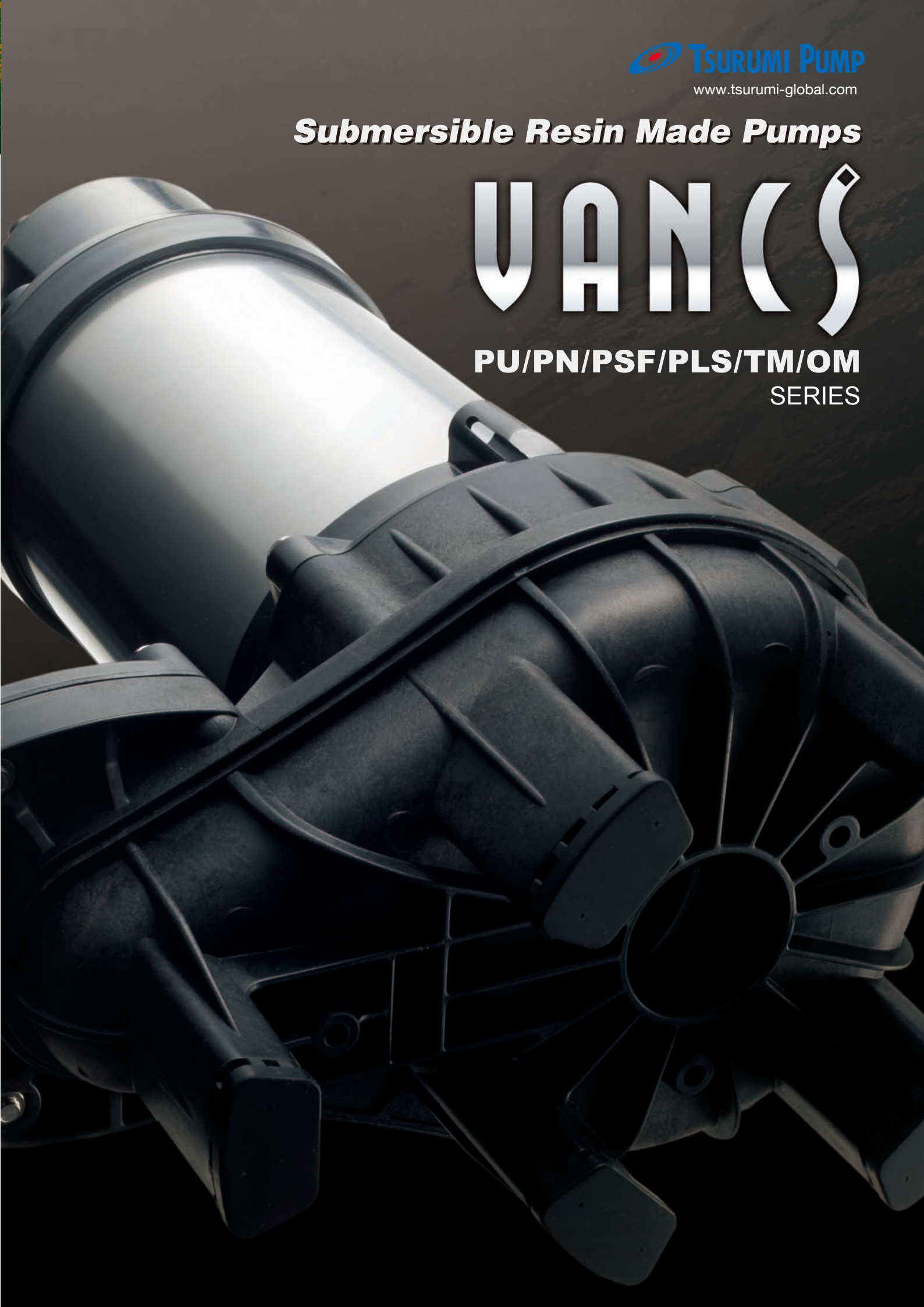
Submersible Resin Made Pumps

VANCS

PU/PN/PSF/PLS/TM/OM

SERIES



Enriched Lineup: 0.15-3.7kW

Suitable for a Wide Variety of Applications

PU

Submersible Sewage Pumps

Vortex

PLS

Submersible Wastewater Pumps

– Horizontal – ***Vortex***

PN

Submersible Wastewater Pumps

Vortex

TM

Submersible Seawater Pumps

Vortex

PSF

Submersible Wastewater Pumps

– High Head – ***Closed***

OM

Submersible Wastewater Pumps

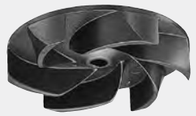
– Economic – ***Vortex***

SELECTION TABLE

Category	Series	Discharge Bore mm	Impeller	Model	Motor Output kW						
					0.15	0.25	0.4	0.75	1.5	2.2	3.7
Sewage	**PU**	40 – 80	Vortex	Standard							
				Automatic							
				Auto-alternation							
Wastewater	**PN**	40 – 80	Vortex	Standard							
				Automatic							
				Auto-alternation							
Wastewater -High Head-	**PSF**	40 – 65	Closed	Standard							
				Automatic							
				Auto-alternation							
Wastewater -Horizontal-	**PLS**	50	Vortex	Standard							
Seawater	**TM**	40 – 80	Vortex	Standard							
				Automatic							
Wastewater -Economic-	**OM**	32	Vortex	Standard							
				Automatic							

TYPE OF IMPELLER

Vortex



The vortex impeller is adopted in every series except for the PSF-series. Rotation of the impeller produces a whirling, centrifugal action between the impeller and the pump casing, and it moves the fluid through the pump. Being coupled with a wide pump casing, wastewater containing solid matters can be pumped out without obstruction.

Closed

The closed impeller is adopted in the PSF-series. The impeller is also referred to as shrouded impeller,as it has circular shrouds at both sides of the impeller vanes. Although the pump has a limited solids passage capability, it can be used for higher pumping head applications.

MODEL NUMBER DESIGNATION

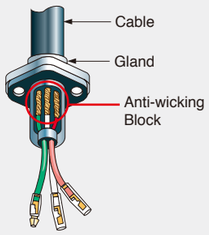
40 PU A 2 .15 S

- 40 — Discharge bore in millimeters
- PU — Name of the series
- A — Operation sub code
  - None : None automatic operation
  - A : Automatic operation
  - W : Auto-alternation operation
- 2 — Number of poles of the motor
- .15 — Rated motor output in kilowatts
- S — Phase
  - None : Three-phase
  - S : Single-phase

Practical Design Providing Excellent Corrosion Resistance and Durability

1. Anti-wicking Cable Entry

Every cabtyre cable has an anti-wicking block at the cable entry section on the pump. This mechanism is such that a part of each conductor is stripped back and the part is sealed by molded rubber or epoxy potting which has flowed in between each strand of the conductor. This unique feature prevents wicking along the strand of the conductor itself.



2. Motor Protector

A built-in thermal motor protection device reacts to the excessive heat caused by overcurrent or run-dry conditions. It not only cuts off the motor circuit automatically but also resets by itself. When the motor cools down to a safe operating temperature, the motor restarts.


Miniature Thermal Protector


Circle Thermal Protector

3. Bearings

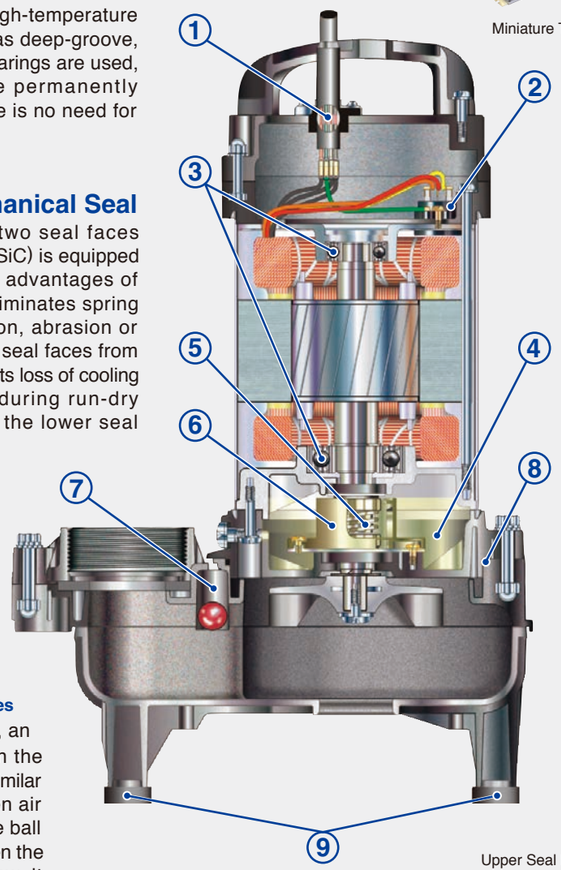
High-grade bearings for high-temperature operation are used. Also, as deep-groove, double-shielded C3 ball bearings are used, and as the bearings are permanently lubricated by grease, there is no need for injection of lubricating oil.

4. Lubricating Oil

Liquid paraffin is used in every VANCS series pump. It is a highly-refined pure oil generally used in the industries of cosmetic, pharmaceutical, and food processing equipment, etc. The use of this oil widens the applications of the pumps to decorative waterfalls, fishponds, and aquaculture, etc.

5. Dual Inside Mechanical Seal

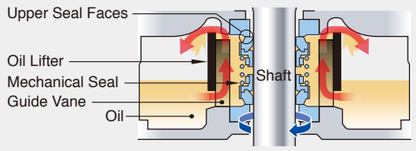
A mechanical seal with two seal faces containing silicon carbide (SiC) is equipped with the oil chamber. The advantages of the seal are two-fold, it eliminates spring failure caused by corrosion, abrasion or fouling which prevents the seal faces from closing properly, and prevents loss of cooling to the lower seal faces during run-dry conditions which causes the lower seal faces to fail.



6. Oil Lifter

*** Not Available for OM-series**

The Oil Lifter was developed as a lubricating device for the mechanical seal. Utilizing the centrifugal force of the shaft seal, the Oil Lifter forcibly supplies lubricating oil to the mechanical seal and continues to supply the oil to the upper seal faces even if lubricant falls below the rated volume. This amazingly simple device is not only reliably lubricates and cools down, but also retains the stable shaft seal effect and extends the inspection term.



7. Air Release Valve

*** Not Available for PLS-series**

In order to prevent air lock, an air release valve is built in the pump casing. The valve is similar to a ball check valve. When air goes through the valve, the ball stays at the bottom, but when the pumped water starts to flow, it closes the outlet by its buoyancy.

8. Back Pull-out Design

*** Not Available for OM-series**

Unfastening the bolts between the oil casing and the upper pump casing allows the body to be separated into the pump section and the motor section with the impeller left in position. This facilitates easier inspections of the main portions.The pump section can be disassembled/reassembled using a cross slot screwdriver (excluding 0.15kW).

9. Rubber Foot

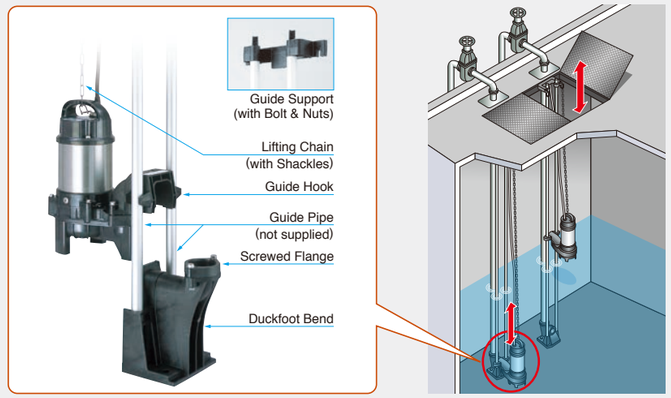
A rubber foot is fitted on each stand of the pumps from 1.5 to 3.7kW and the PLS-series pumps. This prevents scratching of floor surface.

TOK GUIDE RAIL FITTING SYSTEM

The TOK 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.

Made of high-quality resin, the TOK is designed for lightweight, small to middle sized pumps. Rubber bellows attached to the guide hook are inverted to the duckfoot bend when the pump starts operating, and it seals by the pumping pressure. This eliminates leakage at the seal even if a lightweight pump is used in combination with the TOK.

The TOK is available in all motor output ranges of the PU, PN, and PSF series.



AUTOMATIC & AUTO-ALTERNATION MODEL

Automatic Model

The float type automatic model has an integral control circuit and two float switches that operate at a low voltage. It operates automatically in response to the change in water levels.

This model can be identified by the suffix "A" and is available in all motor output ranges of the PU, PN, PSF, and TM series.

The cylindrical float type automatic model is available only for the OM-series. Adoption of the unique float switch has made even the automatic model very compact and enables it to be installed in a limited space. Automatic operation is possible with a simple power panel.

Auto-alternation Model

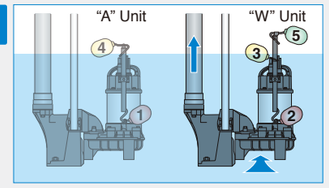
The auto-alternation model is used along with an automatic model. The combinational use of these two pumps enables each pump to operate alternately without control panel.

The auto-alternation model has three floats and can be identified by the suffix “W”. Refer to model selection for availability and model numbers of the PU, PN, and PSF series.

How the Auto-alternation Model Works

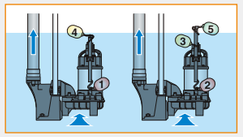
Primary Operation

1



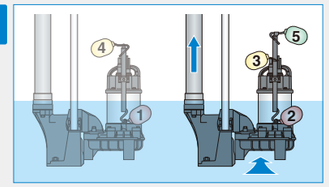
Water level rises and turns the Float #2 up. The Float #2 is activated but the pump does not start. When water level rises to Float #3 and the float is activated, the “W” unit starts.

Unusual Increase of Inflow



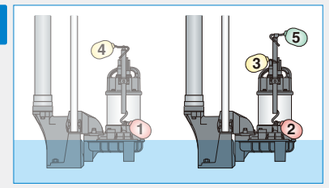
If inflow exceeds the capacity of “W” unit and the water level rises to Float #4, “A” unit starts.

2



The “W” unit is discharging water (Water level falls).

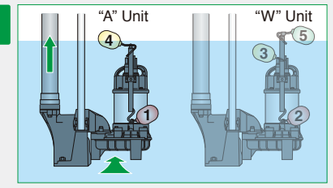
3



When water level falls to Float #2, the float is activated, and the “W” unit stops. The alternating circuitry deactivates the “W” unit for the next level rise.

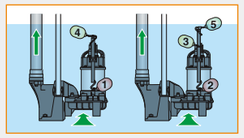
Secondary Operation

1



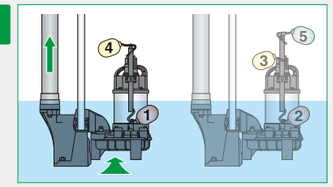
The next time the water level rises, Float #1 on the “A” unit is activated but the unit does not start until Float #4 is activated.

Unusual Increase of Inflow



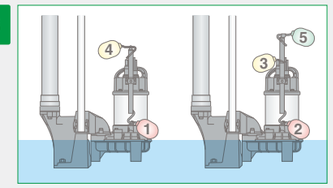
If inflow exceeds the capacity of “A” unit and the water level rises to Float #5, “W” unit starts.

2



The “A” unit is discharging water (Water level falls).

3



When water level falls and Float #1 is activated, the “A” unit stops. At the same time, “W” unit becomes ready for operation for the next level rise.

Submersible Sewage Pumps

PU

The PU-series is a vortex pump designed for handling raw sewage, wastewater, Industrial and commercial sump pump applications. The solid handling design provides practically unchokable operation in sewage pumping. Since the pump is made of special resin and stainless steel, it is corrosion-resistant and lightweight.

Major Components & Specifications

Discharge Bore mm			40	50	80
Pumping Fluid	Type of Fluid		Sewage, Wastewater, and Water carrying Solid Matters		
	Fluid Temperature		0 to 40°C		
Pump	Structure	Impeller	Vortex		
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)		
		Bearing	Double-shielded Ball Bearing		
	Materials	Impeller	Glass-fiber Reinforced Resin		
		Casing	Glass-fiber Reinforced Resin		
		Shaft seal	Silicon Carbide		
Motor	Type, Pole		Dry-type Submersible Induction Motor, 2-pole		
	Insulation		Class E		
	Phase		Single-phase (suffix "S") Three-phase		
	Starting Method		Capacitor Run (single-phase only) Direct on Line		
	Protection Device (Built-in)		Circle Thermal Protector Miniature Thermal Protector (40PU2.15S, 40PU2.25S & 50PU2.4S only)		
	Lubricant		Liquid Paraffin (ISO VG32)		
	Materials	Frame	304 Stainless Steel		
		Shaft	420 Stainless Steel (0.15kW only) 304 Stainless Steel		
		Cable	PVC		
Discharge Connection			Screwed Flange		

Guide Rail Fitting

TOK Application Table

Model	Applicable Motor Output
TOK4-P	0.15 to 0.75kW
TOK2-65	1.5kW
TOK2-65T	2.2 to 3.7kW

Accessories

- Duckfoot Bend
- Guide Hook
- Guide Support with Bolts & Nuts
- Lifting Chain with Shackles (4m for TOK4-P, 5m for TOK2-65 / 65T)

Applications

- Draining sewage from factory, residence, hotel, restaurant, etc.
- Pumping rainwater and springwater at a place where foreign objects are likely to run into the water
- Transferring wastewater between the tanks at small-scale treatment facility
- Circulating water in waterscape garden (e.g. waterfall, fountain, koi pond, etc.)

Cabtyre Cables

Single-phase

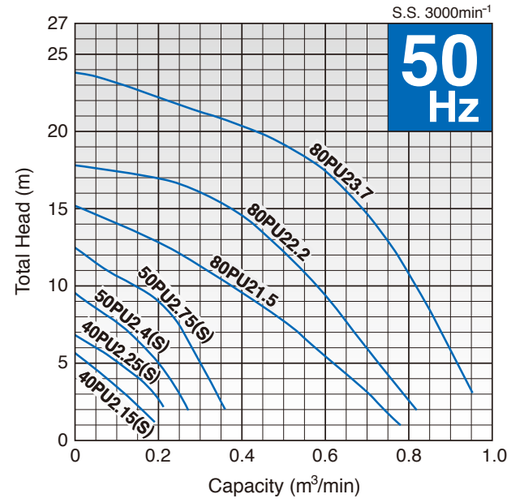
Model	100-120V		200-240V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40PU2.15S	3 × 1.25	10.1	3 × 1.25	10.1	5	PVC
40PU2.25S	3 × 1.25	10.1	3 × 1.25	10.1		
50PU2.4S	3 × 1.25	10.1	3 × 1.25	10.1		
50PU2.75S	3 × 2.0	10.9	3 × 1.25	10.1		

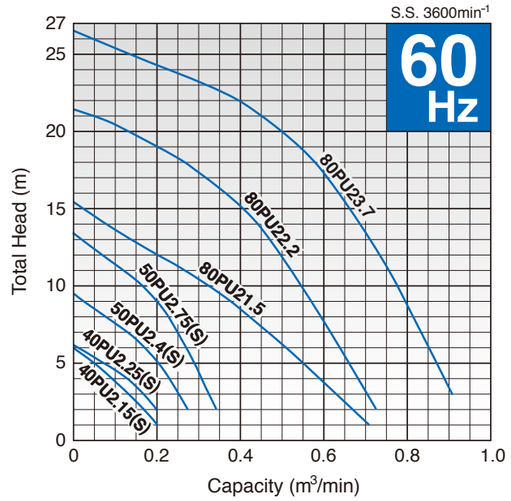
Three-phase

Model	200-240V		380-600V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40PU2.15	4 × 1.25	11.1	4 × 1.25	11.1	6	PVC
40PU2.25	4 × 1.25	11.1	4 × 1.25	11.1		
50PU2.4	4 × 1.25	11.1	4 × 1.25	11.1		
50PU2.75	4 × 1.25	11.1	4 × 1.25	11.1		
80PU21.5	4 × 1.25	11.1	4 × 1.25	11.1		
80PU22.2	4 × 2.0	11.8	4 × 1.25	11.1		
80PU23.7	4 × 3.5	13.9	4 × 2.0	11.8		

Performance Curves

Standard, Automatic and Auto-alternation models have the identical performance.





Model Selection

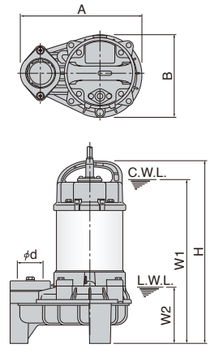
Discharge Bore mm	Model			Motor Output kW	Phase	Starting Method	Solids Passage mm	Dry Weight kg	
	Standard	Automatic	Auto-alternation					Standard	Auto & Auto-alternation
40	**40PU2.15S**	**40PUA2.15S**	**40PUW2.15S**	0.15	Single	Capacitor Run	35	6.1	6.7
40	**40PU2.15**	**40PUA2.15**	**40PUW2.15**	0.15	Three	D.O.L.	35	5.6	6.3
40	**40PU2.25S**	**40PUA2.25S**	**40PUW2.25S**	0.25	Single	Capacitor Run	35	7.1	7.8
40	**40PU2.25**	**40PUA2.25**	**40PUW2.25**	0.25	Three	D.O.L.	35	6.1	6.8
50	**50PU2.4S**	**50PUA2.4S**	**50PUW2.4S**	0.4	Single	Capacitor Run	35	7.1	7.8
50	**50PU2.4**	**50PUA2.4**	**50PUW2.4**	0.4	Three	D.O.L.	35	7.0	7.7
50	**50PU2.75S**	**50PUA2.75S**	———	0.75	Single	Capacitor Run	35	8.9	9.5
50	**50PU2.75**	**50PUA2.75**	**50PUW2.75**	0.75	Three	D.O.L.	35	8.3	9.0
80	**80PU21.5**	**80PUA21.5**	**80PUW21.5**	1.5	Three	D.O.L.	46	16.0	16.9
80	**80PU22.2**	**80PUA22.2**	**80PUW22.2**	2.2	Three	D.O.L.	46	22.0	23.0
80	**80PU23.7**	**80PUA23.7**	**80PUW23.7**	3.7	Three	D.O.L.	46	27.0	28.0

• Weights excluding cable

Dimensions

Unit: mm

Model	d	A	B	H	W1	W2
40PU2.15S	40	225	154	377	340	105
40PU2.15	40	225	154	377	340	105
40PU2.25S	40	236	162	360	325	110
40PU2.25	40	236	162	349	310	110
50PU2.4S	50	236	162	360	325	110
50PU2.4	50	236	162	360	325	110
50PU2.75S	50	236	162	380	345	110
50PU2.75	50	236	162	374	335	110
80PU21.5	80	295	196	475	430	150
80PU22.2	80	311	212	583	520	155
80PU23.7	80	311	212	618	555	155



C.W.L.: Continuous Running Water Level
L.W.L.: Lowest Running Water Level

Submersible Wastewater Pumps

PN

The PN-series is a semi-vortex pump, which is constructed of a vortex impeller and low-height volute casing. The semi-vortex pump design with moderate solids passage provides efficient performance for versatile applications. Since the pump is made of special resin and stainless steel, it is corrosion-resistant and lightweight.

Major Components & Specifications

Discharge Bore			mm	40	50	80
Pumping Fluid	Type of Fluid			Wastewater and Water carrying Small Solid Matters		
	Fluid Temperature			0 to 40°C		
Pump	Structure	Impeller		Vortex		
		Shaft Seal		Double Mechanical Seal (with Oil Lifter)		
		Bearing		Double-shielded Ball Bearing		
	Materials	Impeller		Glass-fiber Reinforced Resin		
		Casing		Glass-fiber Reinforced Resin		
		Shaft seal		Silicon Carbide		
Motor	Type, Pole			Dry-type Submersible Induction Motor, 2-pole		
	Insulation			Class E		
	Phase			Single-phase (suffix "S") Three-phase		
	Starting Method			Capacitor Run (single-phase only) Direct on Line		
	Protection Device (Built-in)			Circle Thermal Protector Miniature Thermal Protector (40PN2.25S & 50PN2.4S only)		
	Lubricant			Liquid Paraffin (ISO VG32)		
	Materials	Frame		304 Stainless Steel		
		Shaft		304 Stainless Steel		
		Cable		PVC		
Discharge Connection				Screwed Flange		

Guide Rail Fitting

TOK Application Table

Model	Applicable Motor Output
TOK4-P	0.25 to 0.75kW
TOK2-65	1.5kW
TOK2-65T	2.2 to 3.7kW

Accessories

- Duckfoot Bend
- Guide Hook
- Guide Support with Bolts & Nuts
- Lifting Chain with Shackles (4m for TOK4-P, 5m for TOK2-65 / 65T)

Applications

- Draining wastewater from residence, hotel, restaurant, etc.
- Pumping rainwater and springwater from basement
- Circulating water in waterscape garden (e.g. waterfall, fountain, koi pond, etc.)

Cabtyre Cables

Single-phase

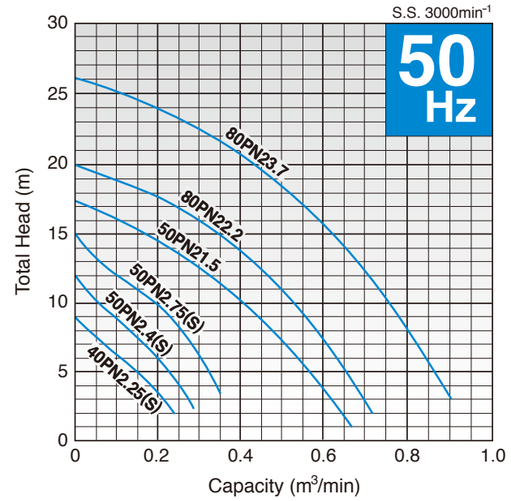
Model	100-120V		200-240V		Length	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm	m	
40PN2.25S	3 × 1.25	10.1	3 × 1.25	10.1	5	PVC
50PN2.4S	3 × 1.25	10.1	3 × 1.25	10.1		
50PN2.75S	3 × 2.0	10.9	3 × 1.25	10.1		

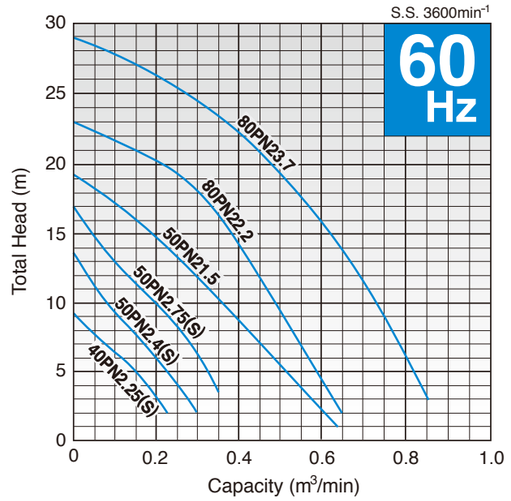
Three-phase

Model	200-240V		380-600V		Length	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm	m	
40PN2.25	4 × 1.25	11.1	4 × 1.25	11.1	6	PVC
50PN2.4	4 × 1.25	11.1	4 × 1.25	11.1		
50PN2.75	4 × 1.25	11.1	4 × 1.25	11.1		
50PN21.5	4 × 1.25	11.1	4 × 1.25	11.1		
80PN22.2	4 × 2.0	11.8	4 × 1.25	11.1		
80PN23.7	4 × 3.5	13.9	4 × 2.0	11.8		

Performance Curves

Standard, Automatic and Auto-alternation models have the identical performance.





Model Selection

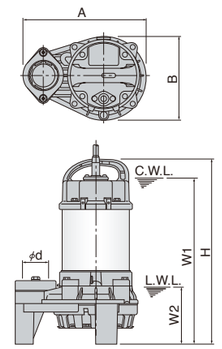
Discharge Bore	Model			Motor Output	Phase	Starting Method	Solids Passage	Dry Weight kg	
mm	Standard	Automatic	Auto-alternation	kW			mm	Standard	Auto & Auto-alternation
40	**40PN2.25S**	**40PNA2.25S**	**40PNW2.25S**	0.25	Single	Capacitor Run	10	7.1	7.8
40	**40PN2.25**	**40PNA2.25**	**40PNW2.25**	0.25	Three	D.O.L.	10	6.1	6.8
50	**50PN2.4S**	**50PNA2.4S**	**50PNW2.4S**	0.4	Single	Capacitor Run	10	7.1	7.8
50	**50PN2.4**	**50PNA2.4**	**50PNW2.4**	0.4	Three	D.O.L.	10	7.0	7.7
50	**50PN2.75S**	**50PNA2.75S**	———	0.75	Single	Capacitor Run	10	8.9	9.4
50	**50PN2.75**	**50PNA2.75**	**50PNW2.75**	0.75	Three	D.O.L.	10	8.3	9.0
50	**50PN21.5**	**50PNA21.5**	**50PNW21.5**	1.5	Three	D.O.L.	20	15.9	16.8
80	**80PN22.2**	**80PNA22.2**	**80PNW22.2**	2.2	Three	D.O.L.	20	22.0	23.0
80	**80PN23.7**	**80PNA23.7**	**80PNW23.7**	3.7	Three	D.O.L.	20	27.0	28.0

• Weights excluding cable

Dimensions

Unit: mm

Model	d	A	B	H	W1	W2
40PN2.25S	40	236	162	360	325	110
40PN2.25	40	236	162	349	310	110
50PN2.4S	50	236	162	360	325	110
50PN2.4	50	236	162	360	325	110
50PN2.75S	50	236	162	380	345	110
50PN2.75	50	236	162	374	335	110
50PN21.5	50	295	196	435	390	110
80PN22.2	80	311	212	559	500	130
80PN23.7	80	311	212	594	535	130



C.W.L.: Continuous Running Water Level
L.W.L.: Lowest Running Water Level

Submersible Wastewater Pumps

PSF

— High Head —

The PSF-series incorporates a multi-vane, closed impeller and has the highest head characteristics in the VANCS-series. It is suitable for pumping screened liquids or liquids with no suspended solid. Since the pump is made of special resin and stainless steel, it is corrosion-resistant and lightweight.

Major Components & Specifications

Discharge Bore mm			40	50	65
Pumping Fluid	Type of Fluid		Wastewater and Water carrying Few Solid Matters		
	Fluid Temperature		0 to 40°C		
Pump	Structure	Impeller	Closed		
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)		
		Bearing	Double-shielded Ball Bearing		
	Materials	Impeller	Glass-fiber Reinforced Resin		
		Casing	Glass-fiber Reinforced Resin		
		Shaft seal	Silicon Carbide		
Motor	Type, Pole		Dry-type Submersible Induction Motor, 2-pole		
	Insulation		Class E		
	Phase		Single-phase (suffix "S") Three-phase		
	Starting Method		Capacitor Run (single-phase only) Direct on Line		
	Protection Device (Built-in)		Circle Thermal Protector Miniature Thermal Protector (single-phase only)		
	Lubricant		Liquid Paraffin (ISO VG32)		
	Materials	Frame	304 Stainless Steel		
		Shaft	304 Stainless Steel		
		Cable	PVC		
Discharge Connection			Screwed Flange		

Guide Rail Fitting

TOK Application Table

Model	Applicable Motor Output
TOK4-P	0.25 to 0.75kW
TOK2-65	1.5kW
TOK2-65T	2.2 to 3.7kW

Accessories

- Duckfoot Bend
- Guide Hook
- Guide Support with Bolts & Nuts
- Lifting Chain with Shackles (4m for TOK4-P, 5m for TOK2-65 / 65T)

Applications

- Draining treated water at small-scale wastewater treatment facility
- Pumping rainwater and springwater from basement
- Supplying treated water for defoaming at small-scale wastewater treatment facility
- Circulating water in waterscape garden (e.g. waterfall, fountain, koi pond, etc.)

Cabtyre Cables

Single-phase

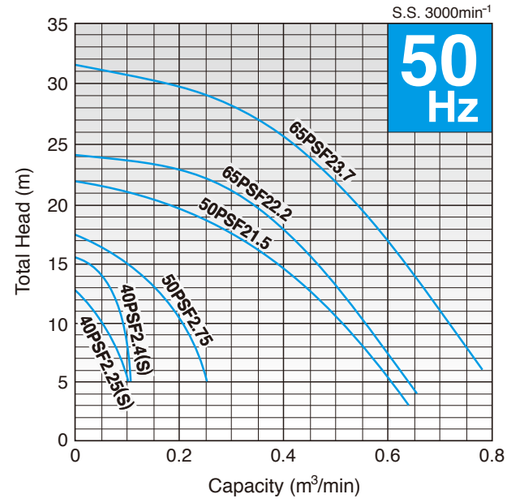
Model	100-120V		200-240V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40PSF2.25S	3 × 1.25	10.1	3 × 1.25	10.1	5	PVC
40PSF2.4S	3 × 1.25	10.1	3 × 1.25	10.1		

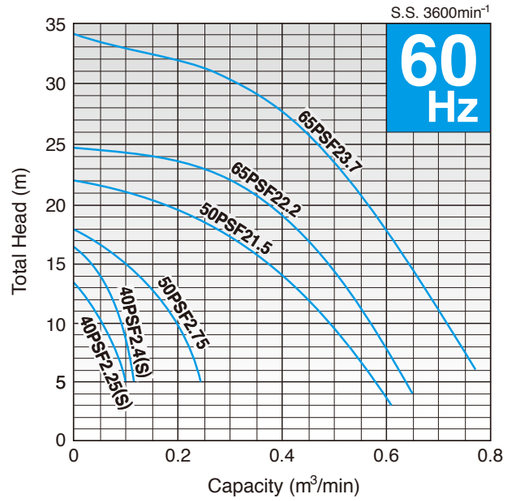
Three-phase

Model	200-240V		380-600V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40PSF2.25	4 × 1.25	11.1	4 × 1.25	11.1	6	PVC
40PSF2.4	4 × 1.25	11.1	4 × 1.25	11.1		
50PSF2.75	4 × 1.25	11.1	4 × 1.25	11.1		
50PSF21.5	4 × 1.25	11.1	4 × 1.25	11.1		
65PSF22.2	4 × 2.0	11.8	4 × 1.25	11.1		
65PSF23.7	4 × 3.5	13.9	4 × 2.0	11.8		

Performance Curves

Standard, Automatic and Auto-alternation models have the identical performance.





Model Selection

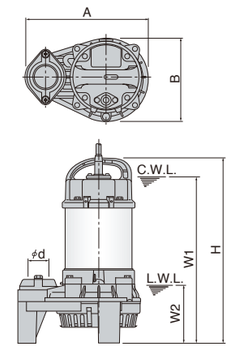
Discharge Bore mm	Model			Motor Output kW	Phase	Starting Method	Solids Passage mm	Dry Weight kg	
	Standard	Automatic	Auto-alternation					Standard	Auto & Auto-alternation
40	**40PSF2.25S**	**40PSFA2.25S**	**40PSFW2.25S**	0.25	Single	Capacitor Run	8	7.3	7.9
40	**40PSF2.25**	**40PSFA2.25**	**40PSFW2.25**	0.25	Three	D.O.L.	8	6.2	6.9
40	**40PSF2.4S**	**40PSFA2.4S**	**40PSFW2.4S**	0.4	Single	Capacitor Run	8	7.3	7.9
40	**40PSF2.4**	**40PSFA2.4**	**40PSFW2.4**	0.4	Three	D.O.L.	8	7.1	7.8
50	**50PSF2.75**	**50PSFA2.75**	**50PSFW2.75**	0.75	Three	D.O.L.	8	8.4	9.1
50	**50PSF21.5**	**50PSFA21.5**	**50PSFW21.5**	1.5	Three	D.O.L.	13	16.0	16.9
65	**65PSF22.2**	**65PSFA22.2**	**65PSFW22.2**	2.2	Three	D.O.L.	13	22.0	23.0
65	**65PSF23.7**	**65PSFA23.7**	**65PSFW23.7**	3.7	Three	D.O.L.	13	27.0	28.0

• Weights excluding cable

Dimensions

Unit: mm

Model	d	A	B	H	W1	W2
40PSF2.25S	40	236	162	360	325	110
40PSF2.25	40	236	162	349	310	110
40PSF2.4S	40	236	162	360	325	110
40PSF2.4	40	236	162	360	325	110
50PSF2.75	50	236	162	374	335	110
50PSF21.5	50	295	196	435	390	110
65PSF22.2	65	311	212	559	500	130
65PSF23.7	65	311	212	594	535	130



C.W.L.: Continuous Running Water Level
L.W.L.: Lowest Running Water Level

Submersible Wastewater Pumps

PLS

— Horizontal —

The PLS-series is a horizontal semi-vortex pump designed for handling water carrying small solid matters. The horizontal design makes it possible to operate at a low water level or in a shallow sump. Since the pump is made of special resin and stainless steel, it is corrosion-resistant and lightweight.

Major Components & Specifications

Discharge Bore			mm: 50
Pumping Fluid	Type of Fluid		Wastewater and Water carrying Small Solid Matters
	Fluid Temperature		0 to 40°C
Pump	Structure	Impeller	Vortex
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)
		Bearing	Double-shielded Ball Bearing
	Materials	Impeller	Glass-fiber Reinforced Resin
		Casing	Glass-fiber Reinforced Resin
		Shaft seal	Silicon Carbide
Motor	Type, Pole		Dry-type Submersible Induction Motor, 2-pole
	Insulation		Class E
	Phase		Single-phase
	Starting Method		Capacitor Run
	Protection Device (Built-in)		Circle Thermal Protector (0.75kW only) Miniature Thermal Protector
	Lubricant		Liquid Paraffin (ISO VG32)
	Materials	Frame	304 Stainless Steel
		Shaft	420 Stainless Steel (0.15kW only) 304 Stainless Steel
		Cable	PVC
Discharge Connection			Screwed Flange

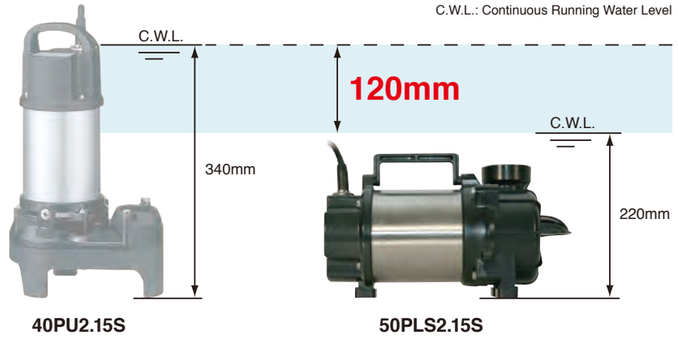
Applications

- Pumping rainwater and springwater at a place where foreign objects are likely to run into the water
- Transferring wastewater between the tanks at small-scale treatment facility
- Circulating water in waterscape garden (e.g. waterfall, fountain, koi pond, etc.)

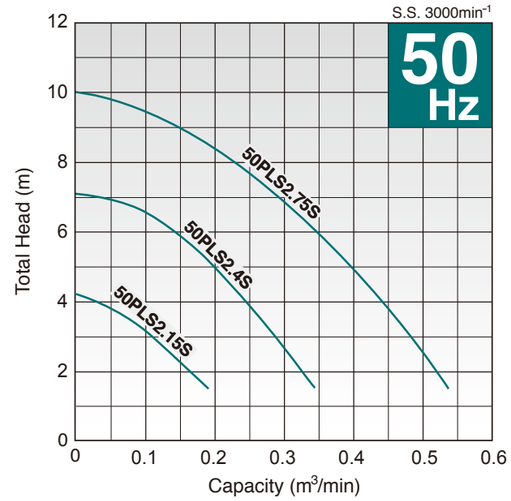
Cabtyre Cables

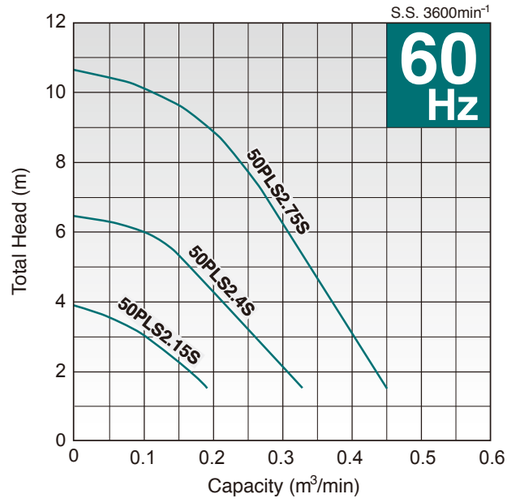
Model	100-120V		200-240V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
50PLS2.15S	3 × 1.25	10.1	3 × 1.25	10.1	5	PVC
50PLS2.4S	3 × 1.25	10.1	3 × 1.25	10.1		
50PLS2.75S	3 × 1.25	10.1	3 × 1.25	10.1		

Comparison of Continuous Running Water Level



Performance Curves





Model Selection

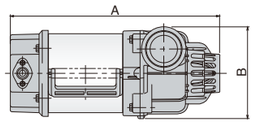
Discharge Bore mm	Model	Motor Output kW	Phase	Starting Method	Solids Passage mm	Dry Weight kg
50	**50PLS2.15S**	0.15	Single	Capacitor Run	38 (10)	5.8
50	**50PLS2.4S**	0.4	Single	Capacitor Run	24 (10)	6.7
50	**50PLS2.75S**	0.75	Single	Capacitor Run	24 (10)	8.6

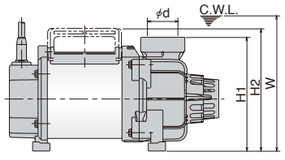
- Figure in ( ) shows the solids passage of the pump with a strainer.
- Weights excluding cable

Dimensions

Unit: mm

Model	d	A	B	H1	H2	W
50PLS2.15S	50	341	142	180	185	220
50PLS2.4S	50	342	150	185	200	220
50PLS2.75S	50	362	150	185	201	310





C.W.L.: Continuous Running Water Level

Submersible Seawater Pumps

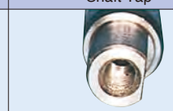
TM

The TM-series is a semi-vortex pump, which is constructed of titanium and special resin. Titanium has a superb corrosion resistance against seawater. Being all wetted metal parts made of titanium, the pump is suitable for the intake, transfer, and drainage of seawater.

Major Components & Specifications

Discharge Bore mm			40	50	80
Pumping Fluid	Type of Fluid		Seawater		
	Fluid Temperature		0 to 40°C		
Pump	Structure	Impeller	Vortex		
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)		
		Bearing	Double-shielded Ball Bearing		
	Materials	Impeller	Glass-fiber Reinforced Resin		
		Casing	Glass-fiber Reinforced Resin		
		Shaft seal	Silicon Carbide		
Motor	Type, Pole		Dry-type Submersible Induction Motor, 2-pole		
	Insulation		Class E		
	Phase		Single-phase (suffix "S") Three-phase		
	Starting Method		Capacitor Run (single-phase only) Direct on Line		
	Protection Device (Built-in)		Circle Thermal Protector Miniature Thermal Protector (40TM2.25S & 50TM2.4S only)		
	Lubricant		Liquid Paraffin (ISO VG32)		
	Materials	Frame	Titanium		
		Shaft	Titanium		
		Cable	PVC		
Discharge Connection			Screwed Flange		

Corrosion Tests (in Seawater / 6 months)

Material	Stepped Shaft	Shaft Tap
Titanium		
304 Stainless Steel		

Applications

- Pumping seawater from bilge and pit of vessel
- Supplying seawater to aquarium
- Circulating seawater in breeding pond

Cabtyre Cables

Single-phase

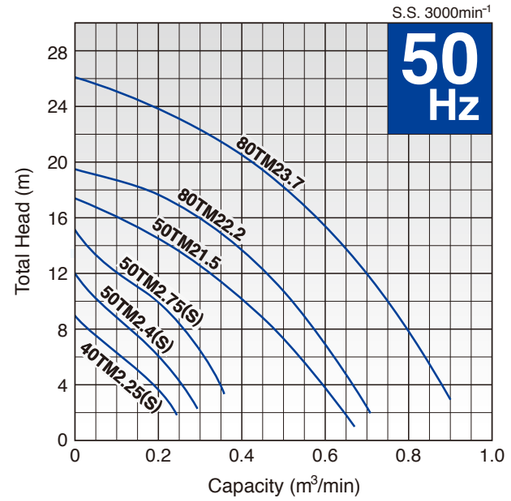
Model	100-120V		200-240V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40TM2.25S	3 × 1.25	10.1	3 × 1.25	10.1	5	PVC
50TM2.4S	3 × 1.25	10.1	3 × 1.25	10.1		
50TM2.75S	3 × 2.0	10.9	3 × 1.25	10.1		

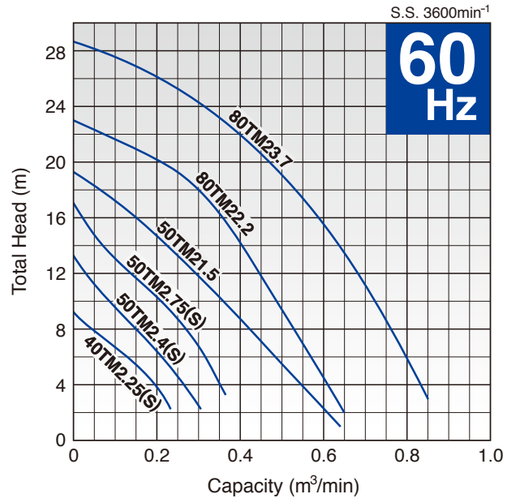
Three-phase

Model	200-240V		380-600V		Length m	Material
	Cores × mm²	Outer Dia. mm	Cores × mm²	Outer Dia. mm		
40TM2.25	4 × 1.25	11.1	4 × 1.25	11.1	6	PVC
50TM2.4	4 × 1.25	11.1	4 × 1.25	11.1		
50TM2.75	4 × 1.25	11.1	4 × 1.25	11.1		
50TM21.5	4 × 1.25	11.1	4 × 1.25	11.1		
80TM22.2	4 × 2.0	11.8	4 × 1.25	11.1		
80TM23.7	4 × 3.5	13.9	4 × 2.0	11.8		

Performance Curves

Standard and Automatic models have the identical performance.





Model Selection

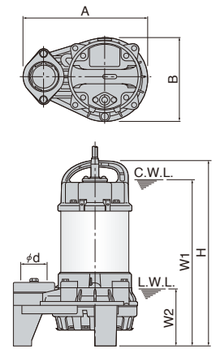
Discharge Bore mm	Model		Motor Output kW	Phase	Starting Method	Solids Passage mm	Dry Weight kg	
	Standard	Automatic					Standard	Auto & Auto-alternation
40	**40TM2.25S**	**40TMA2.25S**	0.25	Single	Capacitor Run	10	6.7	7.2
40	**40TM2.25**	**40TMA2.25**	0.25	Three	D.O.L.	10	5.7	6.2
50	**50TM2.4S**	**50TMA2.4S**	0.4	Single	Capacitor Run	10	6.7	7.2
50	**50TM2.4**	**50TMA2.4**	0.4	Three	D.O.L.	10	6.6	7.1
50	**50TM2.75S**	**50TMA2.75S**	0.75	Single	Capacitor Run	10	8.6	9.1
50	**50TM2.75**	**50TMA2.75**	0.75	Three	D.O.L.	10	7.8	8.4
50	**50TM21.5**	**50TMA21.5**	1.5	Three	D.O.L.	20	14.9	15.6
80	**80TM22.2**	**80TMA22.2**	2.2	Three	D.O.L.	20	21.0	22.0
80	**80TM23.7**	**80TMA23.7**	3.7	Three	D.O.L.	20	26.0	27.0

• Weights excluding cable

Dimensions

Unit: mm

Model	d	A	B	H	W1	W2
40TM2.25S	40	236	162	360	325	110
40TM2.25	40	236	162	349	310	110
50TM2.4S	50	236	162	360	325	110
50TM2.4	50	236	162	360	325	110
50TM2.75S	50	236	162	380	345	110
50TM2.75	50	236	162	374	335	110
50TM21.5	50	295	196	435	390	110
80TM22.2	80	311	212	559	500	130
80TM23.7	80	311	212	594	535	130



C.W.L.: Continuous Running Water Level
L.W.L.: Lowest Running Water Level

Submersible Wastewater Pumps

OM

– Economic –

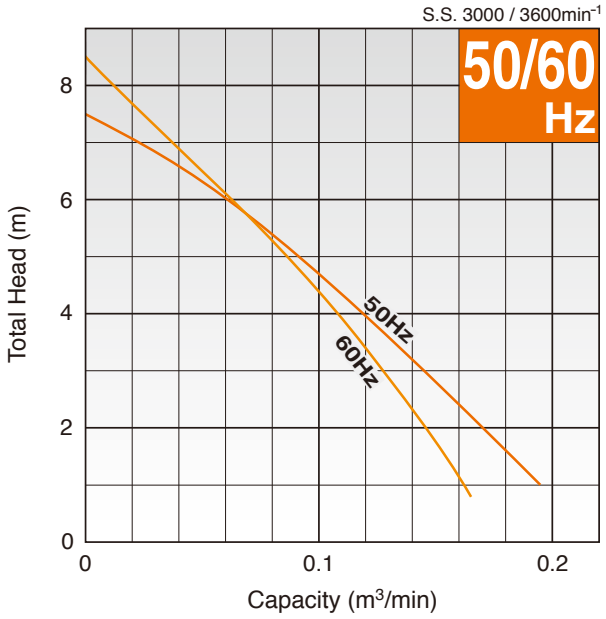
The OM-series is the most compact and economic pump in the VANCS-series. It is a semi-vortex design and can handle liquids containing moderate size of solids. Since the pump is made of special resin and stainless steel, it is corrosion-resistant and lightweight.

Applications

- Pumping rainwater and springwater from basement
- Circulating water in waterscape garden (e.g. waterfall, fountain, koi pond, etc.)

Performance Curves

Standard and Automatic models have the identical performance.

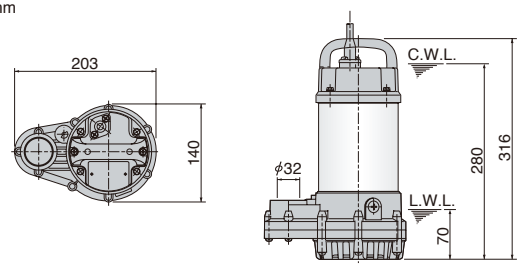


Major Components & Specifications

Discharge Bore mm			32
Pumping Fluid	Type of Fluid		Wastewater and Water carrying Small Solid Matters
	Fluid Temperature		0 to 40°C
Pump	Structure	Impeller	Vortex
		Shaft Seal	Double Mechanical Seal
		Bearing	Double-shielded Ball Bearing
	Materials	Impeller	Glass-fiber Reinforced Resin
		Casing	Glass-fiber Reinforced Resin
		Shaft seal	Silicon Carbide
Motor	Type, Pole		Dry-type Submersible Induction Motor, 2-pole
	Insulation		Class E
	Phase		Single-phase
	Starting Method		Capacitor Run
	Protection Device (Built-in)		Miniature Thermal Protector
	Lubricant		Liquid Paraffin (ISO VG32)
	Materials	Frame	304 Stainless Steel
		Shaft	420 Stainless Steel
		Cable	PVC
Discharge Connection			Screwed Flange

Dimensions

Unit: mm



C.W.L.: Continuous Running Water Level
L.W.L.: Lowest Running Water Level

Model Selection

Discharge Bore	Model		Motor Output	Phase	Starting Method	Solids Passage	Dry Weight kg		Cabtyre Cable			
									100-240V		Length	Material
mm	Standard	Automatic	kW			mm	Standard	Automatic	Cores × mm²	Outer Dia. mm	m	
32	**OM3**	**OMA3**	0.15	Single	Capacitor Run	10	5.9	6.1	3 × 0.75	9.2	3	PVC

• Weights excluding cable

Product images and specifications may differ from actual products due to improvements. The OO series and model OO are indicated with our series/model codes in this catalog.

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