

# *Single-phase Portable Pumps*

**LB/HS/HSD/LSC/LSP** SERIES





# SINGLE-PHASE PORTABLE DEWATERING PUMPS

Tsurumi single-phase portable dewatering pumps are compact and lightweight, so they are very easy handle and carry. Available in an extensive lineup of motor outputs ranging from 0.4 to 0.75kW, these pumps are suited for a wide range of applications besides general pumping and drainage, including slurries, residues and household uses.

Though compact in size, these pumps pack a host of original technologies that Tsurumi has tested and proven over many years, including the anti-wicking cable, inside mechanical seal with silicon carbide face and Oil Lifter, etc. Additionally, key components that are prone to wear are made of durable materials and pumps as a whole are designed for continuous duty. For these reasons, Tsurumi single-phase portable pumps are a popular choice at civil engineering, construction and other work sites that demand high reliability.

Tsurumi has been manufacturing construction dewatering pumps for more than 50 years. This has led to numerous technologies and know-how for improving the durability and maintainability of pumps in the rental and construction markets where rugged work environments demand heavy-duty specifications. All of Tsurumi's pumps are designed and built to be durable and reliable so as to serve users dependably.

<b>LB</b> -Typical Pumps-		<b>LSC</b> -Residue Drainage Pump-	
<b>HS</b> -Multi-field Use Pumps-		<b>LSP</b> -Free-positioning Residue Drainage Pump-	
<b>HSD</b> -Slurry Pumps-			

Approved: RCM

# Structure

\* The cutaway pictures are pumps for the general specifications.  
Picture of actual pumps, refer to each individual page.



## LB



## HS



## LSC

### 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

**MTP** (0.48kW and below)

Detects excess heat, therefore, protecting the pump against overheating and dry-running.

**CTP** (0.55kW and above)

Directly cuts the motor circuit if excessive heat builds up or overcurrent occurs in the motor.

### 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.

### 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 prolonging seal life longer. The Oil Lifter is Tsurumi original design.

### 5 V-Ring

Used as a "Dust Seal", they protect the mechanical seal from abrasive particles.

### 6 Cable Clip (excluding LSP)

Prevents unexpected water incursion that can occur if the cable is damaged, by protecting the cable against the tugging and rough handling found at construction sites.

### 7 Agitator

**For HS and HSZ**

Prevents the air lock that tends to take place on vortex or semi-vortex pumps.

**For HSD**

Assists the pump in sucking and transferring bentonite slurry, slime, mud, and water with high sand content.

### 8 Resin-made Stand (HS / HSZ / HSD)

**Rubber Stand (LSC / LSP)**

Prevents scratching of floor surface.

### 9 Multi-Directional Hose Coupling (LB / LB-A / LSC)

Can be configured for inclined or vertical discharge, allowing for smoother installation.

# Feature

## Selection Table

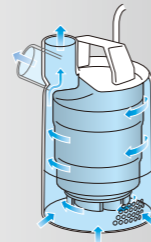
			Submersible			Non Submersible	
			Drainage		Slurry	Residue	
			LB	HS	HSD	LSC	LSP
Discharge Bore	mm	50(80)	50 · 80	50	25	25	
Motor Output	kW	0.48 · 0.75	0.4 · 0.75	0.55	0.48	0.48	
Discharge Design	Top Discharge	Flow-Thru	●		●	●	
	Side Discharge			●			
Automatic Operation		LB-A (Electrodes)	HSZ (Float)	—	—	—	
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## Motor Cooling & Discharge Design

### Top Discharge, Flow-Thru Design

This design provides maximum motor cooling efficiency allowing continuous operation at low water levels and extended dry-run capability, and also allows the shape of the pump to be cylindrical and slim for installation in a well casing for deep well dewatering.

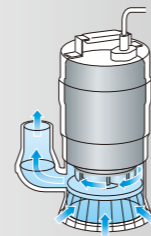
LB LB-A LSC LSP



### Side Discharge, Spiral Design

The pump has a spiral pump casing that facilitates smoother passage of foreign objects like mud and soil contained in the pumped liquid. It is a simple and practical design that facilitates inspection and repair work.

HS HSZ HSD



## Automatic Operation

The automatic model only operates when sufficient water is present. It not only reduces power consumption but also extends the life of wear parts of the pump as it eliminates dry-running that causes early wear-out.

### Electrodes (LB-A)

Tsurumi has developed a unique automatic control device utilizing electrodes. The pump stops automatically in about one minute after the water surface falls below the electric probe. Since this mechanism eliminates dry-running, the pump can reduce power consumption by up to 40 percent compared with non-automatic pumps (Tsurumi comparison). It also prevents chattering caused by a turbulent water surface and extends operating life.



### Float Switch (HSZ)

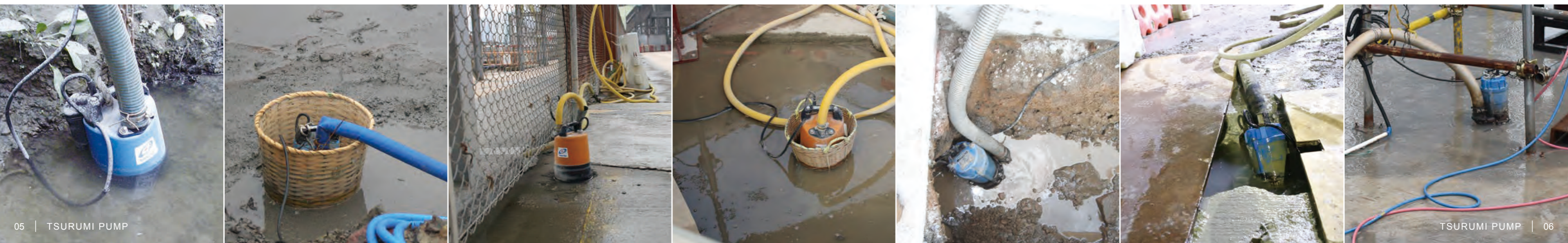
This automatic operation system is controlled by a float switch. When the water level rises and raises the float switch to a preset level, the switch turns on, and the pump starts. When the water level lowers to the preset level, pump operation stops.

## Residue Drainage

**LSC** Can drain water to 1mm in depth. A valve seat and swing check valve prevent suctioned water from backflowing.



**LSP** Can pump pooled water from shallow recesses using the suction attachment. A syphon breaker mechanism prevents backflowing and the seal water from draining out.



# LB -Typical Pumps-

The LB/LB-A series are submersible single-phase portable drainage pumps. The discharge direction is selectable between vertical and inclined, which prevents folding or bending of the discharge hose. Every LB-series is slim design enough to be accommodated in an 8-inch pipe. The LB-A series with an innovative electrode type relay unit automatically starts and stops the pump to eliminate dry-running. This mechanism greatly reduces power consumption and extends operating life.



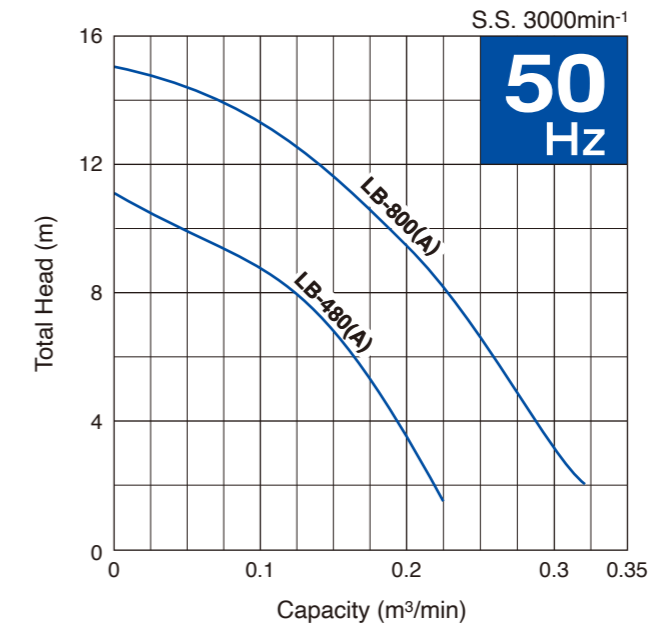
- Flow-thru Design
- Anti-wicking Cable Entry
- Motor Protector
- Dual Inside Mechanical Seal
- Oil Lifter
- V-ring
- Cable Clip
- Multi-directional Hose Coupling

Model	Discharge Bore (mm)	Motor Output (kW)	Phase	Starting Method	Solids Passage (mm)	Dry Weight (kg)	Cable Length (m)	
LB	LB-480	50	Single	Capacitor Run	6	10.4	10	
	LB-800	50(80)		0.75	Capacitor Run	6	13.1	10
LB-A -Automatic-	LB-480A	50		0.48	Capacitor Run	6	11	10
	LB-800A	50(80)		0.75	Capacitor Run	6	13.7	10

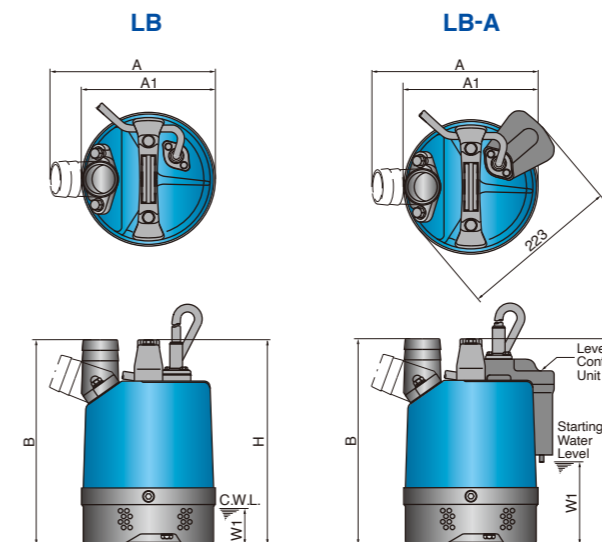
- Male threaded coupling for pipe connection available on special request
- 80mm discharge bore available on special request
- Weights excluding cable

## Performance Curves

Standard and Automatic models have the identical performance.



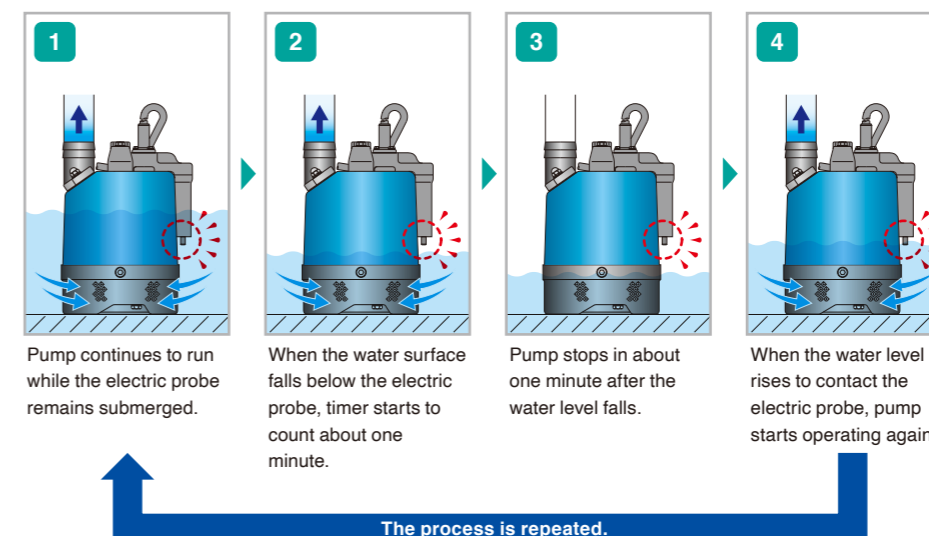
## Dimensions



Unit: mm

Model	A	A1	B	H	W1
LB-480	233	189	-	286	50
LB-800	230	186	338	341	50
LB-480A	233	189	-	286	115
LB-800A	230	186	338	341	170

## Automatic Operation (LB-A)



**Optional Accessory**

**Extension Probe x 2**

It is possible to set a lower starting water level by using an extension probe (optional accessory). The starting water level is adjustable because the extension probe can be cut to the desired length as it is made of coil spring.

# HS - Multi-field Use Pumps-

The HS/HSZ/HSD series are submersible single-phase portable pumps. The shaft-mounted agitator prevents the air lock that tends to take place on vortex or semi-vortex pumps. The rubber/resin-made stand protects the floor surface from scratching. The HSZ-series with a single float switch reduces power consumption and extends operating life.

The HSD pump is equipped with a high-chromium cast iron agitator that assists smooth suction of the settled matters.

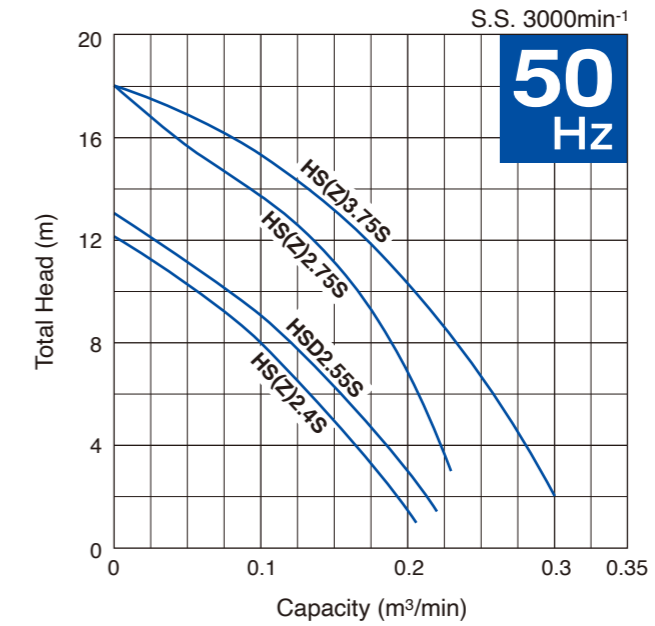


Model	Discharge Bore mm	Motor Output kW	Phase	Starting Method	Solids Passage mm	Dry Weight kg	Cable Length m
HS	HS2.4S	50	Single	Capacitor Run	7	11.3	10
	HS2.75S	50		Capacitor Run	7	16.4	10
	HS3.75S	80		Capacitor Run	7	16.8	10
HSZ -Automatic-	HSZ2.4S	50		Capacitor Run	7	11.3	10
	HSZ2.75S	50		Capacitor Run	7	16.4	10
	HSZ3.75S	80		Capacitor Run	7	16.8	10
HSD -Slurry-	HSD2.55S	50		Capacitor Run	9	14	10

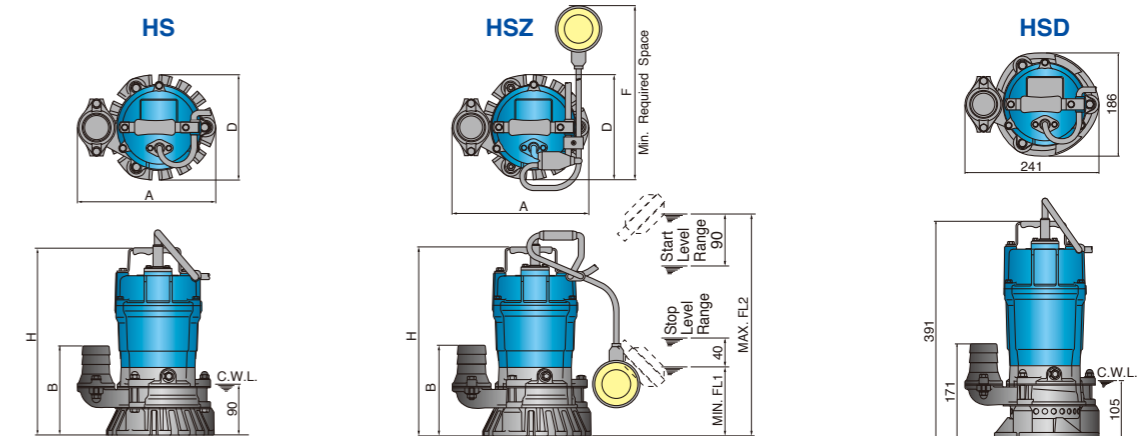
• Male threaded coupling for pipe connection available on special request  
• Weights excluding cable

## Performance Curves

Standard and Automatic models have the identical performance.



## Dimensions

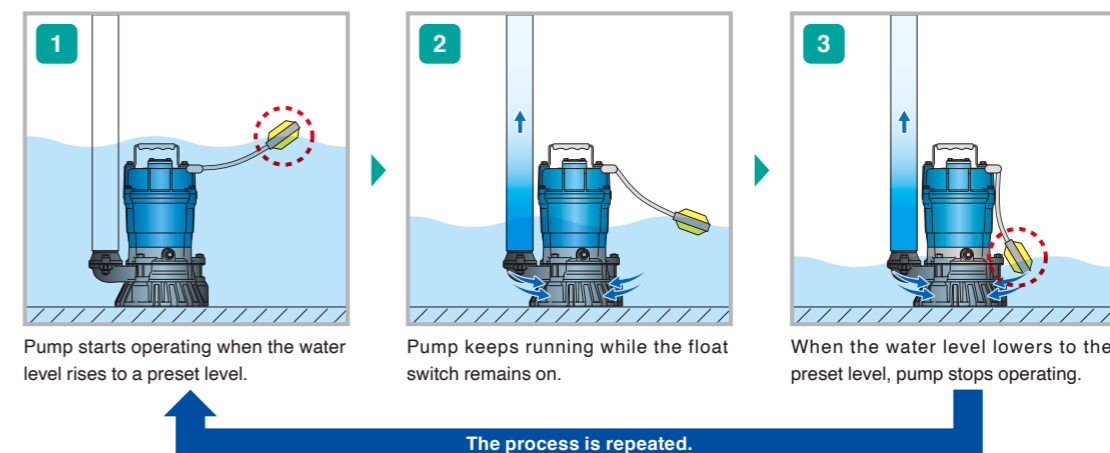


Unit: mm

Model	A	B	D	H	F	FL1	FL2
HS2.4S	241	158	184	328	-	-	-
HS2.75S/HS3.75S	285	218	184	394	-	-	-
HSZ2.4S	241	158	184	328	340	120	385
HSZ2.75S/HSZ3.75S	285	218	184	394	370	150	475

\* The illustrations in the dimensional drawings are general specifications.

## Automatic Operation (HSZ)



# LSC –Residue Drainage Pump–

The LSC pump is a submersible single-phase portable residue drainage pump. The specially designed bottom plate enables the pump to drain down to 1mm water level. It has a swing check valve that prevents reverse-flow of the sucked water when the pump stops its operation. The rubber stand protects the floor surface from scratching. The discharge direction is selectable between vertical and inclined, which prevents folding or bending of the discharge hose.

LSC1.4S



- Flow-thru Design
- Anti-wicking Cable Entry
- Motor Protector
- Dual Inside Mechanical Seal
- Oil Lifter
- V-ring
- Cable Clip
- Rubber Stand
- Reverse-flow Prevention Mechanism
- Multi-directional Hose Coupling

# LSP –Free-positioning Residue Drainage Pump–

The LSP pump is a single-phase portable self-priming residue drainage pump incorporating a submersible motor. The suction attachment, supplied as standard, makes the pump drain water down to floor level. The pump is equipped with a siphon breaker mechanism that prevents reverse-flow when the pump stops its operation. It is lightweight and easy to carry, as the major components are made of aluminum alloy and synthetic rubber. Since it incorporates a submersible motor, there is absolutely no problem even it is submerged in water.

LSP1.4S



- Flow-thru Design
- Anti-wicking Cable Entry
- Motor Protector
- Dual Inside Mechanical Seal
- Oil Lifter
- V-ring
- Rubber Stand
- Free-positioning Suction Attachment
- Reverse-flow Prevention Mechanism

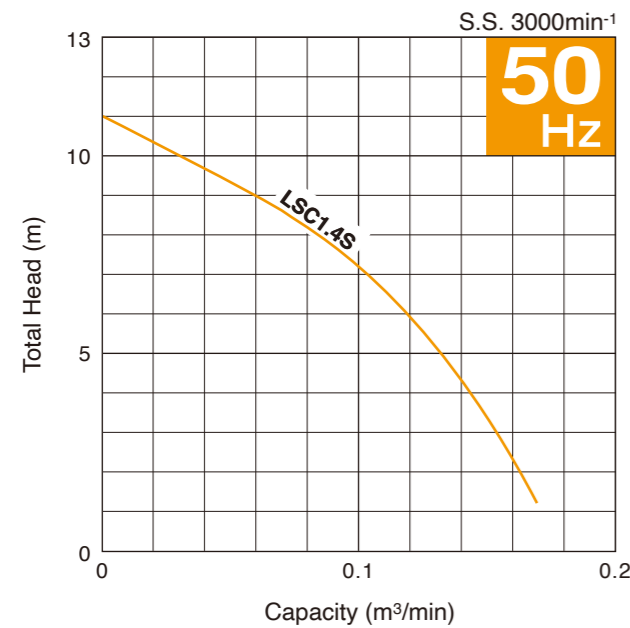
Model	Discharge Bore mm	Motor Output kW	Phase	Starting Method	Dry Weight kg	Cable Length m
<b>LSC1.4S</b>	25	0.48	Single	Capacitor Run	12	10

- Male threaded coupling for pipe connection available on special request
- Weights excluding cable

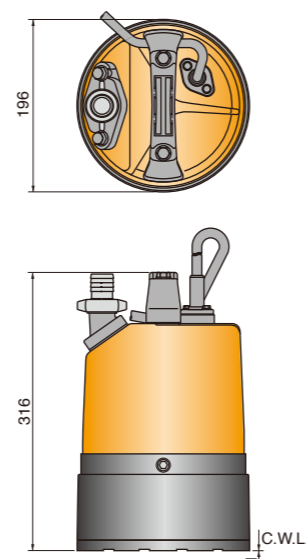
Model	Suction x Discharge Bore mm	Motor Output kW	Phase	Starting Method	Max. Head m	Max. Capacity L/min	Max. Vacuum kPa(mmHg)	Dry Weight kg	Cable Length m
<b>LSP1.4S</b>	25 x 25	0.48	Single	Capacitor Run	6.9	50	-73.3 (-550)	16.5	10

- Weights excluding cable

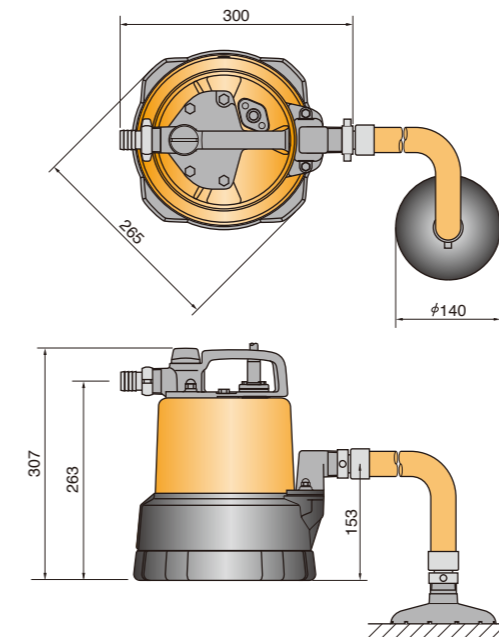
## Performance Curves



## Dimensions



## Dimensions



# Specifications

		LB		LB-A -Automatic-		HS			HSZ -Automatic-			HSD -Slurry-	LSC -Residue-	LSP -Residue-	
		LB-480	LB-800	LB-480A	LB-800A	HS2.4S	HS2.75S	HS3.75S	HSZ2.4S	HSZ2.75S	HSZ3.75S	HSD2.55S	LSC1.4S	LSP1.4S	
PUMP	Discharge Bore	mm	50	50(80)	50	50(80)	50		80	50			80	50	25
	Discharge Connection	Hose Coupling								Hose Coupling					
	Solids Passage	mm	6				7			7			9	—	
	Impeller	Semi-vortex								Semi-vortex					
		Urethane Rubber								Urethane Rubber			High-chromium Cast Iron	Urethane Rubber	
	V-Ring	Nitrile Butadiene Rubber								Nitrile Butadiene Rubber					
	Casing	Synthetic Rubber				Gray Cast Iron	Ductile Cast Iron			Gray Cast Iron	Ductile Cast Iron			Synthetic Rubber	
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)								Dual Inside Mechanical Seals (with Oil Lifter)					
Silicon Carbide								Silicon Carbide							
Agitator	—				Sintered Alloy			Sintered Alloy			High-chromium Cast Iron	—			
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor								Continuous-duty Rated, Dry-type Induction Motor					
	Output	kW	0.48	0.75	0.48	0.75	0.4	0.75		0.4	0.75		0.55	0.48	
	Phase	Single-phase								Single-phase					
	Pole	2								2					
	Insulation	E								E					
	Starting Method	Capacitor Run								Capacitor Run					
	Motor Protector (built-in)	MTP	CTP	MTP	CTP	MTP	CTP			MTP	CTP			MTP	
	Lubricant	ml	155				160			160			155	150	
		Turbine Oil (ISO VG32)								Turbine Oil (ISO VG32)					
	Shaft	403 Stainless Steel								403 Stainless Steel					
Cable	m	10								10					
	H07RN-F w/Plug								H07RN-F w/Plug						
Automatic Control Device	—			Electrodes			—			Float Switch			—		
Dry Weight*	kg	10.4	13.1	11	13.7	11.3	16.4	16.8	11.3	16.4	16.8	14	12	16.5	

\* 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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