

SERIES  
**B** 45-75kW

SUBMERSIBLE  
SEWAGE PUMPS

CHANNEL IMPELLER



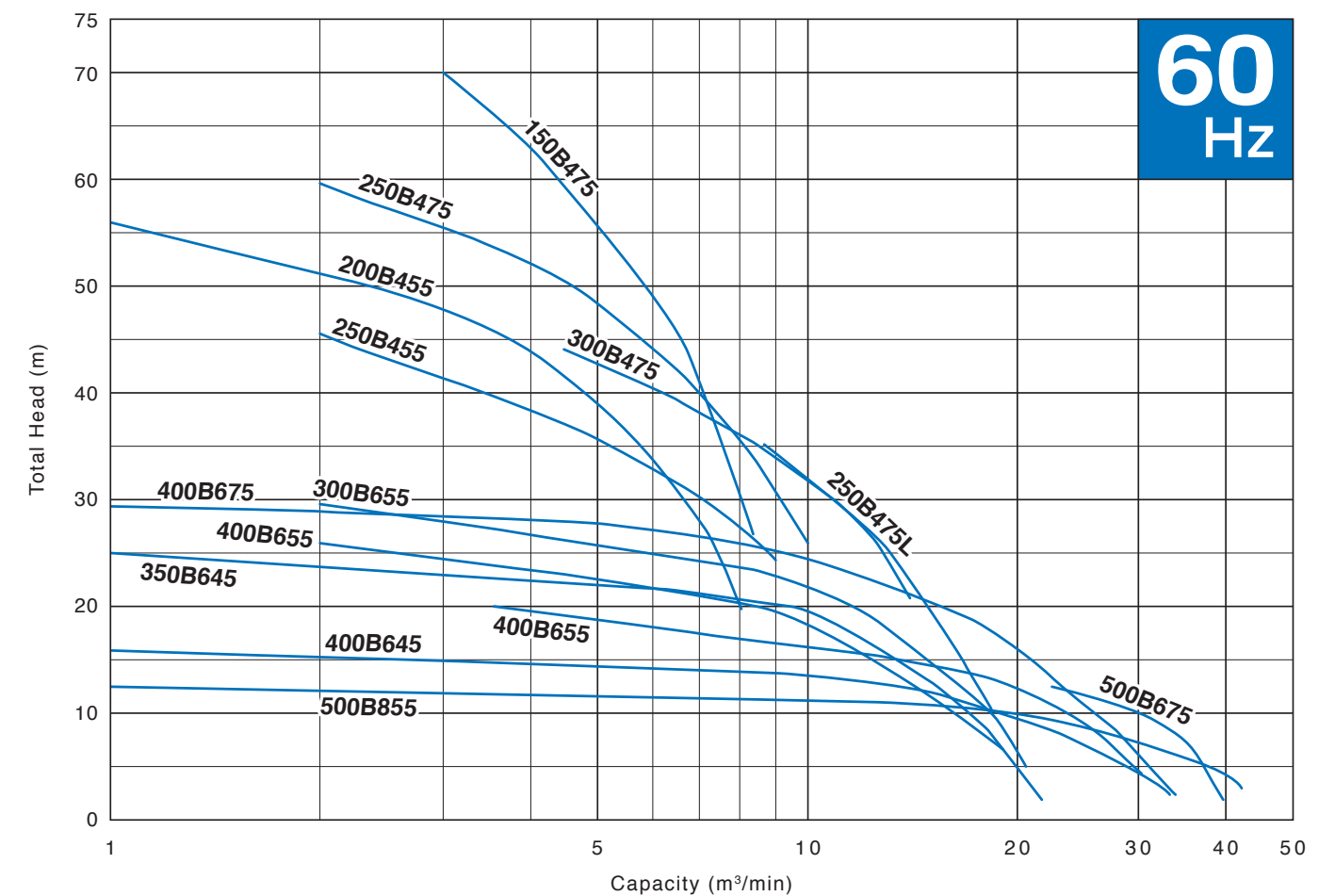
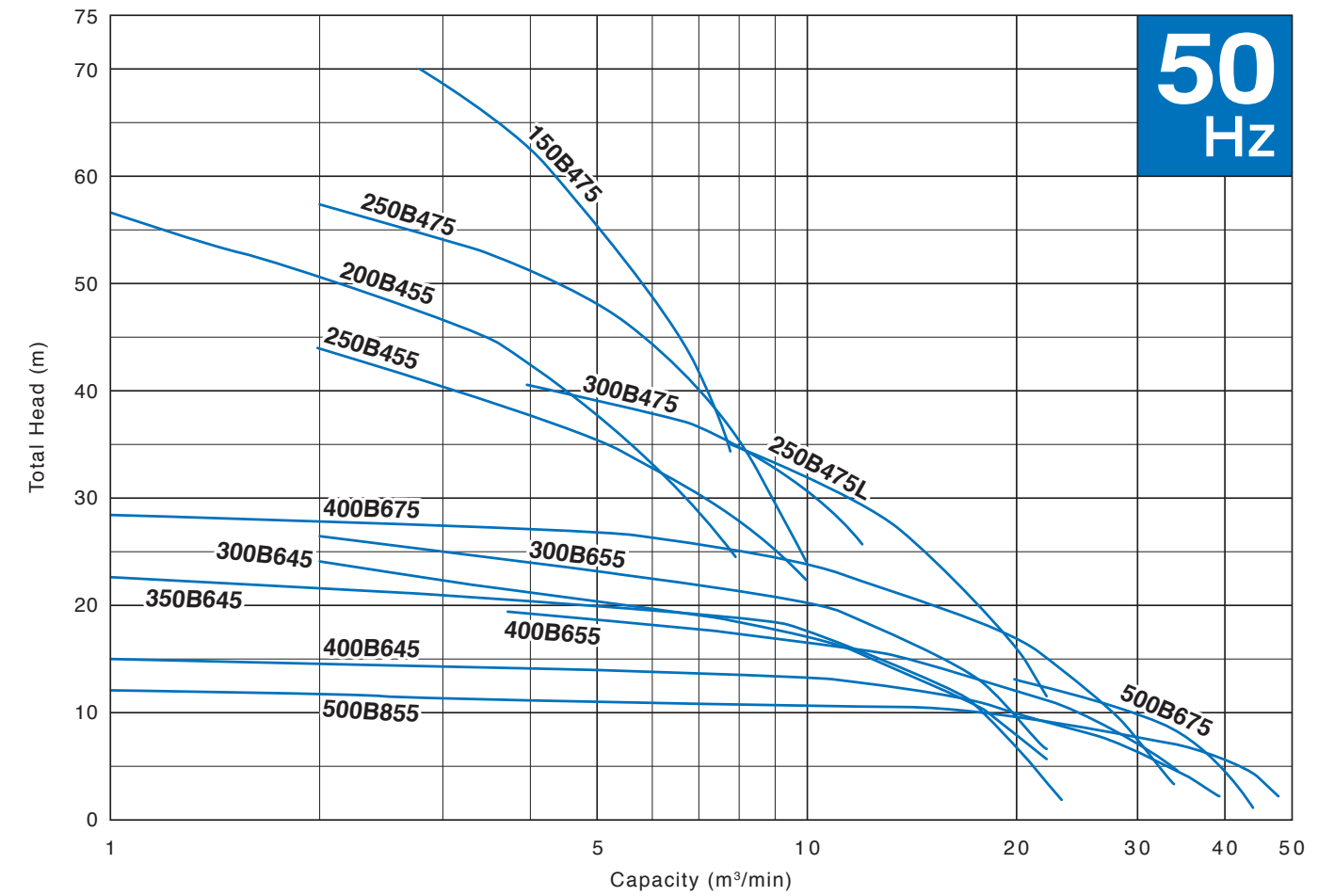
# Submersible Sewage Pumps with Channel Impeller

Tsurumi B-series pumps are basic submersible sewage and wastewater pumps that incorporate a channel impeller to minimize the possibility of trouble occurring from blockage by solid matters. These pumps are available in a wide lineup and can be readily installed in combination with a guide rail fitting system. Boasting outstanding reliability and durability, Tsurumi's pumps are designed to run continuously for prolonged periods of time. Therefore, they contribute to stable facility operation at pump stations and water treatment plants, and help to greatly reduce maintenance costs.

These pumps have been actively utilized for a diversity of applications in many water treatment plants, pump stations and flood control facilities, as well as water parks, etc. When made to Tsurumi's unique seawater-resistance specification, these pumps can be reliably used for seawater intakes at shipbuilding yards and power stations. In short, the B-series reflect our long years of experience and expertise, and therefore can be utilized in various fields and applications.



## Performance Range

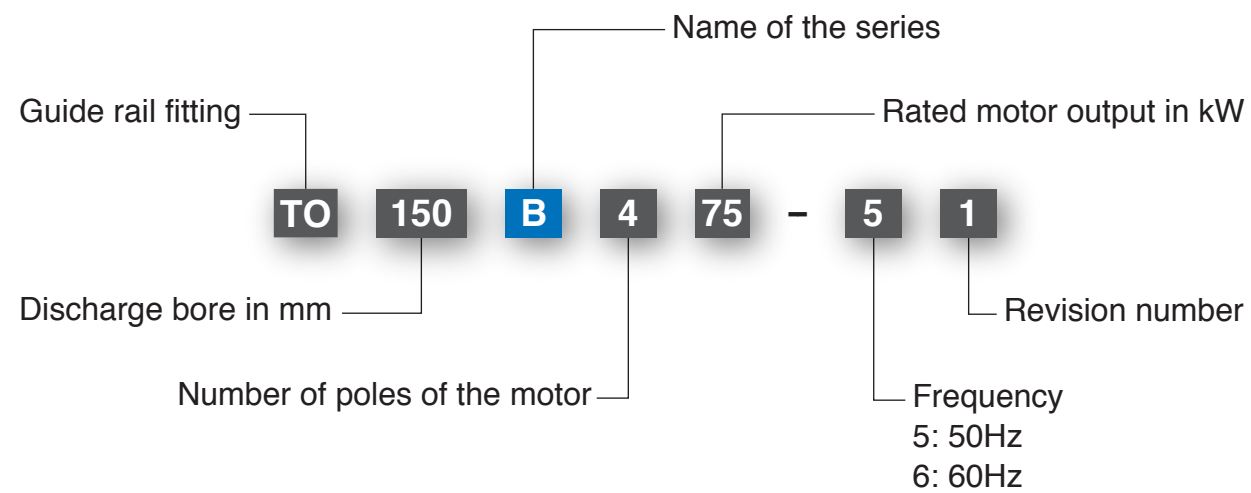




## Selection Table

Motor Output	45kW	55kW	75kW
B 45-75kW	6" 150mm		
	8" 200mm		
	10" 250mm		
	12" 300mm		
	14" 350mm		
	16" 400mm		
	20" 500mm		

## Model Number Designation

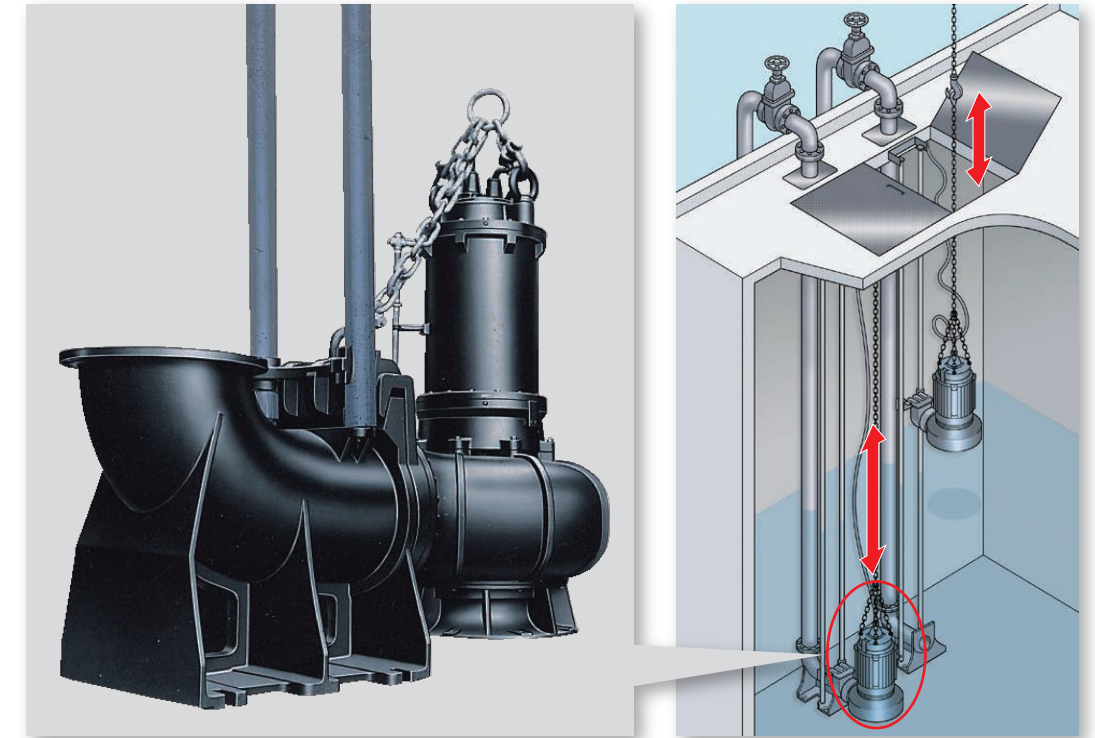


## Guide Rail Fitting System

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. The TO is the guide rail fitting system made of cast iron and is compatible with cast iron pumps.

### Accessories

- Duckfoot Bend
- Guide Support
- Guide Hook
- Lifting Chain 5m (with Shackles)
- JIS 10kg/cm<sup>2</sup> Flange



## Options

### Seawater-Resistant Version

In seawater, a material's resistance to corrosion can be seen clearly. When metals with different potentials are brought into contact in seawater, only the metal of lower potential corrodes. As the difference in potential increases, the metal of lower potential corrodes faster. As an option, Tsurumi can supply pumps with parts made of higher electric potential metal as the sacrificial anode.

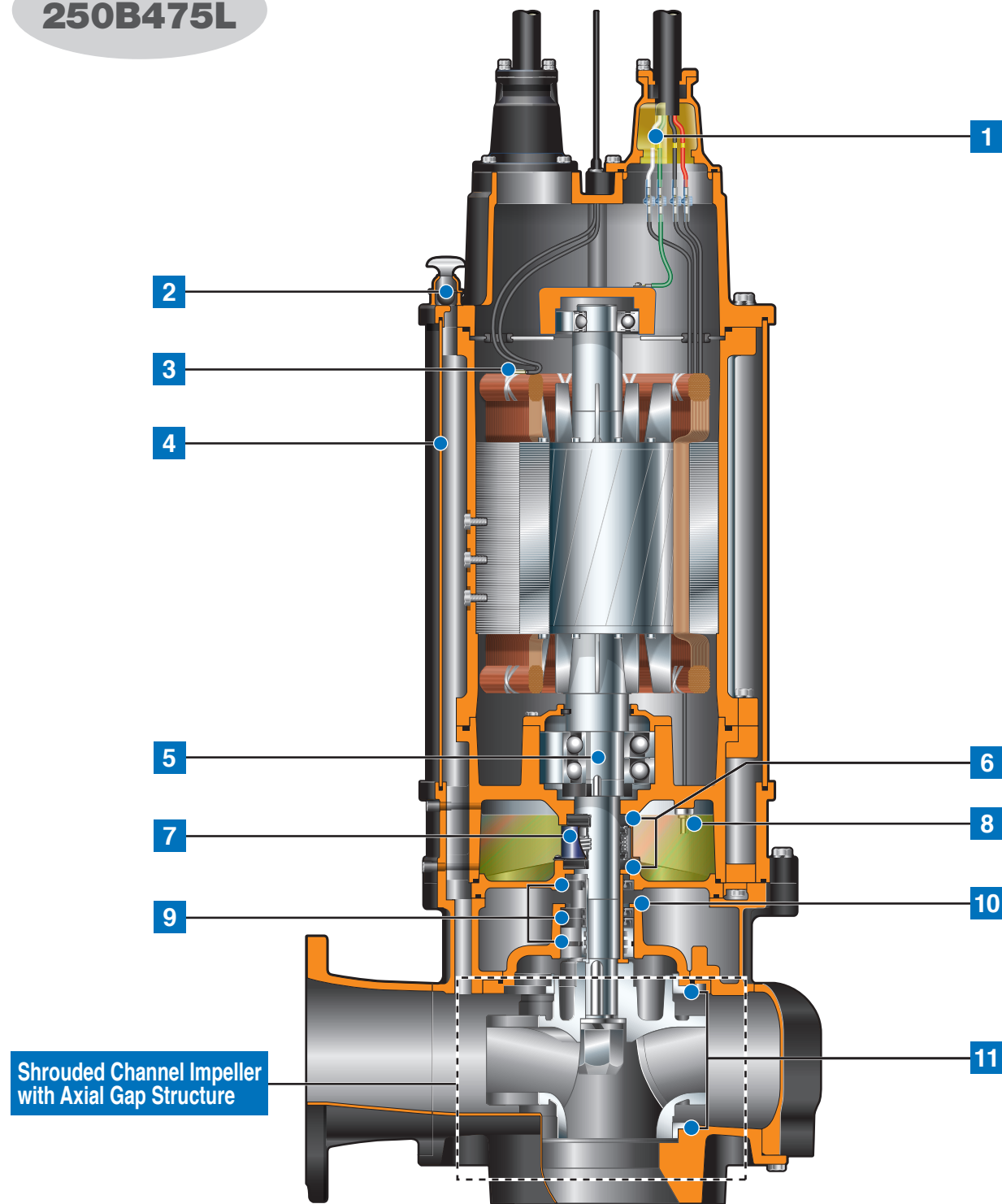
### Special Material Version

Tsurumi can also provide you with pumps with essential components such as the impeller, pump casing and the suction cover made of non-standard materials. Select from stainless steel, high-chromium cast iron and bronze to suit your specific requirements.



Seawater-Resistant Version (Option)

Model  
**250B475L**



**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 Air Release Valve**

Fitted on the water jacket 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.

**3 Miniature Thermal Protectors**

React to excessive heat caused by dry-running. The bimetal strip opens to cause the control panel to shut the power supply.

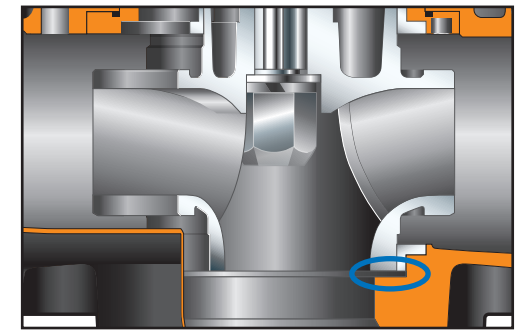
**Shrouded Channel Impeller with Axial Gap Structure**

\* Some models consist of radial gap structure.

Tsurumi's sewage pumps have been developed on the following two design concepts.

- **Stable pump performance over long periods of time**
- **Improved maintainability and durability**

This axial gap structure is intended to prevent troubles caused by performance drop, cavitation and clogging due to ingested foreign objects, which may incur with pumps over extended operation. The structure itself is formed by a closed type impeller and suction cover, and is adopted for many models of Tsurumi pumps to fulfill this purpose.



**Feature**

With the axial gap structure, the gap between the impeller and suction cover is perpendicular to the shaft. On the other hand, with a radial gap structure, the gap is parallel to the shaft.

In other words, assuming the same increase in gap width due to wear, pump performance drop of the axial gap structure is considerably smaller than that of the radial gap structure. With the axial gap structure, pump performance and efficiency can be maintained, even under impeller wear, by adjusting the gap between the impeller and suction cover with packing, etc. This reduces maintenance costs and ensures stable performance over long periods of time.

Furthermore, Tsurumi's own technical investigations and many years of research have shown the axial gap structure to be more advantageous against "clogging by fibrous materials," a problem that afflicts sewage pumps in general.

**4 Water Jacket**

The pump is equipped with a water jacket, around the motor frame. A portion of the pumped liquid is allowed to flow into the water jacket to cool the motor. This design feature permits the unit to operate at low water levels for extended periods of time.

**5 Shaft**

Made of a solid material (without welds) of thoroughly proven bending strength and tensile strength.

**6 Dual Inside Mechanical Seals with Silicon Carbide Faces**

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 of the upper and lower fixing rings are made of NBR or FPM (FKM), which provides higher resistance to heat and chemicals.

**7 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.

**8 Leakage Sensor**

Detects flooding into the oil chamber that may occur in a worst case scenario. When flooding is detected, signals are sent to operate the indicator lamps through the external control panel.

**9 Triple/Quadruple Oil Seals + Labyrinth Ring (4pole, 55 & 75kW)**

Used as a "Dust Seal", triple or quadruple oil seals protect the mechanical seal from abrasive particles. The labyrinth ring is equipped to provide a better countermeasure against wear caused by high pressure generated in the casing and improve the maintainability for pumps having 4-pole, 55 or 75kW motor.

**10 Seal Pressure Relief Ports**

Protect the mechanical seal from pump pressure. They also protect the seal face by discharging wear particles.

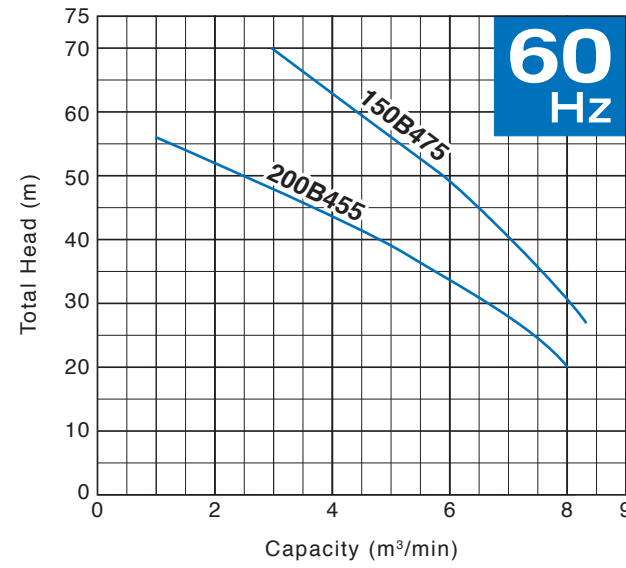
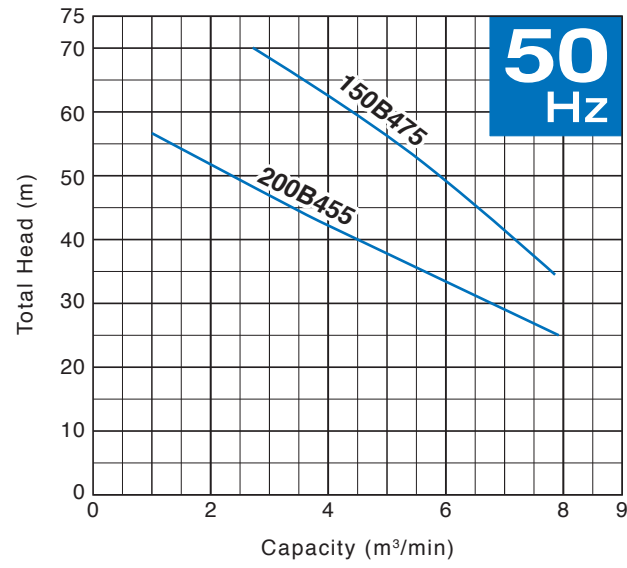
**11 Mouth Ring & Wear Ring**

Prevent wear in the pump casing and suction cover, resulting in reduced maintenance costs.

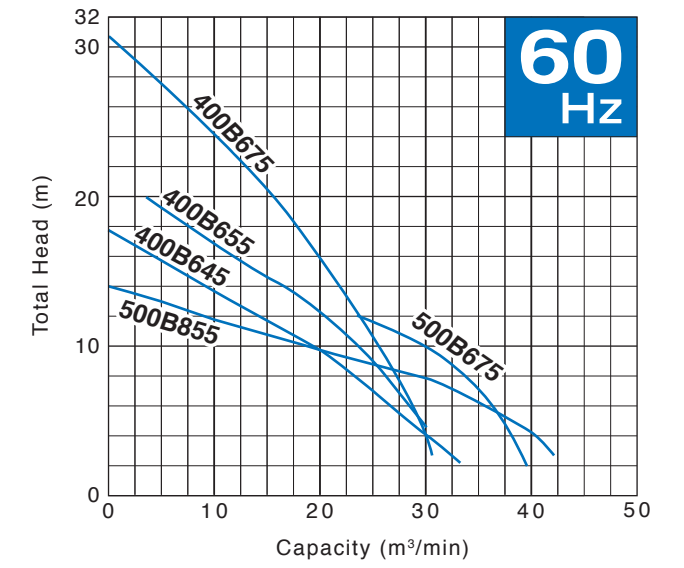
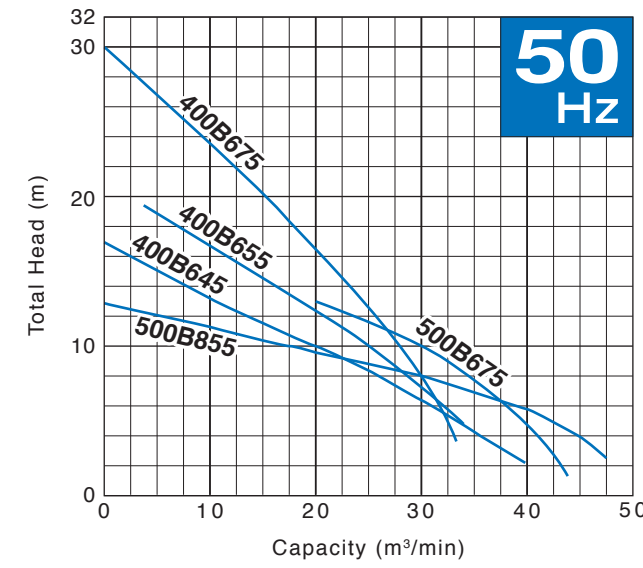


## Performance Curves

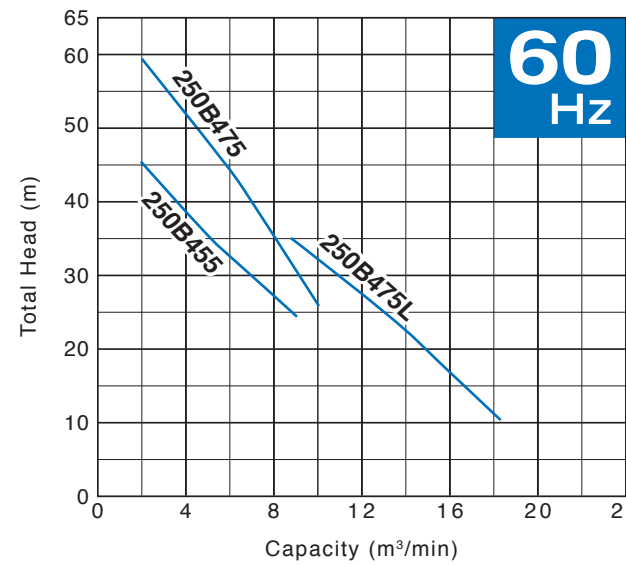
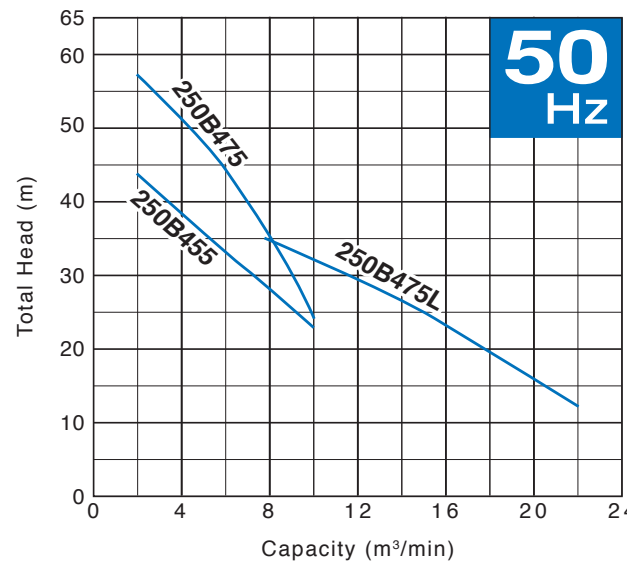
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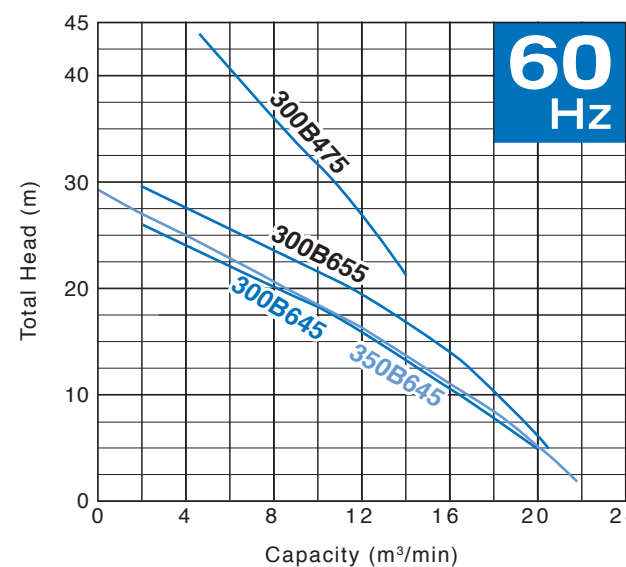
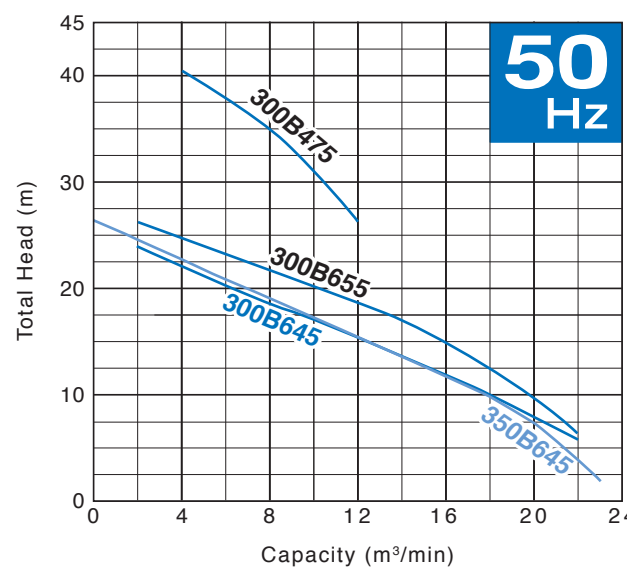
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< 250mm >



< 300·350mm >

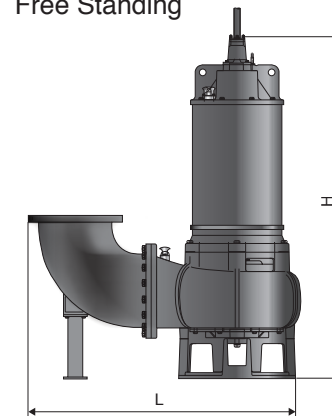


Discharge Bore mm	Model 50/60Hz		Motor Output kW	Dimensions mm L x H		Dry Weight kg		Cable Length m
	Free Standing	Guide Rail Fitting		Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
150	150B475-51/61	TO150B475-51/61	75	1305 x 1869	1522 x 1786	1180	1140	10
200	200B455-52/62	TO200B455-52/62	55	1188 x 1892	1499 x 1806	1130	1090	10
250	250B455-52/62	TO250B455-52/62	55	1290 x 1892	1586 x 1828	1170	1110	10
250	250B475-52/62	TO250B475-52/62	75	1290 x 1892	1586 x 1828	1220	1160	10
250	250B475L-51/61	TO250B475L-51/61	75	1313 x 2036	1592 x 1975	1220	1160	10
300	300B645-52/62	TO300B645-52/62	45	1413 x 1988	1778 x 1921	1270	1200	10
300	300B655-52/62	TO300B655-52/62	55	1413 x 1988	1778 x 1921	1520	1470	10
300	300B475-52/62	TO300B475-52/62	75	1436 x 1892	1795 x 1857	1220	1170	10
350	350B645-53/63	TO350B645-53/63	45	1493 x 1988	1859 x 1966	1420	1320	10
400	400B645-53/63	TO400B645-53/63	45	1621 x 2029	2140 x 2107	1470	1420	10
400	400B655-52/62	TO400B655-52/62	55	1621 x 2029	2140 x 2107	1720	1670	10
400	400B675-52/62	TO400B675-52/62	75	1621 x 2029	2140 x 2107	1760	1710	10
500	500B855-52/62	TO500B855-52/62	55	2111 x 2593	2662 x 2740	2850	2750	10
500	500B675-52/62	TO500B675-52/62	75	2263 x 2143	2814 x 2307	2060	1960	10

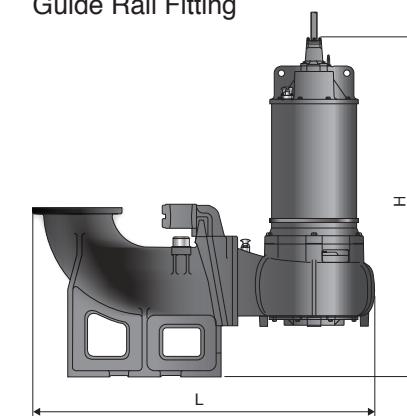
\* All weights excluding cable  
Weights of guide rail fitting excluding duckfoot bend

### Dimensions

Free Standing



Guide Rail Fitting



# Specifications

		B 45-75kW					B 45-75kW											
		150B475-51/61	200B455-52/62	250B455-52/62	250B475-52/62	250B475L-51/61	300B645-52/62				300B655-52/62	300B475-52/62	350B645-53/63	400B645-53/63	400B655-52/62	400B675-52/62	500B855-52/62	500B675-52/62
PUMP	Discharge Bore mm	150	200	250			300				300	350	400			500		
	Discharge Connection	JIS 10kg/cm <sup>2</sup> Flange					JIS 10kg/cm <sup>2</sup> Flange											
	Impeller	Channel (Shrouded Type)					Channel (Shrouded Type)											
		Axial Gap	Radial Gap		Axial Gap	Radial Gap	Radial Gap			Axial Gap								
		Gray Cast Iron					Gray Cast Iron											
	Suction Cover	Gray Cast Iron					Gray Cast Iron											
	Wear Ring	Gray Cast Iron					Gray Cast Iron											
	Mouth Ring	Gray Cast Iron					Gray Cast Iron											
	Oil Seal	Q'ty	Triple			Quadruple		Quadruple			Triple		Quadruple					
			Nitrile Butadiene Rubber					Nitrile Butadiene Rubber										
	Labyrinth Ring	403 Stainless Steel			—		—			403 Stainless Steel		—						
	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													
Type	Continuous-duty Rated, Dry-type Induction Motor					Continuous-duty Rated, Dry-type Induction Motor												
MOTOR	Output kW	75	55		75	45				55	75	45		55	75	55	75	
	Phase	Three					Three											
	Pole	4			6		6			4		6			8	6		
	Speed (S.S.) 50/60Hz	min <sup>-1</sup>			1500/1800		1000/1200		1000/1200		1500/1800		1000/1200			750/900		1000/1200
	Insulation	F					F											
	Starting Method	Star-Delta					Star-Delta											
	Motor Protector (built-in)	MTP					MTP											
	Leakage Sensor (built-in)	Electrode					Electrode											
	Lubricant	ml	9400			9600		9600			9400		11000					
			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	10					10										
Chloroprene Rubber					Chloroprene Rubber													
Dry Weight*	Free Standing kg	1180	1130	1170	1220	1270	1520			1220	1420	1470	1720	1760	2850	2060		
	Guide Rail Fitting kg	1140	1090	1110	1160	1200	1470			1170	1320	1420	1670	1710	2750	1960		

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



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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