

SERIES  
**BZ**

SUBMERSIBLE  
SEWAGE PUMPS

CHANNEL IMPELLER  
—OVER 3 INCHES PASSAGE—



# Submersible Sewage Pumps with Channel Impeller — Over 3 Inches Passage —

Tsurumi BZ-series pumps are heavy-duty, submersible sewage and wastewater pumps that are designed with a shrouded single/two-channel impeller and wide passages of over 3 inches (76.2 mm) in diameter to minimize trouble due to clogged solids. In addition, as mid to large sized pumps with 22 - 75 kW of drive power, they raise the already high pump efficiency standard of predecessor sewage and wastewater pumps of the Tsurumi brand with even better energy efficiency.

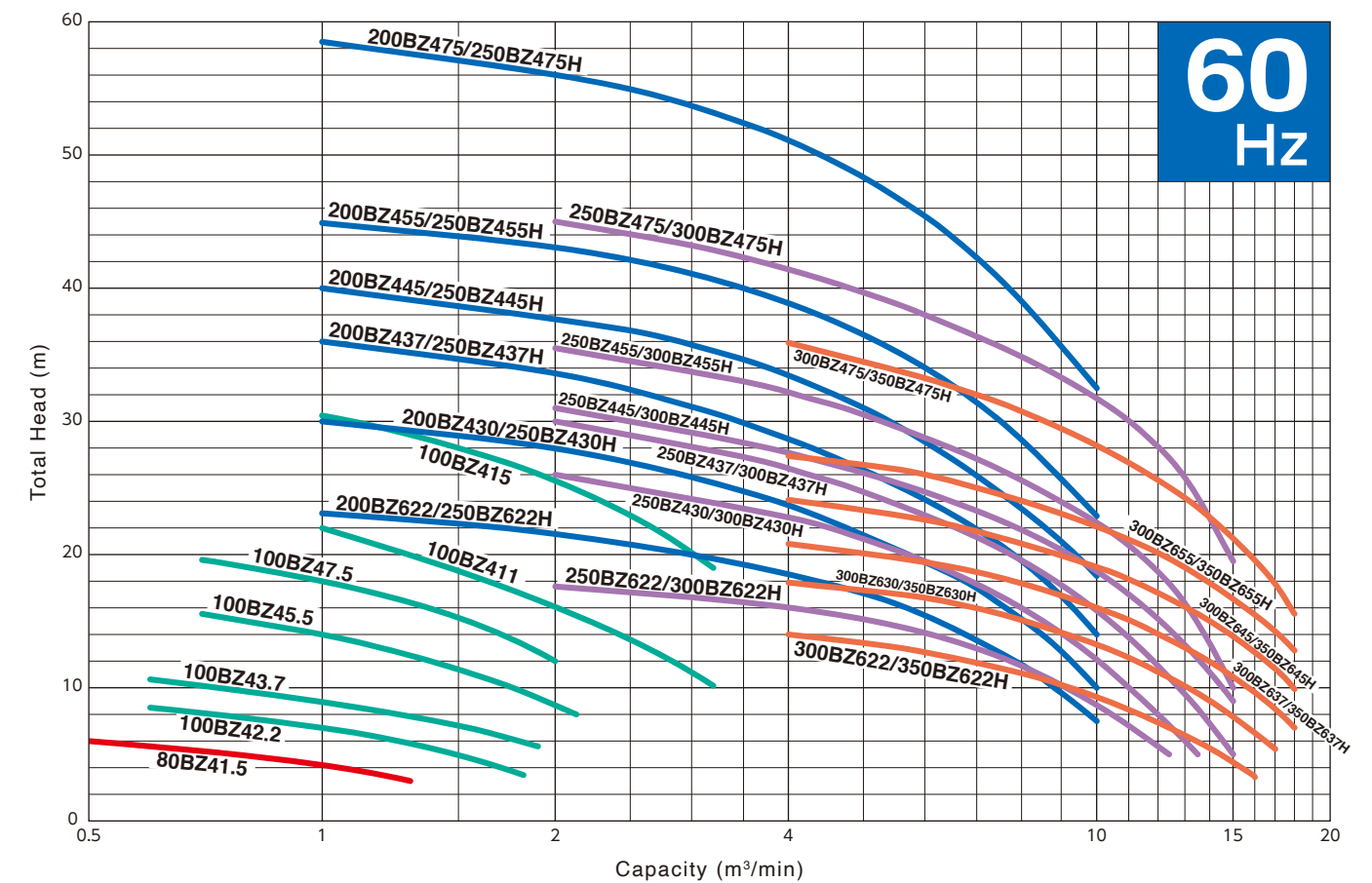
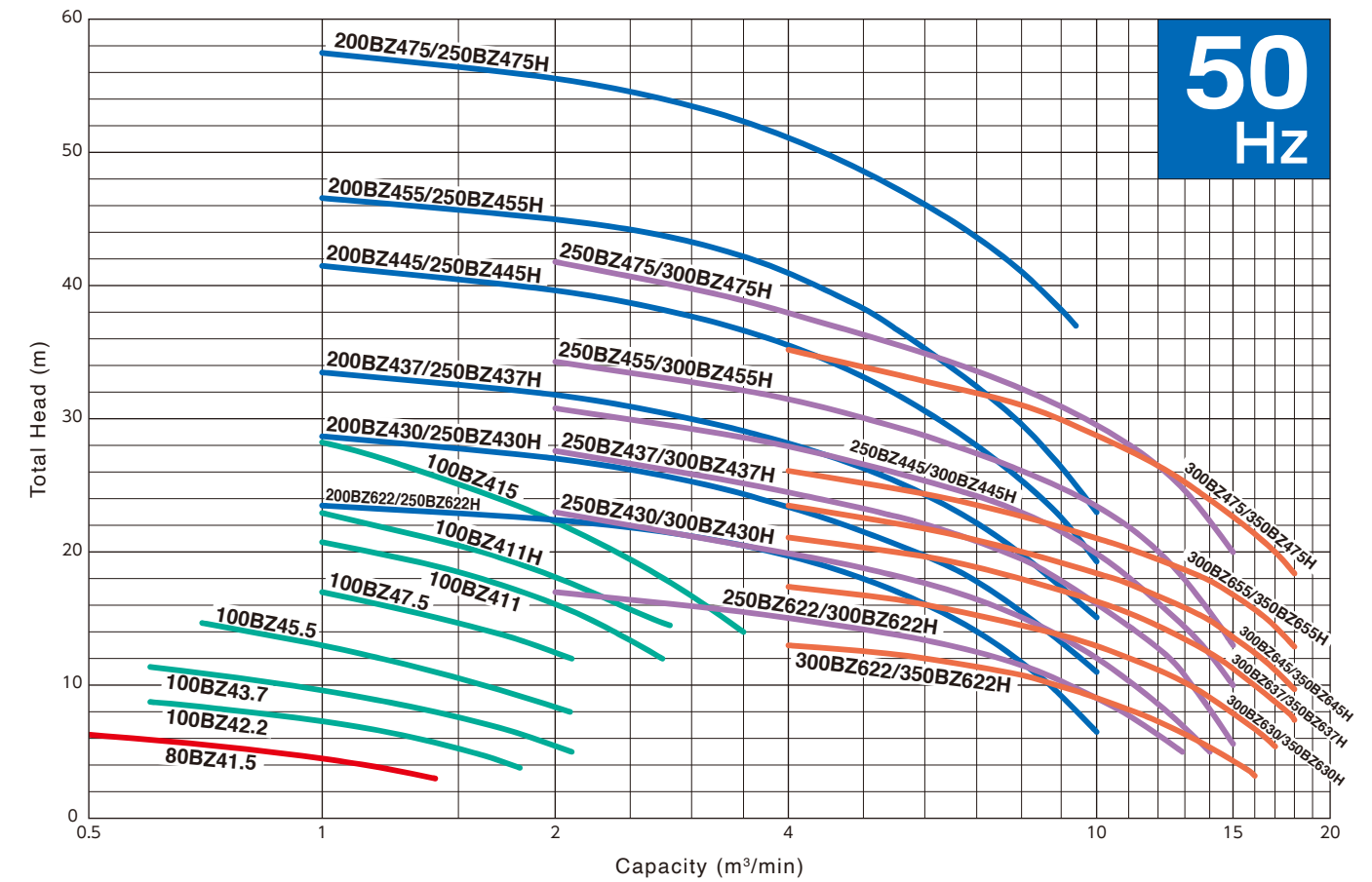
The BZ-series offers a wide lineup of discharge bores ranging from 80 - 350 mm and motor outputs of 1.5 - 75 kW. Moreover, the pumps can be used with Tsurumi's guide rail fitting device that facilitates installation and maintenance.

The BZ-series pumps come packed with a number of original technologies developed and honed over years of service including an anti-wicking cable, motor protector, dual inside mechanical seals with silicon carbide faces and Oil Lifter.

Highly reliable and durable, Tsurumi BZ-series pumps are designed and built for sound quality and continuous duty that can help you keep your systems -- whether for wastewater drainage, pumping or flood control -- running stably and greatly reduce your maintenance costs. As an option, the pumps can be adapted for seawater, high temperature liquids or other special application, paving the way for their use at shipyards and power plants for water intake and discharge.



## Performance Range





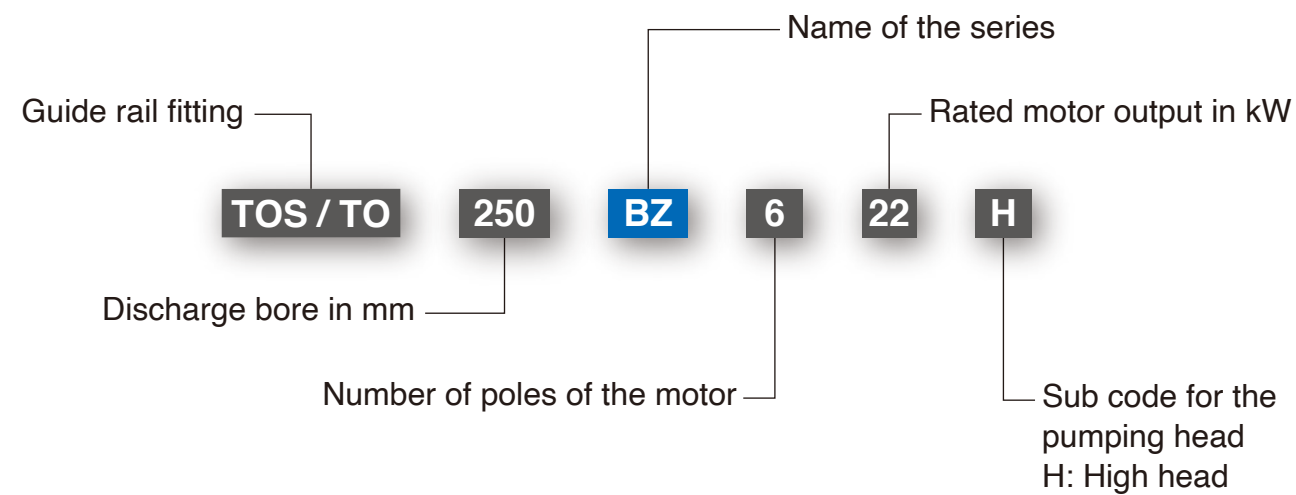
## Selection Table

Motor Output (kW)	1.5	2.2	3.7	5.5	7.5	11	15	22	30	37	45	55	75
3" 80mm													
4" 100mm						★							
8" 200mm													
10" 250mm								★	★	★	★	★	★
12" 300mm								★	★	★	★	★	★
14" 350mm								☆	☆	☆	☆	☆	☆

★: High head type model can be selected in the same motor output.

☆: High head type model only.

## Model Number Designation



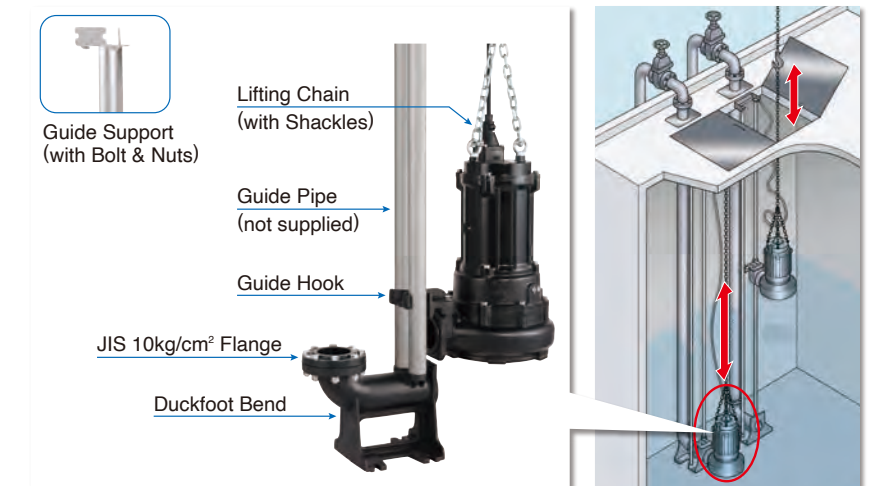
## Guide Rail Fitting System

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 TOS/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
- JIS 10kg/cm<sup>2</sup> Flange (100mm and below only)



## Float Switches

Tsurumi offers two types of float switches (liquid level sensors). A micro-switch is incorporated in both types.

**Model MC-2** is a heavy-duty type float switch with a shock absorber. Having equipped with a high grade micro switch, the MC-2 assures trouble-free operation in the liquid containing much suspended solids and floating scum. Either of the two contacts, normally-open or normally-close, can be selected as required.



**Model RF-5** is an economy type float which can detect upper/lower limit water levels with single float. The snap on-off action ensures stable operation in clean or waste water containing suspended solids or oil and fat.



## 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.

### ☑ High Temperature Liquids Version

Tsurumi's submersible pumps are applicable to high temperature liquids of up to 80°C. Pumps of the standard specification can discharge liquids of up to 40°C. However, there are many fields that need to discharge higher temperature liquids, e.g., discharging industrial water from a power plant or ironworks, or discharging hot spring water from a mine in a volcanic zone.

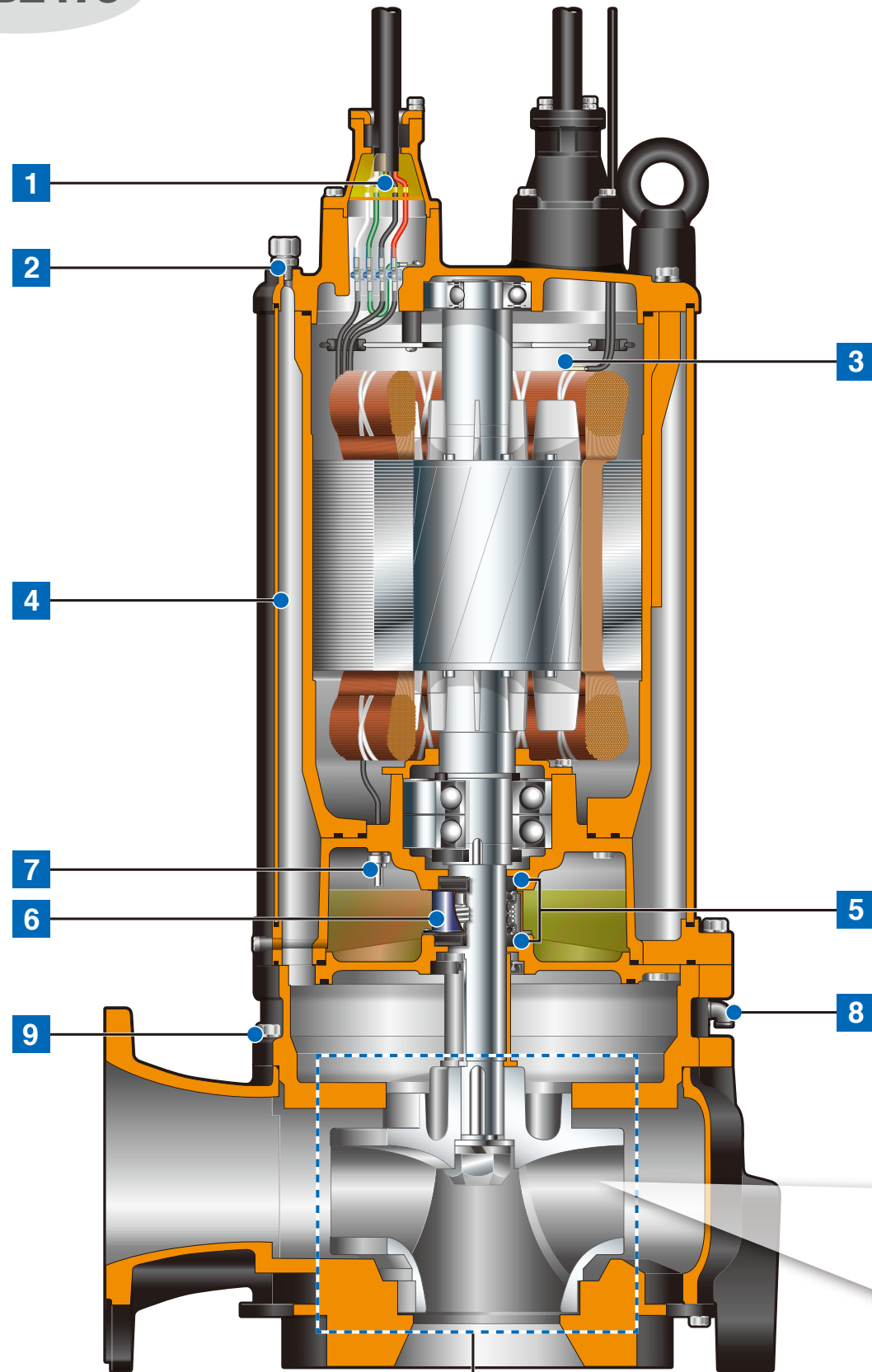
### ☑ Special Material Version

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  
**300BZ475**



**Shrouded Channel Impeller  
with Wide Passages to Prevent Clogging**

**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 or 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.

**3 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 (11kW and above)**

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

**4 Water Jacket (55kW and above of 200 & 250mm bore, and 45kW and above of 300 & 350mm bore)**

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 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.

**6 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.

**7 Leakage Sensor (22kW and above)**

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.

**8 Seal Pressure Relief Port (22kW and above)**

Protects the mechanical seal from pump pressure. It also protects the seal face by discharging wear particles.

**9 Back Pull-out Design (3.7kW and below, and 15kW and above)**

Enables the motor to be separated from the pump unit with the impeller attached, by removing the bolts between the oil casing and the pump casing. This design facilitates maintenance and inspection of the principal parts of the pump.

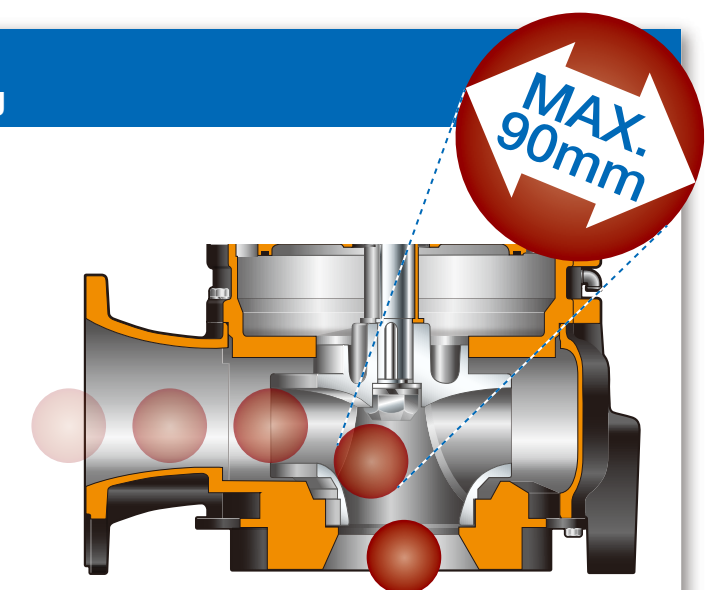
**Shrouded Channel Impeller  
with Wide Passages to Prevent Clogging**

**– Over 3 Inches Passage –**

BZ-series pumps come with wide passages of over 3 inches (76.2mm) in diameter -- the largest being 90mm across -- to minimize trouble due to clogged solids and fibrous matter. They adopt a shrouded single/two-channel impeller.



**Shrouded  
Channel Impeller**



**MAX.  
90mm**



# BZ -Channel Impeller-

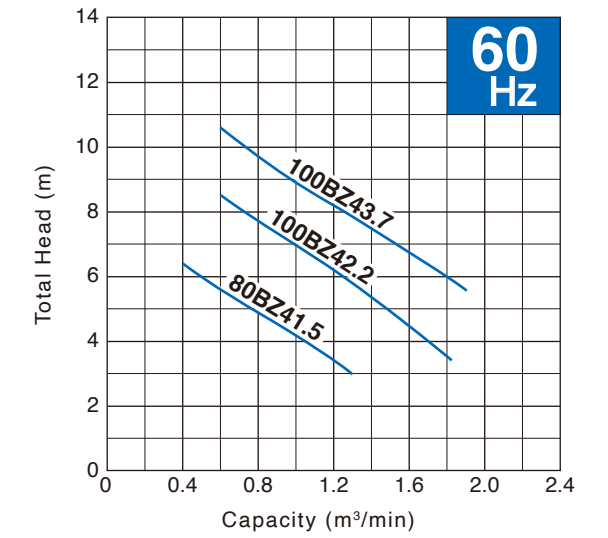
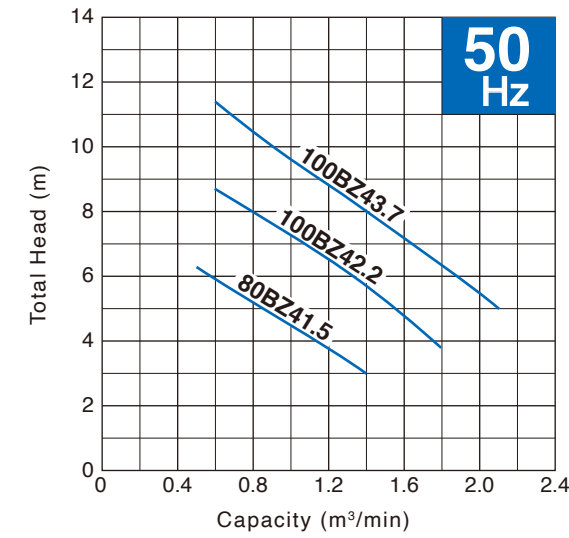
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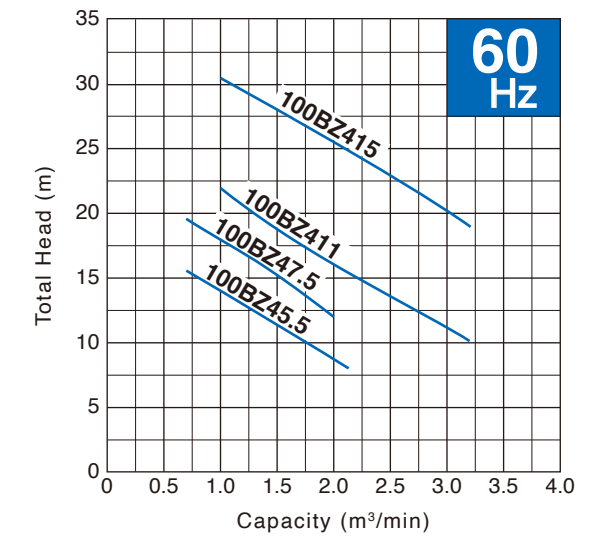
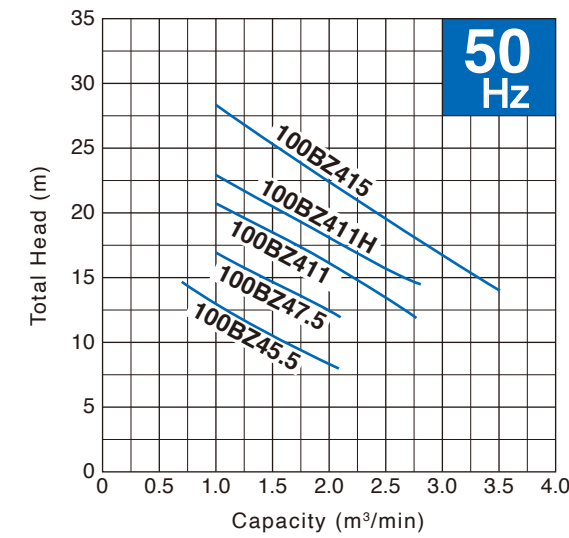
Discharge Bore: 80 · 100 · 200mm

## Performance Curves

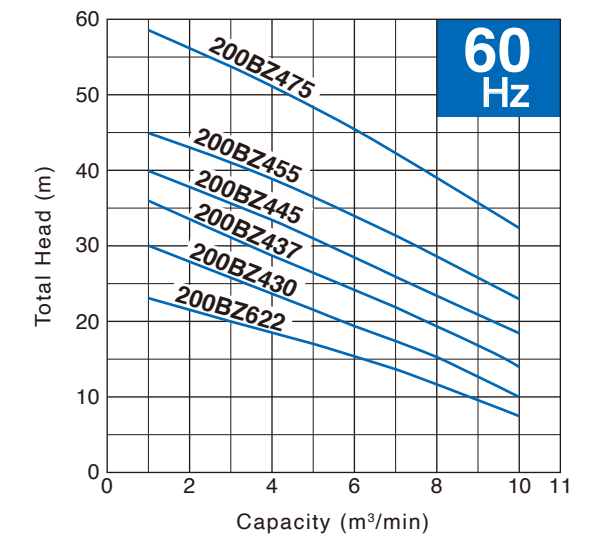
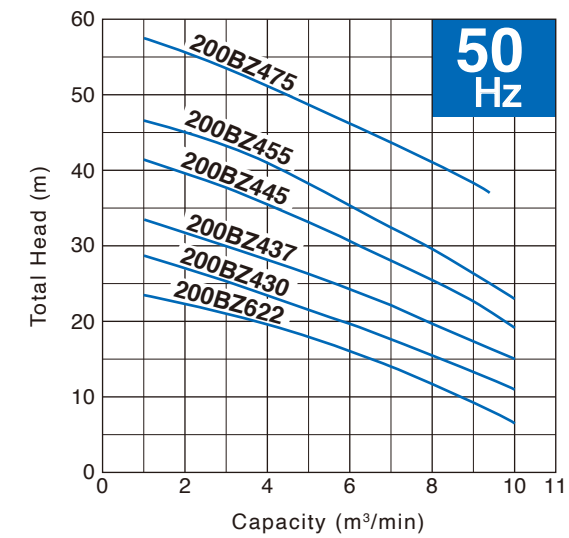
< 80 · 100mm (3.7kW and below) >



< 100mm (5.5–15kW) >



< 200mm >



Discharge Bore mm	Model		Motor Output kW	Phase	Starting Method	Solids Passage mm	Dimensions L x W x H*1 50/60Hz mm		Dry Weight**2 kg		Cable Length m
	Free Standing	Guide Rail Fitting					Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
80	80BZ41.5	TOS80BZ41.5	1.5	Three	D.O.L.	80	523 x 273 x 631	697 x 273 x 646	78	74	6
100	100BZ42.2	TOS100BZ42.2	2.2		D.O.L.	80	551 x 273 x 631	709 x 273 x 646	80	74	6
	100BZ43.7	TOS100BZ43.7	3.7		D.O.L.	80	585 x 289 x 681	743 x 289 x 696	100	94	6
	100BZ45.5	TOS100BZ45.5	5.5		D.O.L.	80	716 x 421 x 924	935 x 406 x 914	168	161	8
	100BZ47.5	TOS100BZ47.5	7.5		D.O.L.	80	716 x 421 x 945	935 x 406 x 935	179	172	8
	100BZ411	TOS100BZ411	11		Star-Delta	80	727 x 431 x 1023	946 x 428 x 1016	214	207	8
	100BZ411H (50Hz)	TOS100BZ411H (50Hz)	11		Star-Delta	80	727 x 431 x 1023	946 x 428 x 1016	214	207	8
	100BZ415	TOS100BZ415	15		Star-Delta	80	845 x 526 x 1160/ 770 x 444 x 1093	1044 x 494 x 1074/ 989 x 444 x 1081	308	293	8
200	200BZ622	TO200BZ622	22		Star-Delta	76.2	1208 x 760 x 1584	1459 x 660 x 1494	760	710	10
	200BZ430	TO200BZ430	30		Star-Delta	76.2	1208 x 760 x 1504	1459 x 660 x 1409	780	730	10
	200BZ437	TO200BZ437	37		Star-Delta	76.2	1208 x 760 x 1577	1459 x 660 x 1482	830	780	10
	200BZ445	TO200BZ445	45		Star-Delta	76.2	1208 x 760 x 1584	1459 x 660 x 1494	840	790	10
	200BZ455	TO200BZ455	55		Star-Delta	76.2	1208 x 760 x 1736	1461 x 660 x 1646	1340	1290	10
	200BZ475	TO200BZ475	75		Star-Delta	76.2	1208 x 760 x 1736	1461 x 660 x 1646	1340	1290	10

\*1 Refer to page 11 for dimension symbol positions.

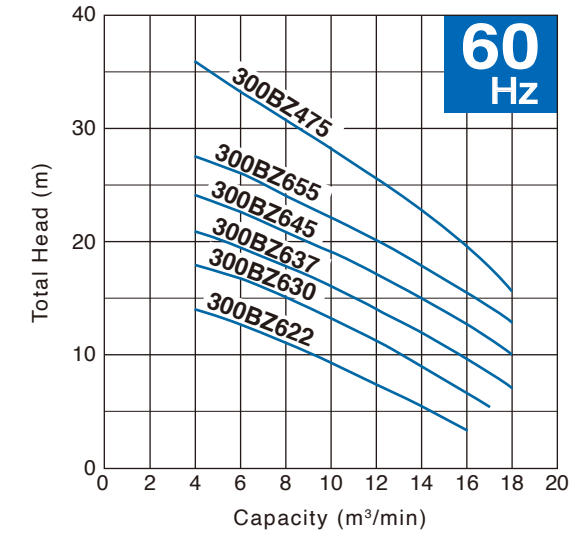
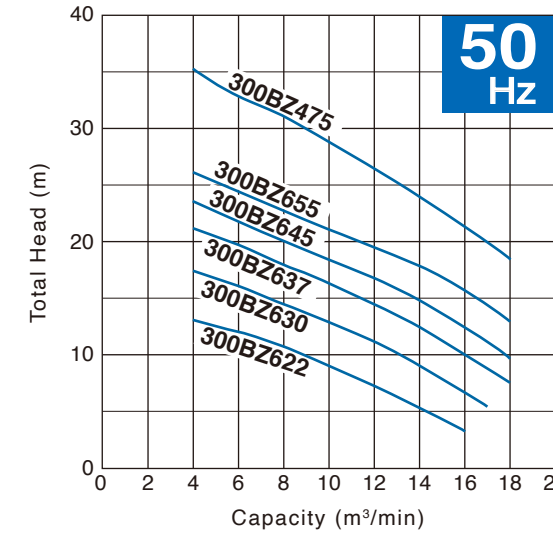
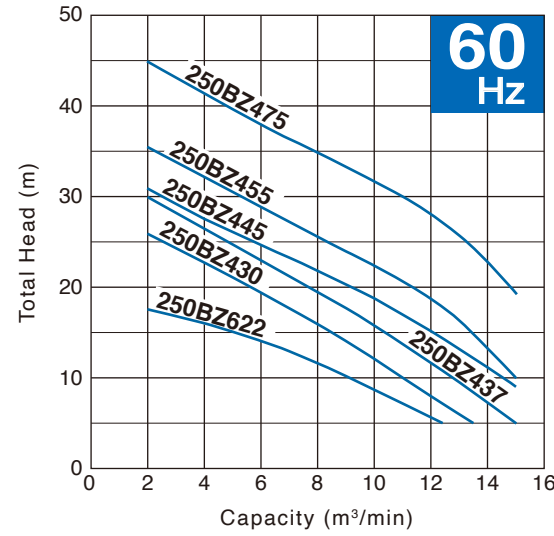
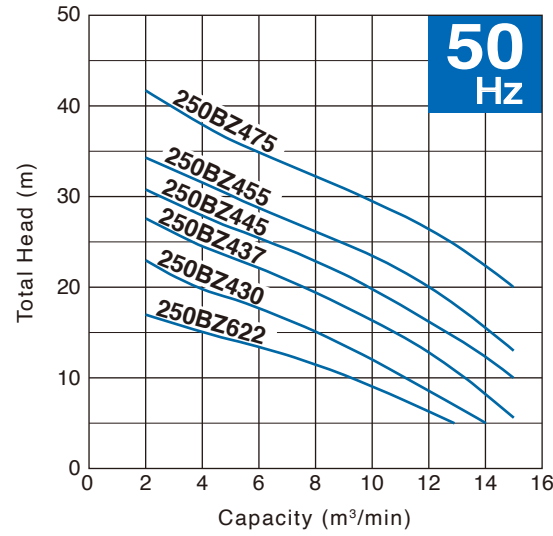
\*\* All weights excluding cable  
Weights of guide rail fitting excluding duckfoot bend

Performance Curves

Performance Curves

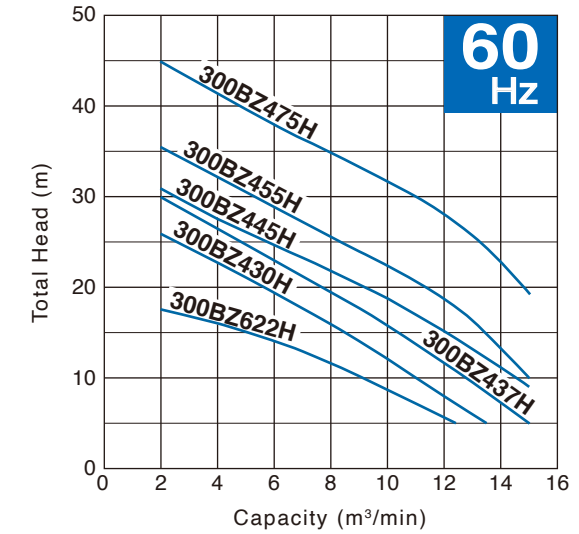
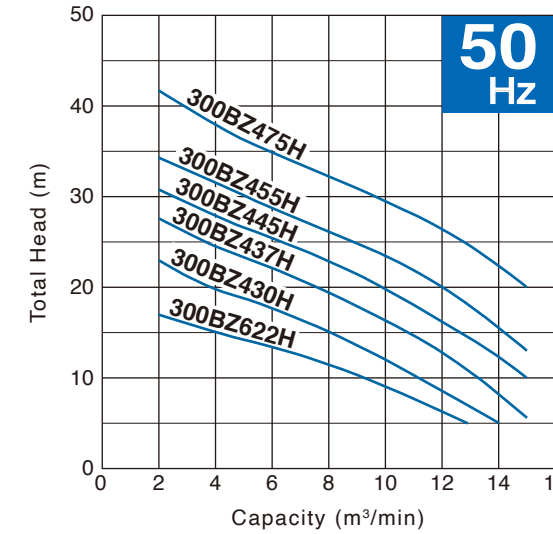
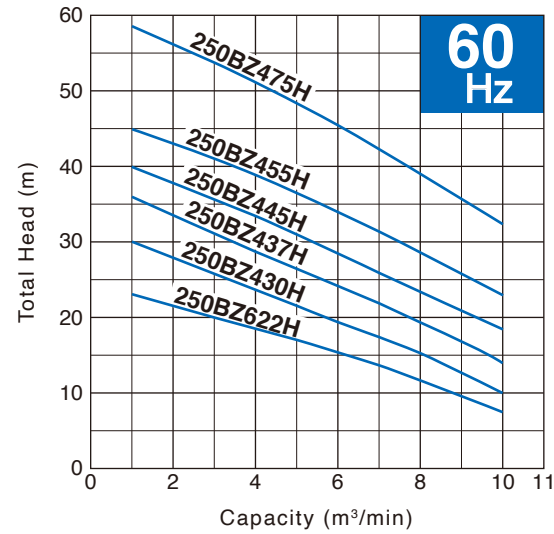
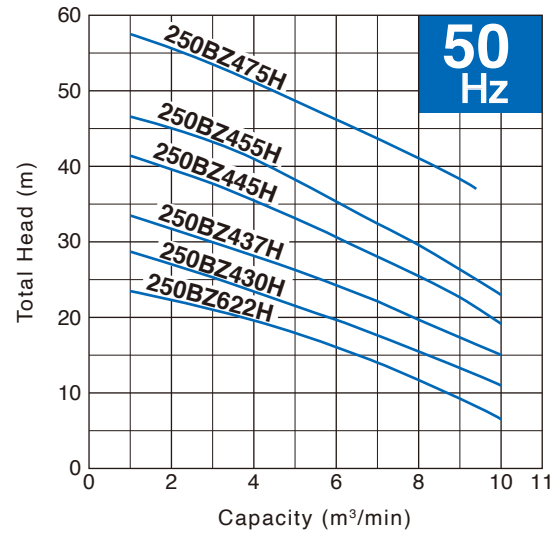
< 250mm >

< 300mm >



< 250mm -High Head- >

< 300mm -High Head- >



Discharge Bore mm	Model		Motor Output kW	Phase	Starting Method	Solids Passage 50/60Hz mm	Dimensions L x W x H*1 mm		Dry Weight*2 kg		Cable Length m
	Free Standing	Guide Rail Fitting					Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
250	250BZ622	TO250BZ622	22	Three	Star-Delta	90/80	1235 x 724 x 1650	1486 x 616 x 1514	810	760	10
	250BZ430	TO250BZ430	30		Star-Delta	80/79	1235 x 724 x 1570	1486 x 616 x 1434	830	780	10
	250BZ437	TO250BZ437	37		Star-Delta	80/79	1235 x 724 x 1643	1486 x 616 x 1507	880	830	10
	250BZ445	TO250BZ445	45		Star-Delta	80/79	1235 x 724 x 1650	1486 x 616 x 1514	890	840	10
	250BZ455	TO250BZ455	55		Star-Delta	90/80	1235 x 724 x 1802	1519 x 636 x 1666	1390	1290	10
	250BZ475	TO250BZ475	75		Star-Delta	90/80	1235 x 724 x 1802	1519 x 636 x 1666	1390	1290	10
250 -High Head-	250BZ622H	TO250BZ622H	22	Three	Star-Delta	76.2	1313 x 760 x 1584	1577 x 660 x 1467	760	710	10
	250BZ430H	TO250BZ430H	30		Star-Delta	76.2	1313 x 760 x 1504	1577 x 660 x 1387	780	730	10
	250BZ437H	TO250BZ437H	37		Star-Delta	76.2	1313 x 760 x 1577	1577 x 660 x 1460	830	780	10
	250BZ445H	TO250BZ445H	45		Star-Delta	76.2	1313 x 760 x 1584	1577 x 660 x 1467	840	790	10
	250BZ455H	TO250BZ455H	55		Star-Delta	76.2	1313 x 760 x 1736	1579 x 660 x 1619	1340	1290	10
	250BZ475H	TO250BZ475H	75		Star-Delta	76.2	1313 x 760 x 1736	1579 x 660 x 1619	1340	1290	10

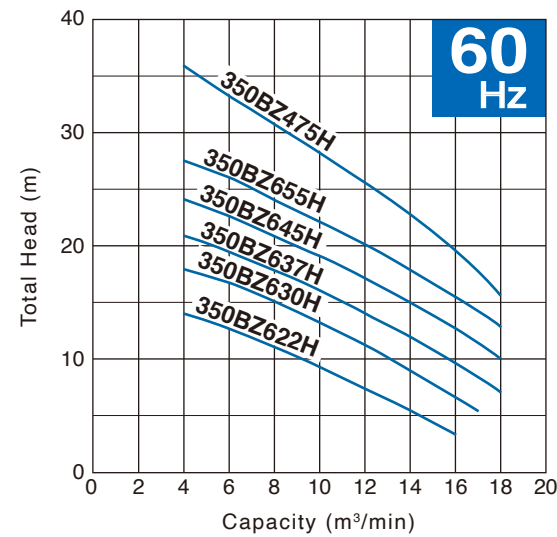
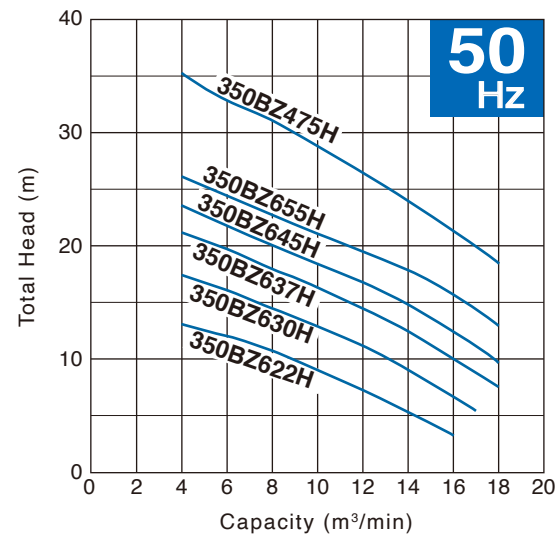
Discharge Bore mm	Model		Motor Output kW	Phase	Starting Method	Solids Passage 50/60Hz mm	Dimensions L x W x H*1 mm		Dry Weight*2 kg		Cable Length m
	Free Standing	Guide Rail Fitting					Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
300	300BZ622	TO300BZ622	22	Three	Star-Delta	90	1386 x 800 x 1677	1674 x 658 x 1550	910	810	10
	300BZ630	TO300BZ630	30		Star-Delta	90	1386 x 800 x 1677	1674 x 658 x 1550	950	800	10
	300BZ637	TO300BZ637	37		Star-Delta	90	1386 x 800 x 1677	1674 x 658 x 1550	940	840	10
	300BZ645	TO300BZ645	45		Star-Delta	90	1386 x 800 x 1845	1691 x 680 x 1718	1210	1110	10
	300BZ655	TO300BZ655	55		Star-Delta	90	1386 x 800 x 1845	1691 x 680 x 1718	1210	1110	10
	300BZ475	TO300BZ475	75		Star-Delta	90	1386 x 800 x 1829	1674 x 680 x 1702	1240	1140	10
300 -High Head-	300BZ622H	TO300BZ622H	22	Three	Star-Delta	90/80	1288 x 724 x 1650	1580 x 616 x 1537	810	760	10
	300BZ430H	TO300BZ430H	30		Star-Delta	80/79	1288 x 724 x 1570	1580 x 616 x 1457	830	780	10
	300BZ437H	TO300BZ437H	37		Star-Delta	80/79	1288 x 724 x 1643	1580 x 616 x 1530	880	830	10
	300BZ445H	TO300BZ445H	45		Star-Delta	80/79	1288 x 724 x 1650	1580 x 616 x 1537	890	840	10
	300BZ455H	TO300BZ455H	55		Star-Delta	90/80	1288 x 724 x 1802	1613 x 616 x 1689	1390	1290	10
	300BZ475H	TO300BZ475H	75		Star-Delta	90/80	1288 x 724 x 1802	1613 x 616 x 1689	1390	1290	10

\*\* Refer to page 11 for dimension symbol positions. \*\* All weights excluding cable  
Weights of guide rail fitting excluding duckfoot bend

\*\* Refer to page 11 for dimension symbol positions. \*\* All weights excluding cable  
Weights of guide rail fitting excluding duckfoot bend

Performance Curves

< 350mm -High Head- >

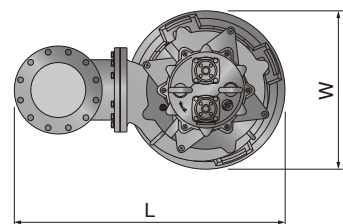


Discharge Bore mm	Model		Motor Output kW	Phase	Starting Method	Solids Passage mm	Dimensions L x W x H mm		Dry Weight* kg		Cable Length m
	Free Standing	Guide Rail Fitting					Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
350 -High Head-	350BZ622H	TO350BZ622H	22	Three	Star-Delta	90	1508 x 800 x 1677	1749 x 658 x 1595	910	810	10
	350BZ630H	TO350BZ630H	30		Star-Delta	90	1508 x 800 x 1677	1749 x 658 x 1595	950	800	10
	350BZ637H	TO350BZ637H	37		Star-Delta	90	1508 x 800 x 1677	1749 x 658 x 1595	940	840	10
	350BZ645H	TO350BZ645H	45		Star-Delta	90	1508 x 800 x 1845	1749 x 680 x 1763	1210	1110	10
	350BZ655H	TO350BZ655H	55		Star-Delta	90	1508 x 800 x 1845	1749 x 680 x 1763	1210	1110	10
	350BZ475H	TO350BZ475H	75		Star-Delta	90	1508 x 800 x 1829	1749 x 680 x 1747	1240	1140	10

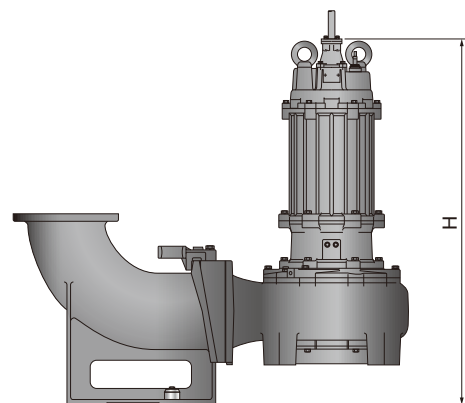
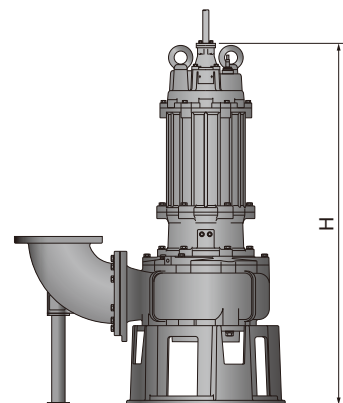
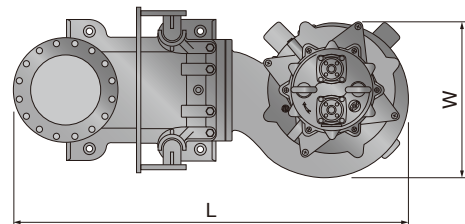
\* All weights excluding cable  
Weights of guide rail fitting excluding duckfoot bend

Dimensions

Free Standing



Guide Rail Fitting



Specifications

		BZ							
		80BZ41.5	100BZ42.2	100BZ43.7	100BZ45.5	100BZ47.5	100BZ411	100BZ411H (50Hz)	100BZ415
PUMP	Discharge Bore mm	80	100						
	Discharge Connection	Threaded JIS 10kg/cm <sup>2</sup> Flange							
	Solids Passage 50/60Hz mm	80							
	Impeller	Shrouded Single-channel							
		Radial Gap	Axial Gap						
	Suction Cover	Gray Cast Iron							
	Oil Seal	Nitrile Butadiene Rubber							
	Casing	Gray Cast Iron							
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)							
	Shaft Sleeve	Silicon Carbide							
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor							
	Output kW	1.5	2.2	3.7	5.5	7.5	11	15	
	Phase	Three							
	Pole	4							
	Speed (S.S.) 50/60Hz min <sup>-1</sup>	1500/1800						1500/—	1500/1800
	Insulation	E			F				
	Starting Method	D.O.L.					Star-Delta		
	Motor Protector (built-in)	CTP					MTP		
	Leakage Sensor (built-in)	—							
	Lubricant ml	1300	4200	4800	6500	5500	Turbine Oil (ISO VG32)		
Frame	Gray Cast Iron								
Outor Cover	—								
Shaft	420 Stainless Steel								
Power Cable m	6			8					
	PVC			Chloroprene Rubber					
Dry Weight*	Free Standing kg	78	80	100	168	179	214	308	
	Guide Rail Fitting kg	74		94	161	172	207	293	

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

# Specifications

		BZ						BZ												
		200BZ622 250BZ622H	200BZ430 250BZ430H	200BZ437 250BZ437H	200BZ445 250BZ445H	200BZ455 250BZ455H	200BZ475 250BZ475H	250BZ622 300BZ622H	250BZ430 300BZ430H	250BZ437 300BZ437H	250BZ445 300BZ445H	250BZ455 300BZ455H	250BZ475 300BZ475H	300BZ622 350BZ622H	300BZ630 350BZ630H	300BZ637 350BZ637H	300BZ645 350BZ645H	300BZ655 350BZ655H	300BZ475 350BZ475H	
PUMP	Discharge Bore mm	200 250						250 300						300 350						
	Discharge Connection	JIS 10kg/cm <sup>2</sup> Flange						JIS 10kg/cm <sup>2</sup> Flange												
	Solids Passage 50/60Hz mm	76.2						90/80	80/79			90/80			90					
	Impeller	Shrouded Two-channel	Shrouded Two-channel																	
		Radial Gap	Radial Gap																	
		Gray Cast Iron	Gray Cast Iron																	
	Suction Cover	Gray Cast Iron						Gray Cast Iron												
	Oil Seal	Nitrile Butadiene Rubber						Nitrile Butadiene Rubber												
	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																		
Shaft Sleeve	304 Stainless Steel			403 Stainless Steel			304 Stainless Steel			403 Stainless Steel			304 Stainless Steel			403 Stainless Steel				
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor						Continuous-duty Rated, Dry-type Induction Motor												
	Output kW	22	30	37	45	55	75	22	30	37	45	55	75	22	30	37	45	55	75	
	Phase	Three						Three												
	Pole	6	4			6						4			6			4		
	Speed (S.S.) 50/60Hz min <sup>-1</sup>	1000/1200	1500/1800				1000/1200	1500/1800				1000/1200			1500/1800					
	Insulation	F						F												
	Starting Method	Star-Delta						Star-Delta												
	Motor Protector (built-in)	MTP						MTP												
	Leakage Sensor (built-in)	Electrode						Electrode												
	Lubricant ml	9500			9400			9500			9400			9500			11000	13000	9400	
		Turbine Oil (ISO VG32)						Turbine Oil (ISO VG32)												
	Frame	Gray Cast Iron						Gray Cast Iron												
	Outor Cover	—			Rolled Steel			—			Rolled Steel			—			Rolled Steel			
	Shaft	420 Stainless Steel						420 Stainless Steel												
	Power Cable m	10						10												
Chloroprene Rubber						Chloroprene Rubber														
Dry Weight*	Free Standing kg	760	780	830	840	1340		810	830	880	890	1390		910	950	940	1210		1240	
	Guide Rail Fitting kg	710	730	780	790	1290		760	780	830	840	1290		810	800	840	1110		1140	

\* 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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