



## **SUBMERSIBLE DEWATERING PUMPS for MINING APPLICATION**

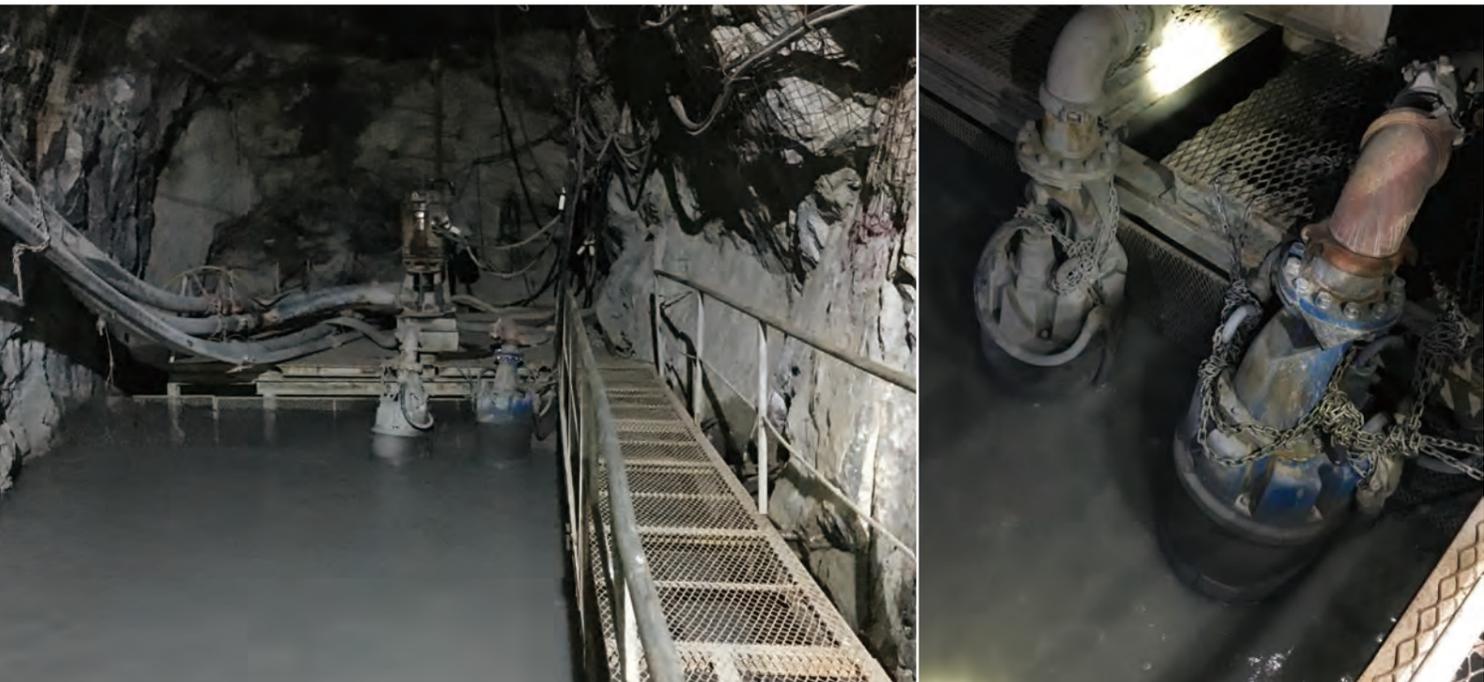


# Submersible Dewatering Pumps for Mining Application

Tsurumi's submersible dewatering pumps for mining application are original design pumps engineered in Japan. The lineup features three types in the KTZ-series for general drainage applications, LH/LH-W-series for high head drainage applications and GPN-series for slurries. All of these pumps come standard with anti-wicking cables, motor protectors and inside mechanical seals with silicon carbide faces.

Moreover, since moving water in mining applications often requires 1000V rated voltage pumps, Tsurumi can manufacture its submersible pumps to rated voltages between 380 - 1000V. The pumps for mining application are equipped with screened cables and motor incorporated with built-in diodes for ground fault checks, therefore they meet mining safety regulations. Furthermore, because Tsurumi deals in motors and pumps of this power class, it has equipment for testing 1000V power supply units and motors in-house.

Tsurumi places top priority on designing its pumps for continuous duty via outstanding durability, maintainability and reliability that promise stable operation in harsh environments. To improve durability and maintainability for the heavy-duty requirements posed by the mining market, Tsurumi has acquired a wide array of technologies and know-how through repeated testing in both the lab and field under severe conditions. Moreover, Tsurumi has put its extensive experience and know-how into developing products to withstand the high temperature liquids and corrosive liquids that characterize mining applications, therefore contact a Tsurumi dealer with your needs.



## Selection Table

		Drainage			Slurry
		KTZ	LH	LH-W	GPN
Discharge Bore	mm	50 - 150	100 - 200	80 · 100	100 · 150
Motor Output	kW	2.2 - 22	22 - 110	11 - 110	11 · 22
Discharge Connection		Multi-directional BSPT Male Threaded Coupling	BSPT Female Threaded JIS 10/20kg/cm <sup>2</sup> Flange		Hose Coupling
Discharge Design		Top Discharge, Side Flow Design	Top Discharge, Flow-thru Design		Side Discharge with Water Jacket
Feature		<b>Heavy-Duty</b>	<b>High Head (Single Impeller)</b>	<b>Extra High Head (Dual Impellers)</b>	<b>Agitator</b>
Applicable Voltage		380 - 1000V			

### KTZ

Flagship line of numerous general-purpose drainage pumps, with heavy-duty specifications that begin with a high-chromium cast iron impeller.



### LH (Single Impeller)

### LH-W (Dual Impellers)

High head drainage pumps of slim body that demonstrate their effectiveness in the limited space of underground mining. The LH-W-series is equipped with dual closed impellers for applications that require extra high head.



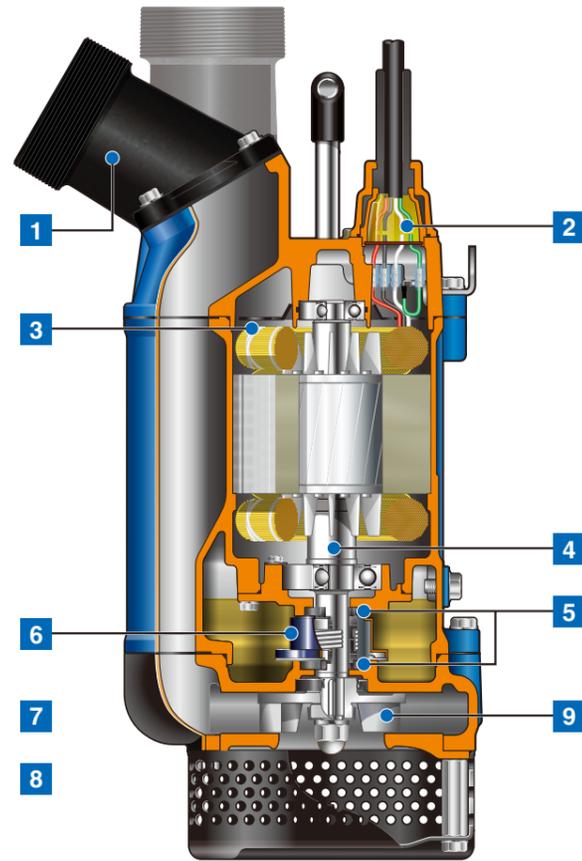
### GPN

High powered slurry pumps with agitator. The impeller, suction plate and agitator are made of high-chromium cast iron and mounted of a shaft made of strong, hard chromium molybdenum steel, therefore the pump can handle slurries laden with silt, earth, sand or other particulate.

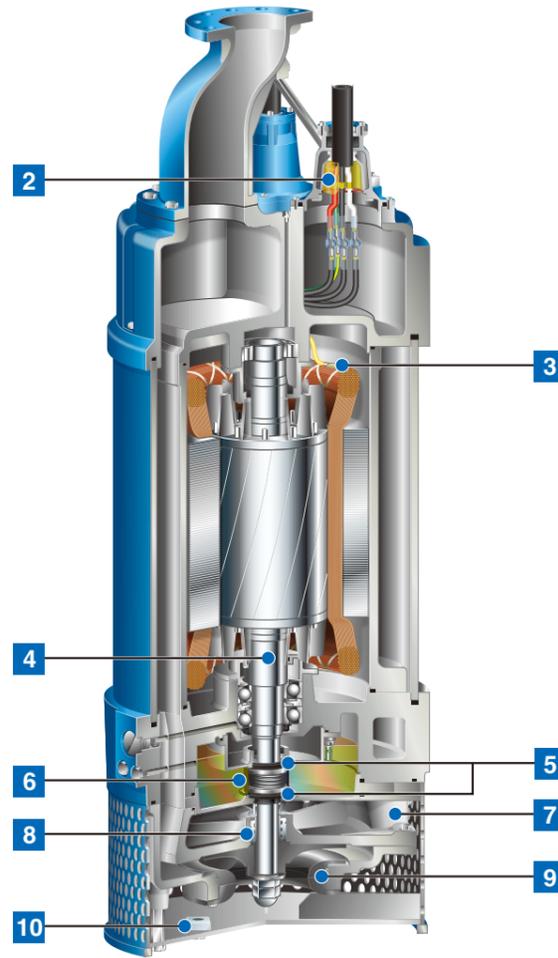


## Drainage Pumps

Model  
**KTZ43.7**

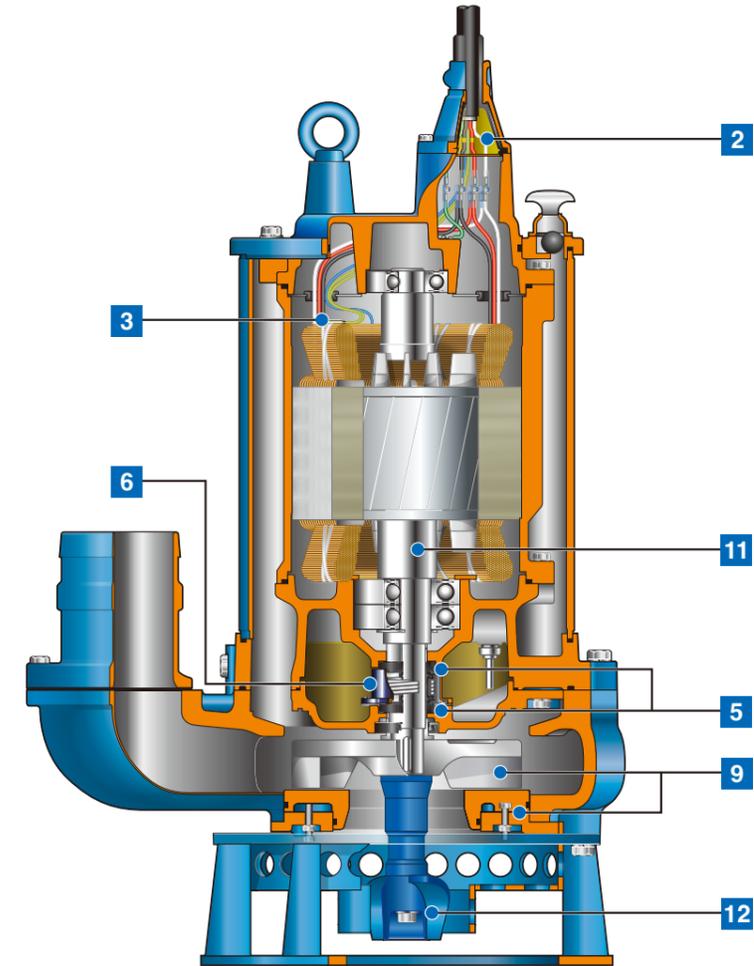


Model  
**LH8110**



## Slurry Pumps

Model  
**GPN622**



**1 Multi-directional Hose Coupling (KTZ)**

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

**2 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.

**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. For details, refer to the electrical diagram.

**4 Shaft (KTZ, LH/LH-W)**

Quenching treatment is applied to parts that contact particles in pumped fluids and whose mechanical seal may wear out, to enhance surface hardness and extend shaft service life.

**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 Seal Pressure Relief Ports (KTZ 7.5kW and above, LH/LH-W)**

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

**8 Labyrinth Ring (KTZ 7.5kW and above, LH/LH-W)**

Equipped to provide a better countermeasure against wear caused by high pressure generated in the casing and improve the maintainability.

**9 High-chromium Cast Iron Impeller (KTZ)**

**High-chromium Cast Iron Impeller & Mouth Ring (LH/LH-W)**

**High-chromium Cast Iron Impeller & Suction Plate (GPN)**

Resists wear caused by abrasive particles and enables the pump to maintain its original performance for an extended period of time.

- LH: Single impeller LH-W: Dual impellers
- GPN422/622 have an adjustable suction plate.

**10 Galvanic Anodes (LH/LH-W)**

Protect the pump against corrosive potential generated during the drainage of wastewater.

**11 Chromium Molybdenum Shaft (GPN)**

Made of SCM435 (JIS), chromium molybdenum steel (tensile strength 930 N/mm<sup>2</sup> and over). It has the superior performance against a shock given at the instant of sucking hard foreign matters.

**12 Agitating Mechanism (GPN)**

Consists of a shaft-mounted agitator and a dedicated strainer. The agitator made of high-chromium cast iron resists wear caused by abrasive particles, and it suspends solids to assist in pumping sediments in combination with the strainer.

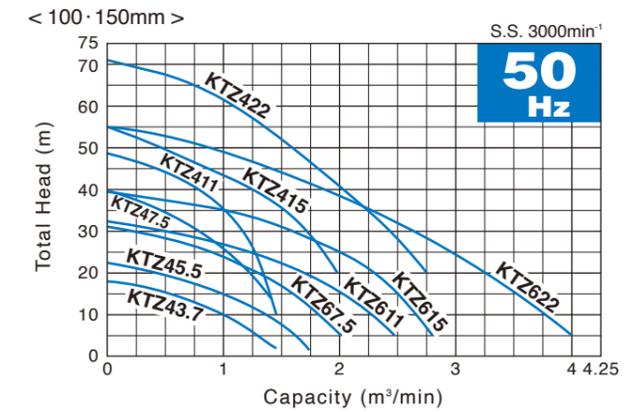
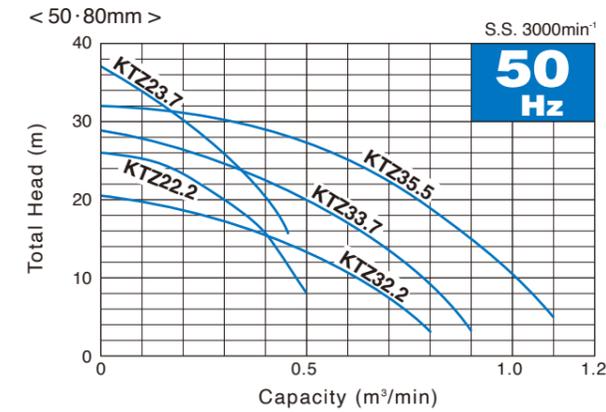
# Model Selection

Model	Discharge Bore mm	Motor Output kW	Starting Method	Solids Passage mm	Dimensions L x W x H mm	Dry Weight kg	Cable Length m	
<b>KTZ</b> -Drainage-	KTZ22.2	50	2.2	D.O.L.	8.5	261 x 216 x 668	36	20
	KTZ23.7	50	3.7	D.O.L.	8.5	338 x 252 x 667	62	20
	KTZ32.2	80	2.2	D.O.L.	8.5	268 x 216 x 668	35	20
	KTZ33.7	80	3.7	D.O.L.	8.5	353 x 252 x 677	62	20
	KTZ35.5	80	5.5	D.O.L.	8.5	363 x 258 x 721	76	20
	KTZ43.7	100	3.7	D.O.L.	8.5	368 x 252 x 687	62	20
	KTZ45.5	100	5.5	D.O.L.	8.5	379 x 258 x 731	77	20
	KTZ47.5	100	7.5	D.O.L.	12	401 x 314 x 809	104	20
	KTZ411	100	11	D.O.L.	12	408 x 350 x 836	133	20
	KTZ415	100	15	D.O.L.	12	408 x 350 x 906	146	20
	KTZ422	100	22	D.O.L.	8.5	508 x 413 x 1172	295	20
	KTZ67.5	150	7.5	D.O.L.	20	394 x 314 x 839	103	20
	KTZ611	150	11	D.O.L.	20	438 x 350 x 856	133	20
	KTZ615	150	15	D.O.L.	20	438 x 350 x 926	146	20
KTZ622	150	22	D.O.L.	12	539 x 413 x 1192	296	20	
<b>LH</b> -High Head- (Single Impeller)	LH422	100	22	D.O.L.	6	420 x 420 x 1352	350	20
	LH622	150	22	D.O.L.	12	420 x 420 x 1423	360	20
	LH637	150	37	D.O.L.	6	530 x 530 x 1448	495	20
	LH645	150	45	D.O.L.	6	530 x 530 x 1448	510	20
	LH6110	150	110	D.O.L.	10	616 x 592 x 1887	1210	20
	LH837	200	37	D.O.L.	20	530 x 530 x 1488	495	20
	LH845	200	45	D.O.L.	20	530 x 530 x 1488	510	20
	LH8110	200	110	D.O.L.	20	616 x 592 x 1887	1210	20
<b>LH-W</b> -Extra High Head- (Dual Impellers)	LH311W	80	11	D.O.L.	8.5	270 x 270 x 1024	130	20
	LH430W	100	30	D.O.L.	8.5	330 x 330 x 1375	324	20
	LH4110W	100	110	D.O.L.	8	616 x 592 x 1825	1270	20
<b>GPN</b> -Slurry-	GPN411	100	11	D.O.L.	30	617 x 452 x 924	239	20
	GPN422	100	22	D.O.L.	30	725 x 572 x 1102	410	20
	GPN622	150	22	D.O.L.	30	725 x 572 x 1102	415	20

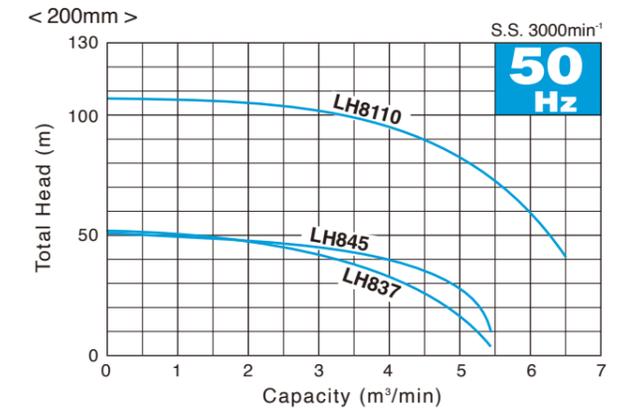
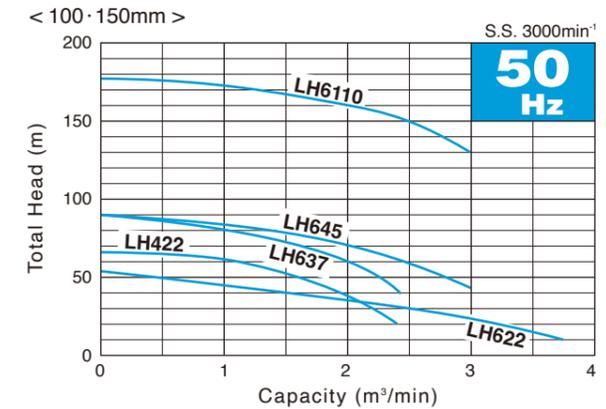
\* Weights excluding cable

# Performance Curves

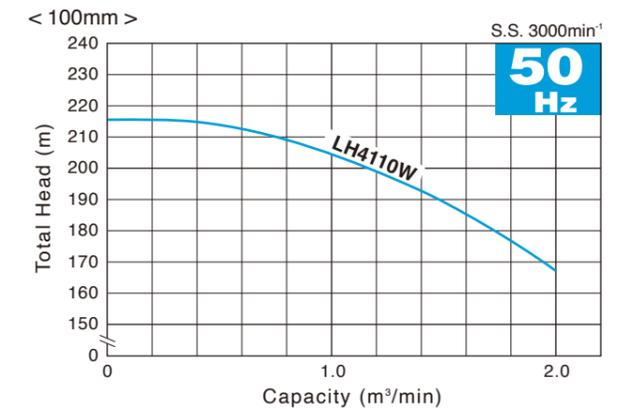
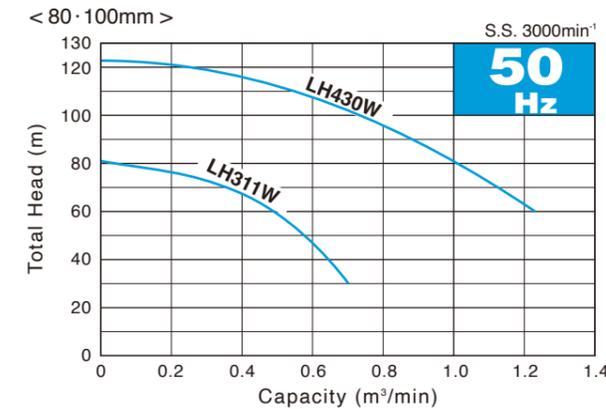
## KTZ -Drainage-



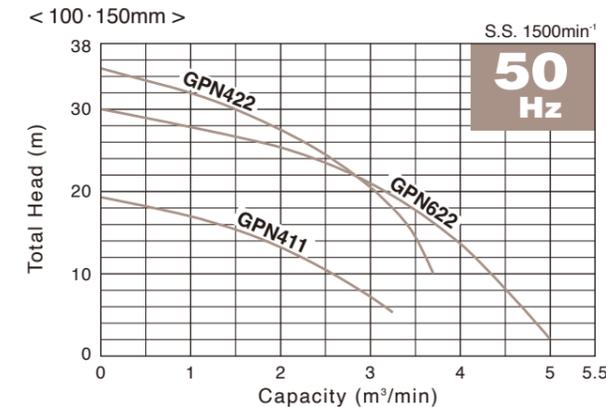
## LH -High Head (Single Impeller)-



## LH-W -Extra High Head (Dual Impellers)-



## GPN -Slurry-



## Seawater-Resistant Pumps

Tsurumi's standard pumps can be combined with a seawater-resistant kit (optional) that features a "galvanic anode" and "seawater-resistant special cast iron impeller," for use as submersible seawater-resistant pumps. These pumps have been designed for an expected service life of about two years. (The service life depends on operating conditions.) For details, refer to the Seawater-Resistant Pumps catalog [IB115] or access to our website.





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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