



LH - SERIES DEWATERING PUMP

SPECIFICATIONS

■ FEATURES

1. Semi-open, high chrome iron impeller with replaceable / adjustable high chrome Iron wear rings, increases wear resistance, when pumpage contains abrasive particles.
2. Double inside mechanical seals with silicon carbide faces, (both top and bottom) running in an oil filled chamber and further protected by a lip seal running against a replaceable, 430 stainless steel shaft sleeve, provides for the most durable seal design available.
3. Highly efficient, continuous duty air filled, copper wound motor with class B, F insulation minimizes the cost of operation.
4. Built in thermal & amperage sensing protector prevents motor failure due to

overloading or accidental run -dry conditions.

5. Double shielded, permanently lubricated, high temperature C3 ball bearings rated for a B-10 life of 60,000 hours, extend operational life.
6. Top discharge, flow-thru design enables operation at low water levels for extended periods.

■ APPLICATIONS

1. Commercial, industrial wastewater and construction site drainage.
2. Effluent transfer.
3. Decorative waterfalls and fountains.
4. Raw water supply from rivers or lakes.



■ SPECIFICATIONS

Discharge Size
 Horsepower Range
 Performance Range Capacity
 Head
 Maximum water temperature
 Materials of Construction
 Casing
 Impeller
 Shaft
 Motor Frame
 Fasteners
 Seal Pressure Relief Ports
 Mechanical Seal
 Elastomers
 Impeller Type
 Solids Handling Capability

 Bearings

 Motor Nomenclature
 Type, Speed, Hz.
 Voltage, Phase
 Insulation

 Accessories

 Operational Mode

■ STANDARD

3" ~ 8" NPT (80 mm ~ 200 mm)
 4 ~ 150 HP. (3 ~ 110 Kw)
 26.4 ~ 1717.0 GPM. (0.1 ~ 6.5 m³/min)
 20.5 ~ 604.0 Ft. (6.25 ~ 184.1m)
 104° F. (40° C.)

 Cast Iron , Ductile Cast Iron
 High Chrome Cast Iron
 420 Stainless Steel
 Cast Iron
 304 Stainless Steel
 50 - 150HP (37 - 110 kW)
 Silicon Carbide
 NBR (Nitrile Butadiene Rubber)
 Semi-open, solids handling.
 0.236 - 0.787" (6 - 20mm)

 Prelubricated, Double Shielded

 Air Filled, 3600 RPM, 60 Hz.
 208/230/460/575 V., 3 Phase.
 Class B , F

 Submersible Power Cable
 50 - 65' (15 - 20m)

 Manual

■ OPTIONS

Length as Required.

 TS-303 Float Switch

High volume, high head performance for mining & large scale tunneling work



Submersible High Volume and High Head Drainage Pumps

LH-D SERIES

LH10110D: 150HP

LH12185D: 250HP

The **LH-D Series** are submersible pumps with 2-pole / 150-250HP motors, on which a double suction impeller is mounted to deliver assured performance in high volume, high head applications. These pumps were developed based on Tsurumi's LH Series that has built a long-standing name and reputation as a quality line of submersible high head drainage pumps in the mining and construction fields. With a maximum capacity of 3,700GPM and maximum head of 310ft., the LH10110D and LH12185D meet the needs of open-pit / underground mining, heap leaching and large-scale tunneling work.

The biggest feature of these pumps is that they powerfully draw large volume of water from both upper and lower sides of the double suction impeller. This reduces thrust load, which extends the service-life of bearings and increases the stability of pumping operations. Moreover, in order to stand up to harsh conditions of use, the impeller and suction mouth are made of wear-resistant high-chromium cast iron.



Features

1 Anti-wicking Cable Entry and Inspection Window

The anti-wicking cable prevents water incursion due to capillary action should the cable sheath be damaged or the end of cable submerged. The pump is additionally equipped with an inspection window at the bottom of the stuffing box that facilitates cable maintenance.

2 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. The silicon carbide boards on the seal faces provide 5 times higher corrosion, wear and heat resistance than the tungsten carbide.

3 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.

4 Leakage Sensors (Electrode and Float Type)

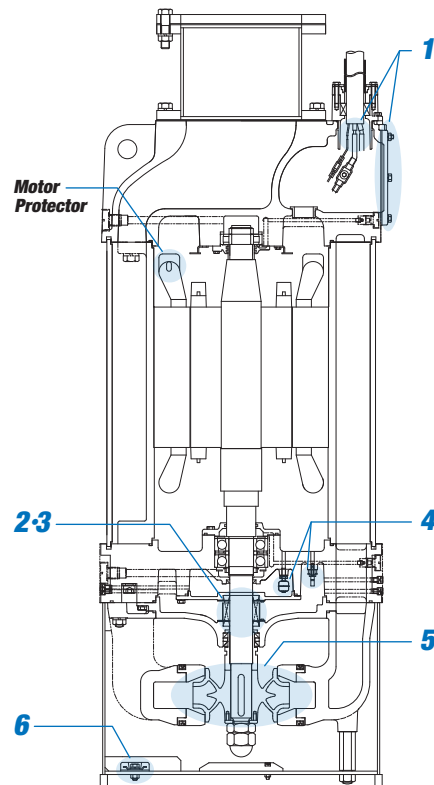
Detects flooding into the incursion water storage chamber and oil chamber that may occur in a worst case scenario. When flooding is detected, signals are sent to operate the indicator lamps through the external control panel.

5 Double Suction Impeller

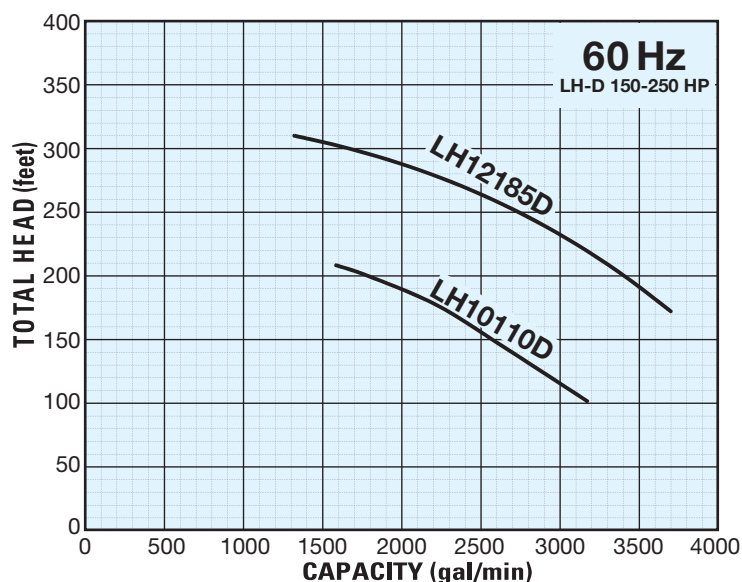
With its high efficiency suction mechanism, the double suction impeller enables higher volume performance. It also reduces the thrust load, which extends the service-life of bearings and increases the stability of pumping operations.

6 Galvanic Anodes

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



Performance Curves



Model Selection

Discharge Bore inch	Model	Motor Output HP	Phase	Pole	Starting Method	Solids Passage inch	Dimensions L x W x H inch	Pump Dry Weight without cable lbs	Cable Length ft
10	LH10110D	150	Three	2-pole	Star-Delta	0.787	27.5 x 27.3 x 73	3196	65
12	LH12185D	250	Three	2-pole	Star-Delta	0.787	30.4 x 29.3 x 79	4299	65

Product images and specifications may differ from actual products due to improvements



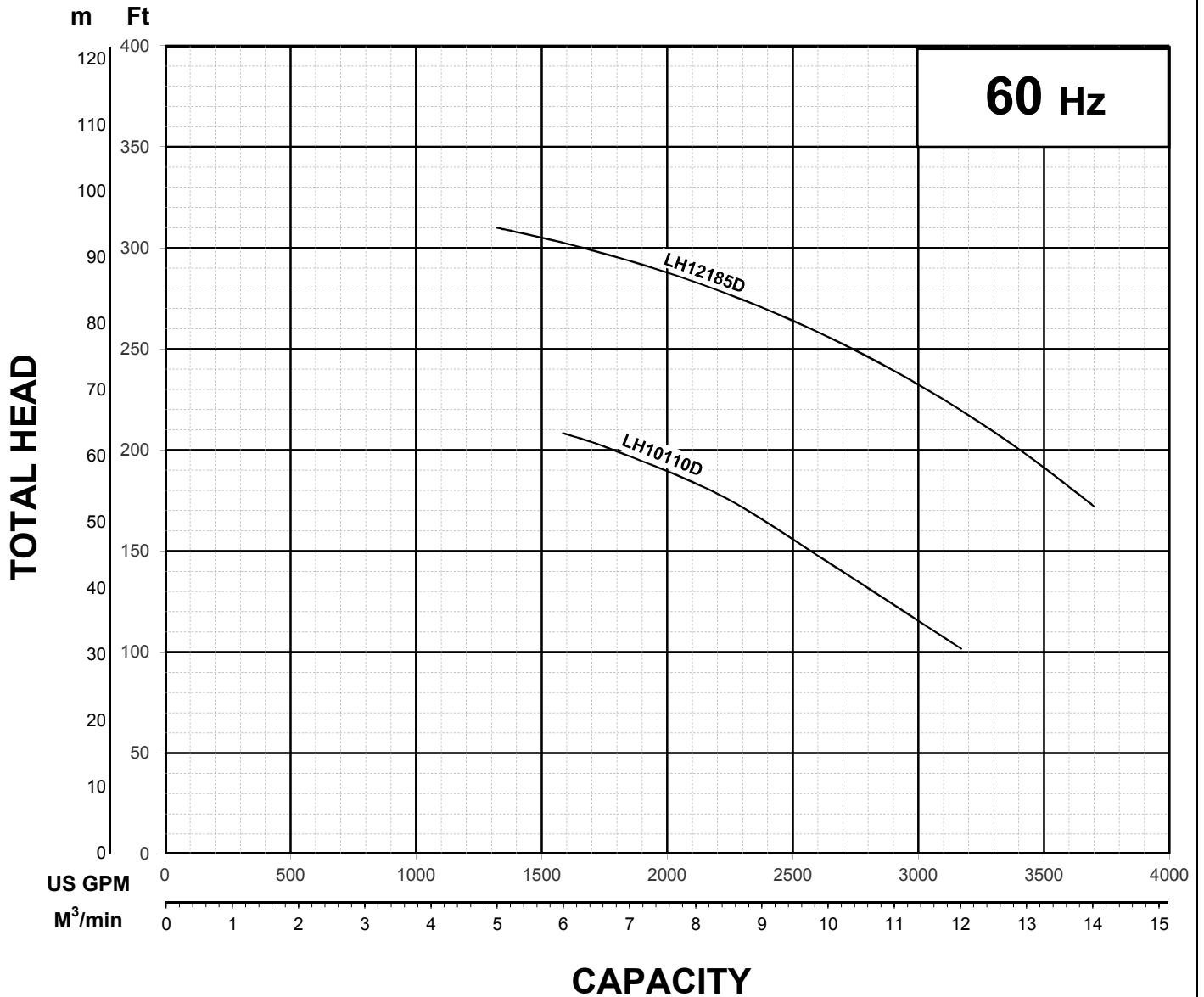
TSURUMI (AMERICA), INC.
 Headquarters: 1625 Fullerton Ct, Glendale Heights, IL 60139
 Utah Office: 6216 West 9790 South, West Jordan, UT 84081
 Tel: 1-888-878-7864 (Toll-Free) • 1-630-793-0127
 Fax: 1-630-793-0146 • www.tsurumipump.com



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GROUP PERFORMANCE RANGE



Note

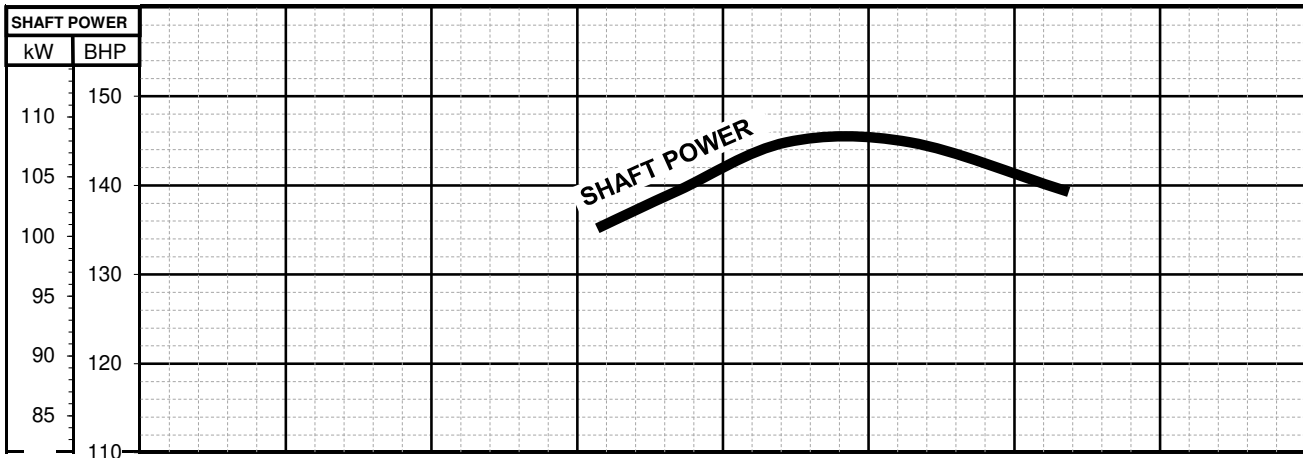
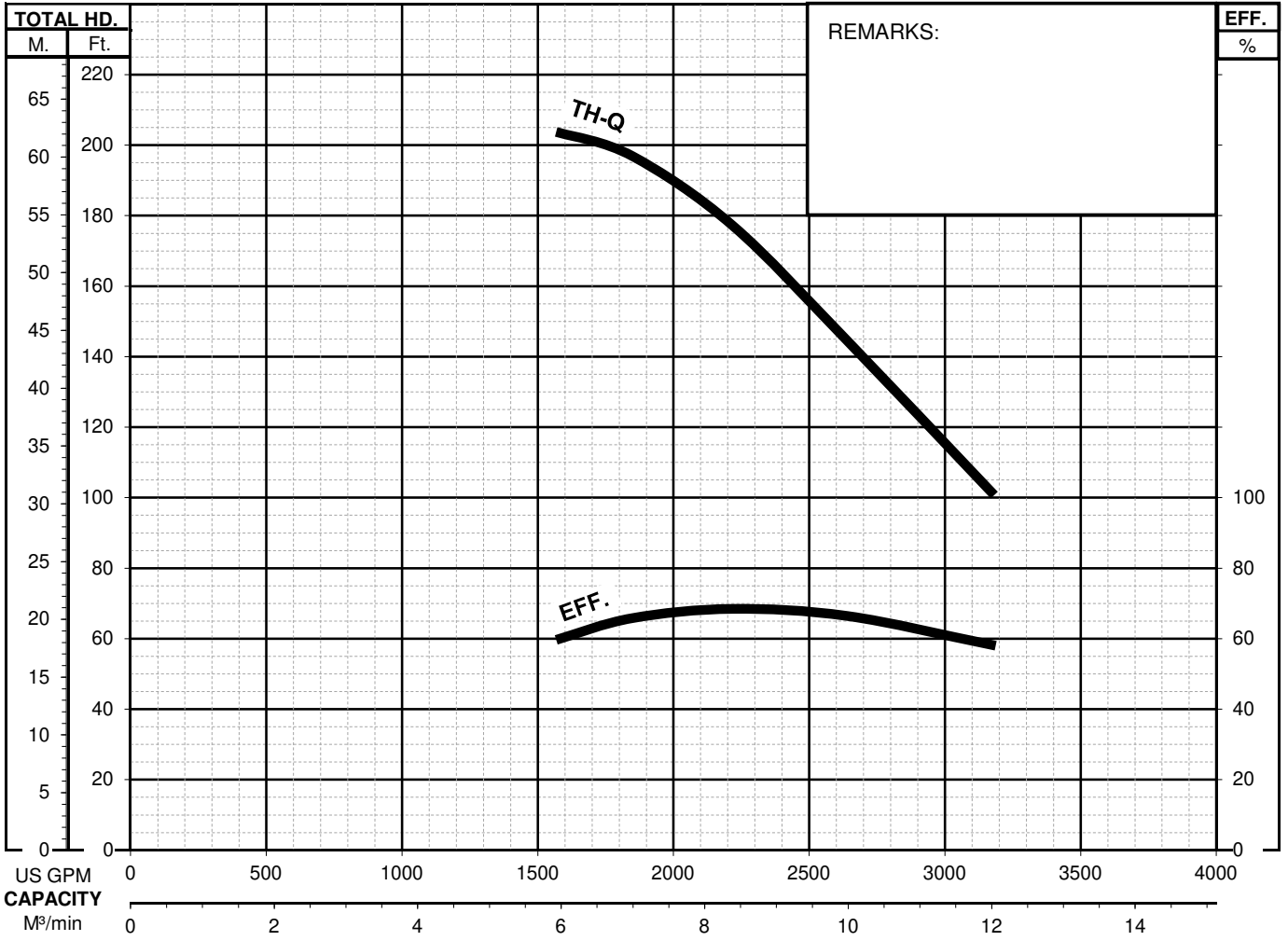


LH-D - SERIES

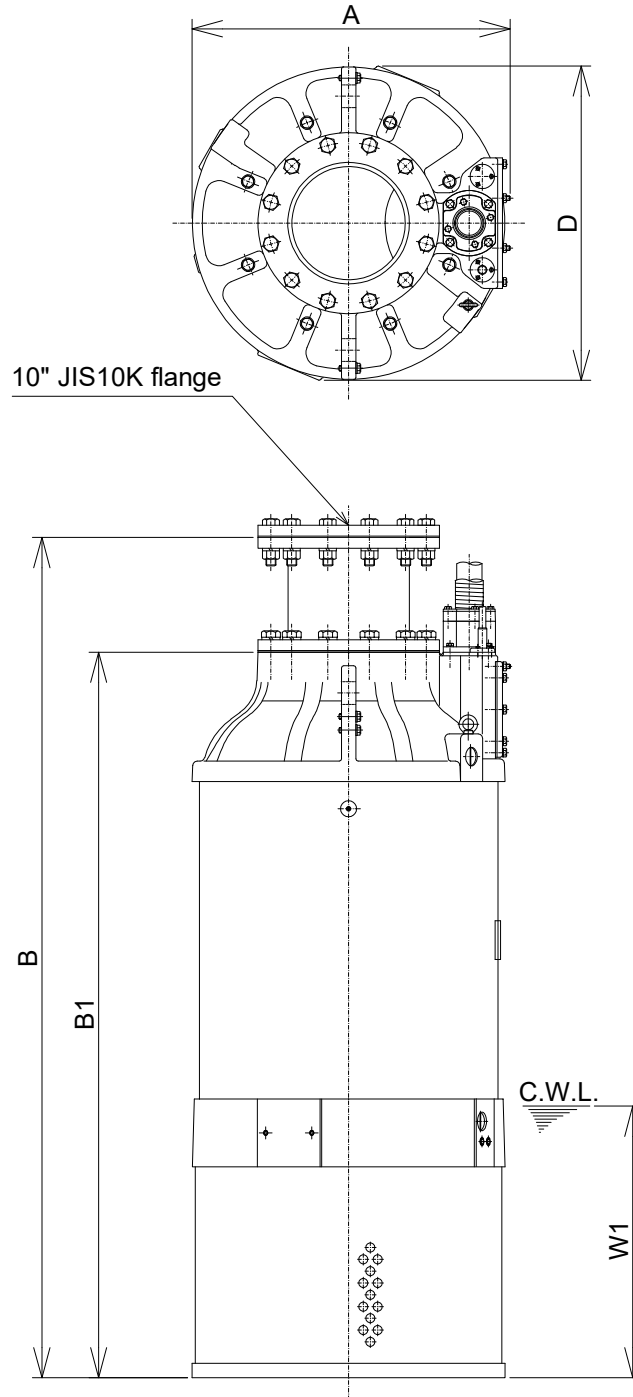
DOUBLE SUCTION - DEWATERING PUMPS

**PERFORMANCE
CURVE**

MODEL	BORE	HP	kW	RPM	SOLIDS DIA.	LIQUID	SG.	VISCOSITY	TEMP.
LH10110D-61	10"/250mm	150	110	3500	0.787"/20mm	Water	1.0	1.123cSt.	60°F
PUMP TYPE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS			
Dewatering Pump	3	460	166	60	Star-Delta	F			
CURVE No.	DATE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS		
-	-	-	-	-	-	-	-		



LH10110D -61



C.W.L. :Continuous running Water Level

DIMENSIONS:USCS (Inch)

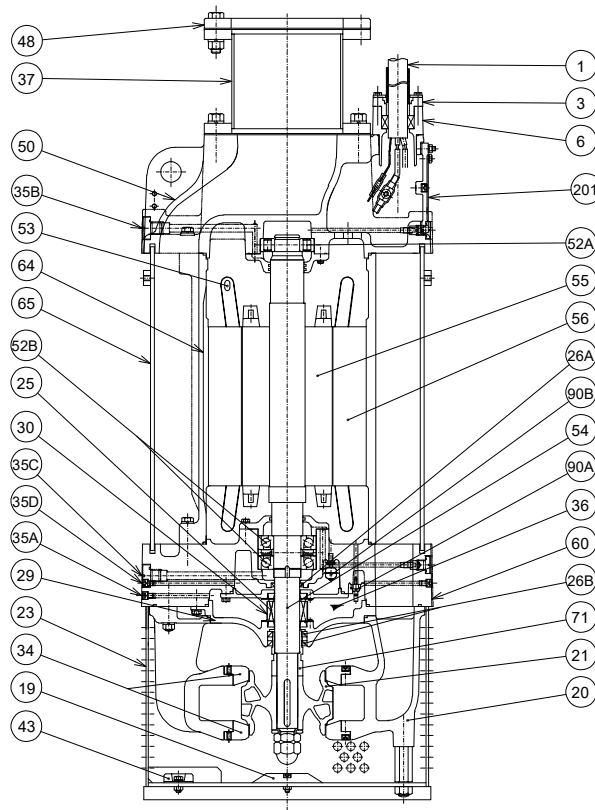
Model	HP	NOM. SIZE	Pump & Motor				C.W.L.	*Wt.
			A	B	B1	D	W1	(lbs.)
LH10110D-61	150	10"	27 5/8	72 15/16	63	27 5/16	23 5/8	3190

DIMENSIONS:METRIC (mm)

*Excluding Cable

Model	kW	NOM. SIZE	Pump & Motor				C.W.L.	*Wt.
			A	B	B1	D	W1	(kg)
LH10110D-61	110	250	701	1853	1600	693	600	1450

LH10110D -61



ITEM#	DESCRIPTION	MAIN MATERIAL / NOTE	ASTM, AISI CODE	RELATED EN CODE	Q'TY
1	Power Cable	Chloroprene Sheath AWG 1/6, 4/1 -65ft			1
	Control Cable	Chloroprene Sheath AWG 18/5 -65ft			1
3	Gland	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
6	Stuffing Box	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
19	Guide Plate	Steel	A283 Grade D	EN 10025 S275	1
20	Pump Casing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
21	Impeller	High Chrome Cast Iron	A532 Class III TypeA	DIN 1695 G-X260Cr27	1
23	Suction Strainer	Steel (Cold Rolled)	A109 / A1008	EN 10130	1
25	Mechanical Seal	Silicon Carbide / H-60P			1
26A	Oil Seal	NBR / TC709513			1
26B	Oil Seal	NBR / TC709513			2
29	Oil Casing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
30	Oil Lifter	Steel (Cold Rolled)	A109 / A1008	EN 10130	1
34	Suction Mouth	High Chrome Cast Iron	A532 Class III TypeA	DIN 1695 G-X260Cr27	2
35A	Oil Plug	Stainless Steel	S 30400	1.4301	3
35B	Grease Plug	Stainless Steel	S 30400	1.4301	2
35C	Grease Plug	Stainless Steel	S 30400	1.4301	2
35D	Drain Plug	Stainless Steel	S 30400	1.4301	1
36	Lubricant	Turbine Oil ISO VG32 or SAE 10W-20			
37	Discharge Pipe	Steel Pipe (& Steel) / 10" JIS10K	A53 Type F (& A283 Grade D)	DIN 1615 St 33 (& EN 10025 S275)	1
43	Cathodic Protection Plate	Aluminum Alloy			4
48	Welded Flange	Steel / 10" JIS10K	A283 Grade D	EN 10025 S275	1
50	Motor Bracket	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
52A	Upper Bearing	#NU312C3			1
52B	Lower Bearing	#7313ADBC3 with Spacer			1
53	Motor Protector				3
54	Shaft	Stainless Steel	S 42000	1.4028	1
55	Rotor				1
56	Stator				1
60	Bearing Housing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
64	Motor Housing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
65	Outer Cover	Steel	A283 Grade D	EN 10025 S275	1
71	Shaft Sleeve	Stainless Steel	S 40300	1.4000	1
90A	Leakage Sensor (Electrode)	Stainless Steel	S 42000	1.4028	1
90B	Leakage Sensor (Float)				1
201	Terminal Box Lid	Cast Iron	A48M Class30B	EN 1561 GJL-200	1



LH - SERIES DEWATERING PUMPS

SAMPLE SPECIFICATIONS

1. SCOPE OF SUPPLY -

Furnish and install TSURUMI Model _____ Submersible Pump(s).
Each unit shall be capable of delivering _____ GPM (_____ m³/min) at _____ Feet (_____ m) TDH. The pump(s) shall be designed to pump waste water or effluent without damage during operation. The pump(s) shall be designed so that the shaft power required (BHP)/(kW) shall not exceed the motor rated output throughout the entire operating range of the pump performance curve. Pump(s) shall be of the top discharge, flow through design.

2. MATERIALS OF CONSTRUCTION -

Construction of major parts of the pumping unit(s) shall be gray cast iron, ASTMA48 CLASS 35. Impellers and field adjustable/replaceable wear plates shall be high chrome iron. Internal and external surfaces coming into contact with the pumpage shall be protected by a fused polymer coating. All exposed fasteners shall be stainless steel. All units up to 75 HP and LH875/890/8110 shall be furnished with 150 lb. (10 kg/cm²) flat face flange and NPT companion flange. LH675/690/6110 shall be furnished with 300 lb. (20 kg/cm²) flat face flange and NPT companion flange. Impellers shall be of the multi-vane enclosed solids handling design equipped with back pump out vanes and shall be slip fit to the shaft and key driven. The unit(s) shall include built in cathodic protection.

3. MECHANICAL SEAL -

All units shall be furnished with a dual inside mechanical shaft seal located completely out of the pumpage, running in a separate oil filled chamber and further protected by an exclusionary oil seal located between the bottom seal faces and the fluid being pumped. The oil chamber shall be fitted with a device that shall provide positive lubrication of the top mechanical seal, (down to one third of the standard oil level). The device shall not consume any additional electrical power. Mechanical seals shall be rated to preclude the incursion of water up to 42.6 PSI (98.4 Ft.) submergence. Units shall have silicon carbide mechanical seal faces. Mechanical seal hardware shall be stainless steel. Unit(s) shall incorporate seal pressure relief ports. Units 75 Hp and above shall be supplied with electrode type seal sensor. All unit(s) shall be fitted with a replaceable shaft sleeve.

4. MOTOR-

The pump motor(s) shall be _____ H P., _____ kW., _____ V., 60 Hz. 3 Phase and shall be NEMA MG-1, Design Type B equivalent. Motor(s) shall be rated at full load amps. Motor(s) shall have a 1.15 service factor and shall be rated for 20 starts per hour. Motor(s) shall be air filled, copper wound, class F or B (up to 30 HP) insulated with built in thermal protection for each winding. Motor shaft shall be 420 stainless steel and shall be supported by two high temperature bearings, with a B-10 life rating at best efficiency point of 60,000 hours. On units up to 60 HP, the bottom bearing shall be two row, double shielded, C3, deep groove type ball bearing, and the top bearing shall be single row, double shielded, C3, deep groove type ball bearing. On units 75 HP and above, the bottom bearing shall be re-greasable, two row, C3, angular contact type ball bearing, and the top bearing shall be re-greasable, single row, C3, cylindrical roller bearing. Motors shall be D.O.L. or star-delta start (40 HP and above), and shall be suitable for across the line start or variable speed applications, utilizing a properly sized variable frequency drive.

5. POWER CABLE AND CABLE ENTRANCE -

The pump power cable shall be suitable for submersible pump applications and shall be field replaceable utilizing standard submersible pump cable. The cable entrance shall incorporate built in strain relief and a combination three way mechanical compression sealing. The cable entrance assembly shall contain a anti-wicking block to eliminate water incursion into the motor due to capillary wicking should the power cable be accidentally damaged.