TSURUMI PUMP™

LHW

HIGH HEAD DRAINAGE PUMPS

Submersible High Head Drainage Pumps

Tsurumi LH/LH-W series pumps are submersible heavy-duty pumps specialized for high head. These pumps are available in a wide lineup, offering 4 to 150HP motor output and 59 to 755ft. maximum head. The LH/LH-W series has played an active role in various fields, from small/medium-scale civil engineering and construction work that requires high reliability, to large-scale projects for constructing tunnels, bridges and dams. And, because of the slim body, these pumps have particularly helped to drain mine pits where required to work in limited space.

So that they can stand up to harsh environment, these pumps have the impeller and mouth ring made of high-chromium cast iron that provides high wear resistance. The pump is equipped with seal pressure relief ports* that release pump pressure applied to the mechanical seal. Furthermore, to endure even extended operation at low water level, these pumps feature flow-thru design that forcibly cools down the motor. With these features, Tsurumi pumps provide excellent reliability and durability that enables continuous duty for long periods of time.

* excluding 4HP

Available as optional specifications are a proprietary “seawater-resistant pump” developed over many years by Tsurumi to enable seawater intake/drainage for long periods of time, and an “all stainless steel pump” using 316 stainless steel for mining markets.

LH: Lineup of pumps with high head in consideration of discharge volume.

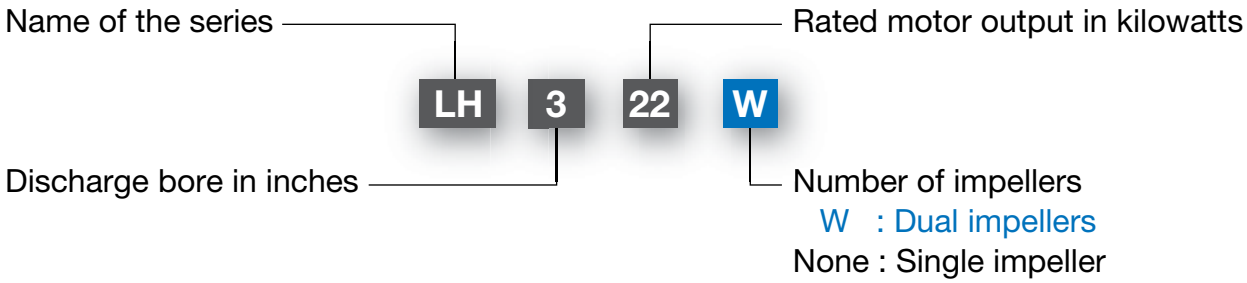
LH-W: Comprised of dual impellers for extra high head.

Selection Table

		2" 50mm	3" 80mm	4" 100mm	6" 150mm	8" 200mm
LH (Single Impeller)	4HP		★			
	20HP					
	25HP					
	30HP					
	40HP					
	50HP					
	60HP					
	75HP					
	100HP					
	150HP					
LH-W (Dual Impellers)	4HP	★				
	7.5HP	★				
	15HP		★			
	30HP		★			
	40HP			★		
	150HP					

★ Tandem operation model: Same model pumps are connected in series, to deliver higher head.

Model Number Designation



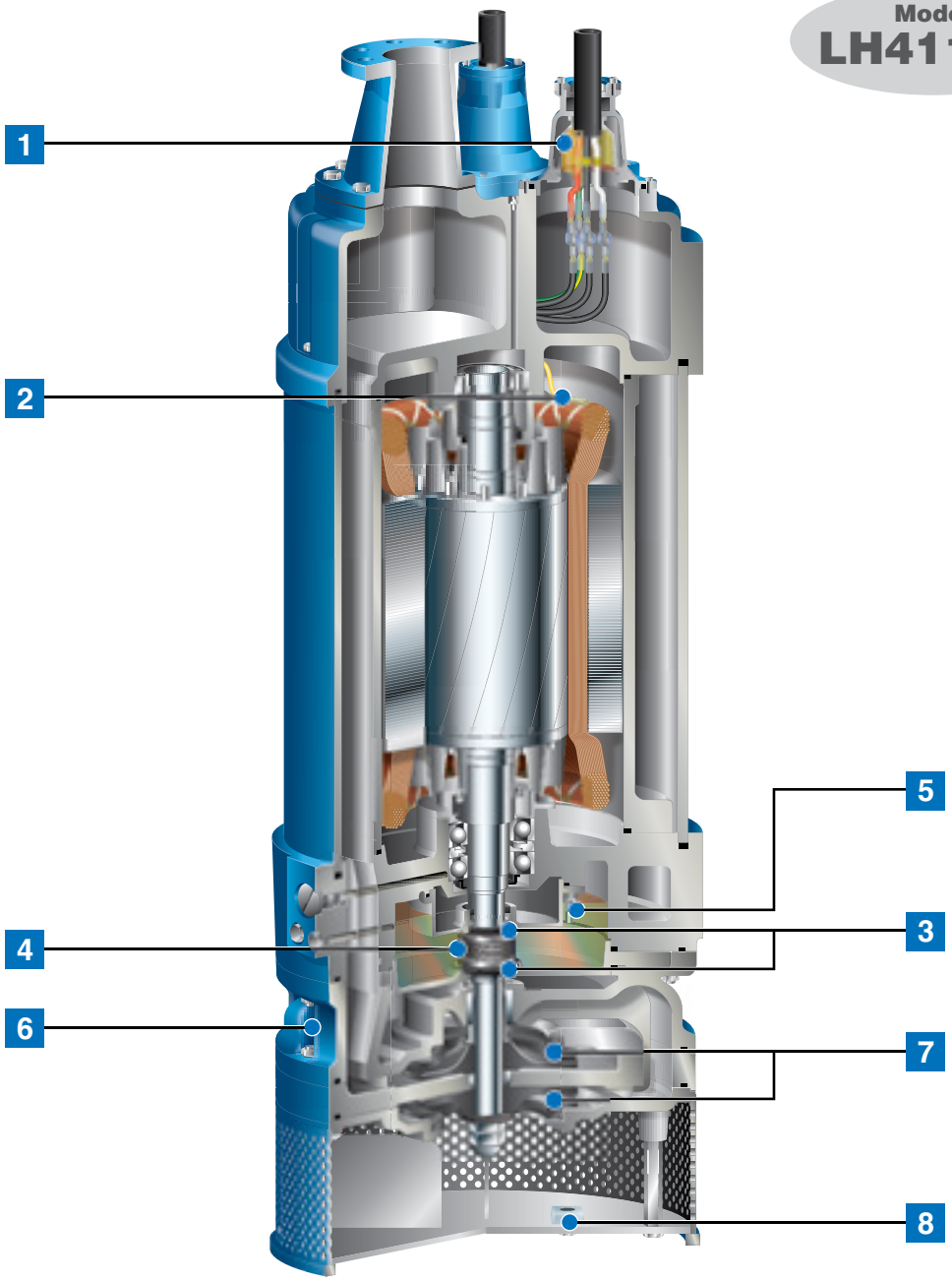
Options

- ☑ Seawater-resistant version; Galvanic anode & Special impeller
- ☑ High temperature liquid version; Max. 194°F
- ☑ High voltage version; Max. 1000V
- ☑ All stainless steel version; 316 S.S.

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.

Model
LH4110W



1 Anti-wicking Cable Entry
Prevents water incursion due to capillary wicking should the power cable be damaged or the end submerged.

2 Motor Protector
CTP (30HP and below)
Detects excess heat, therefore, protecting the pump against overheating and dry-running.

MTP (40HP and above)
React to excessive heat caused by dry-running. The bimetal strip opens to cause the control panel to shut the power supply.

3 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.

4 Oil Lifter [Patented]
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.

Seawater-Resistant Kit

Tsurumi's pumps can be combined with a seawater-resistant kit (optional) that adds a "galvanic anode" and "seawater-resistant special cast iron impeller," and enables about two years of service.
(The service period depends on operating conditions.)

All Stainless Steel Pump

All of the parts of Tsurumi's pumps that contact fluid, including the impeller, pump casing, motor frame, outer cover, strainer stand, and flange, can be made in 316 stainless steel. Tsurumi's all stainless steel pump can handle corrosive fluids generated in mines or quarries, and fluids of unexpectedly high pH. For details, contact your dealer.

5 **Leakage Sensor** (75HP 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.

6 **Seal Pressure Relief Ports** (excluding 4HP)
Protect the mechanical seal from pump pressure. They also protect the seal face by discharging wear particles.

7 **High-chromium Cast Iron Closed Impeller & Mouth Rings**
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

8 **Galvanic Anodes** (excluding 4HP)
Protect the pump against corrosive potential generated during the drainage of wastewater.

LH –Single Impeller–

The LH-series is a submersible three-phase cast iron high head drainage pump. Being the pump cylindrical and slim, it can be installed in a well casing for deep well dewatering. The center flange construction assures a stable installation even if it is fixed by the discharge pipe. The top discharge, flow-thru design provides maximum motor cooling efficiency allowing continuous operation at low water levels and extended dry-run capability. The pump incorporates seal pressure relief ports that prevent the pumping pressure from applying to the shaft seal.*

* excluding LH33.0

LH33.0

LH637

LH8110

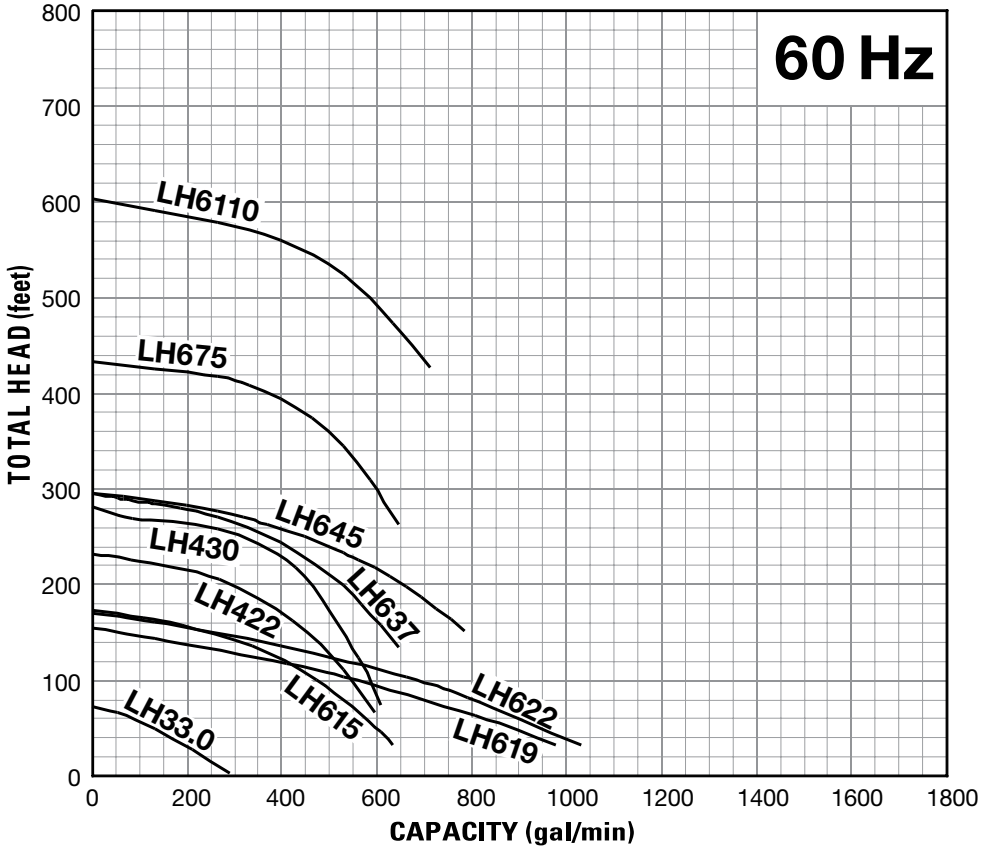
Model	Motor Output HP	Discharge Bore inch	Phase	Starting Method	Solids Passage inch	Dimensions Dia. x Height inch	Dry Weight*2 lbs.	Cable Length ft.
LH33.0	4	3	Three	D.O.L.	0.236	7 5/16 x 25 3/8	93	65
LH615	20	6		D.O.L.*1	0.334	13 x 39 15/16	470	32
LH619	25	6		D.O.L.*1	0.472	16 9/16 x 56	770	32
LH422	30	4		D.O.L.*1	0.236	16 9/16 x 53 1/4	770	32
LH622	30	6		D.O.L.*1	0.472	16 9/16 x 56	790	32
LH430	40	4		Star-Delta	0.236	16 9/16 x 53 1/4	780	32
LH637	50	6		Star-Delta	0.236	20 7/8 x 57	1090	32
LH837	50	8		Star-Delta	0.787	20 7/8 x 58 9/16	1090	32
LH645	60	6		Star-Delta	0.236	20 7/8 x 57	1120	32
LH845	60	8		Star-Delta	0.787	20 7/8 x 58 9/16	1120	32
LH855	75	8		Star-Delta	0.787	21 5/8 x 67 9/16	1810	32
LH675	100	6		Star-Delta	0.315	21 5/8 x 66	1910	32
LH875	100	8		Star-Delta	0.787	21 5/8 x 67 9/16	1910	32
LH6110	150	6		Star-Delta	0.394	24 1/2 x 74 5/16	2670	65
LH8110	150	8		Star-Delta	0.787	24 1/2 x 74 5/16	2670	65

*1 Star-Delta available upon request

*2 Weights excluding cable

Performance Curves

< High Head >



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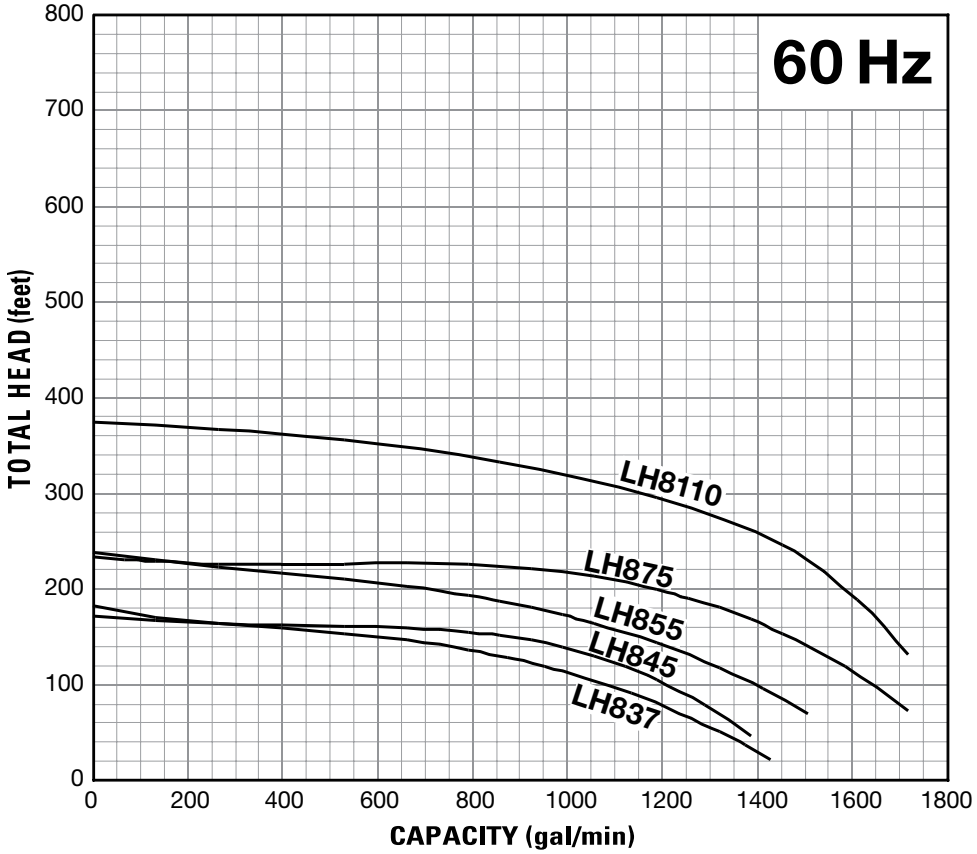
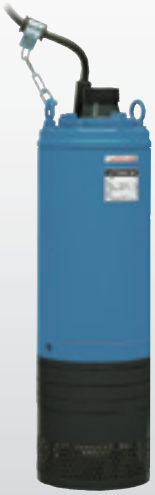


LH-W –Dual Impellers–

The LH-W-series is a submersible three-phase cast iron extra high head drainage pump having dual impellers. Being the pump cylindrical and slim, it can be installed in a well casing for deep well dewatering. The center flange construction assures a stable installation even if it is fixed by the discharge pipe.*1 The top discharge, flow-thru design provides maximum motor cooling efficiency allowing continuous operation at low water levels and extended dry-run capability. The pump incorporates seal pressure relief ports that prevent the pumping pressure from applying to the shaft seal.*2

*1 excluding LH4110W
*2 excluding LH23.0W



LH23.0W

LH311W

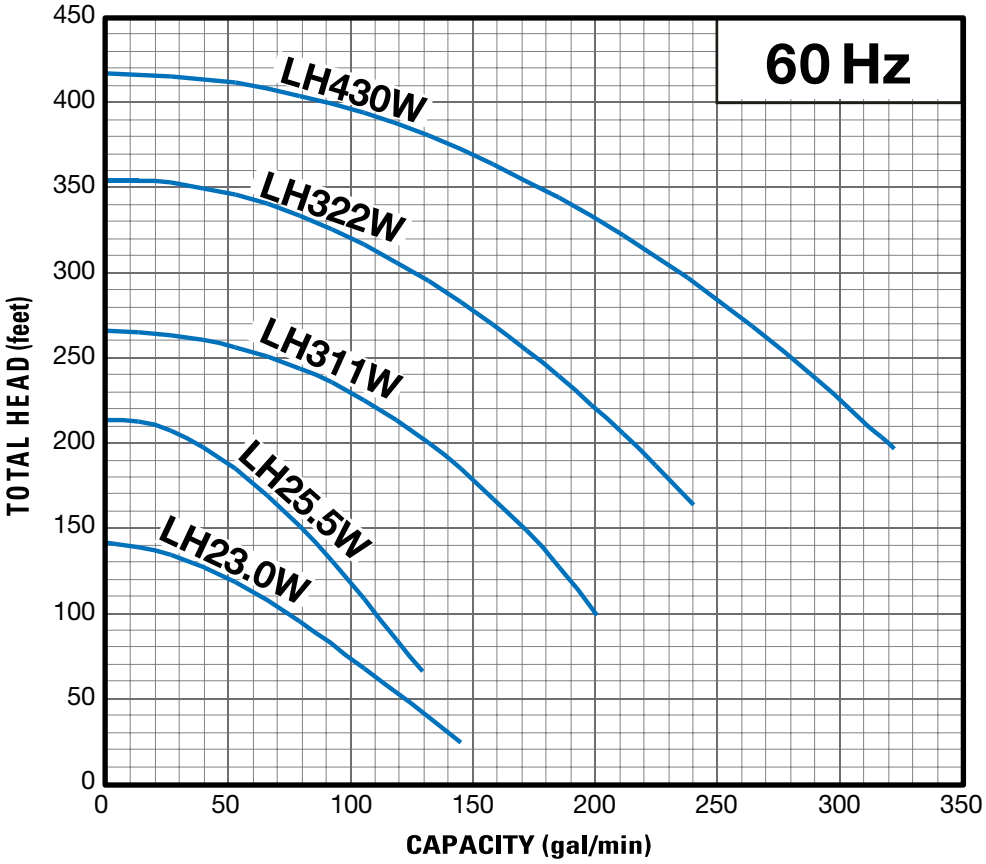
LH4110W

Model	Motor Output HP	Discharge Bore inch	Phase	Starting Method	Solids Passage inch	Dimensions Dia. x Height inch	Dry Weight*2 lbs	Cable Length ft
LH23.0W	4	2	Three	D.O.L.	0.236	7 5/16 x 24 13/16	101	65
LH25.5W	7.5	2		D.O.L.*1	0.236	9 5/8 x 29 1/2	176	65
LH311W	15	3		D.O.L.*1	0.334	10 5/8 x 40 5/16	287	65
LH322W	30	3		D.O.L.*1	0.334	13 x 48 5/8	670	65
LH430W	40	4		Star-Delta	0.334	14 3/8 x 54 1/8	714	65
LH4110W	150	4		Star-Delta	0.315	24 1/2 x 71 7/8	2800	65

*1 Star-Delta available upon request
*2 Weights excluding cable

Performance Curves

< 4-40HP >



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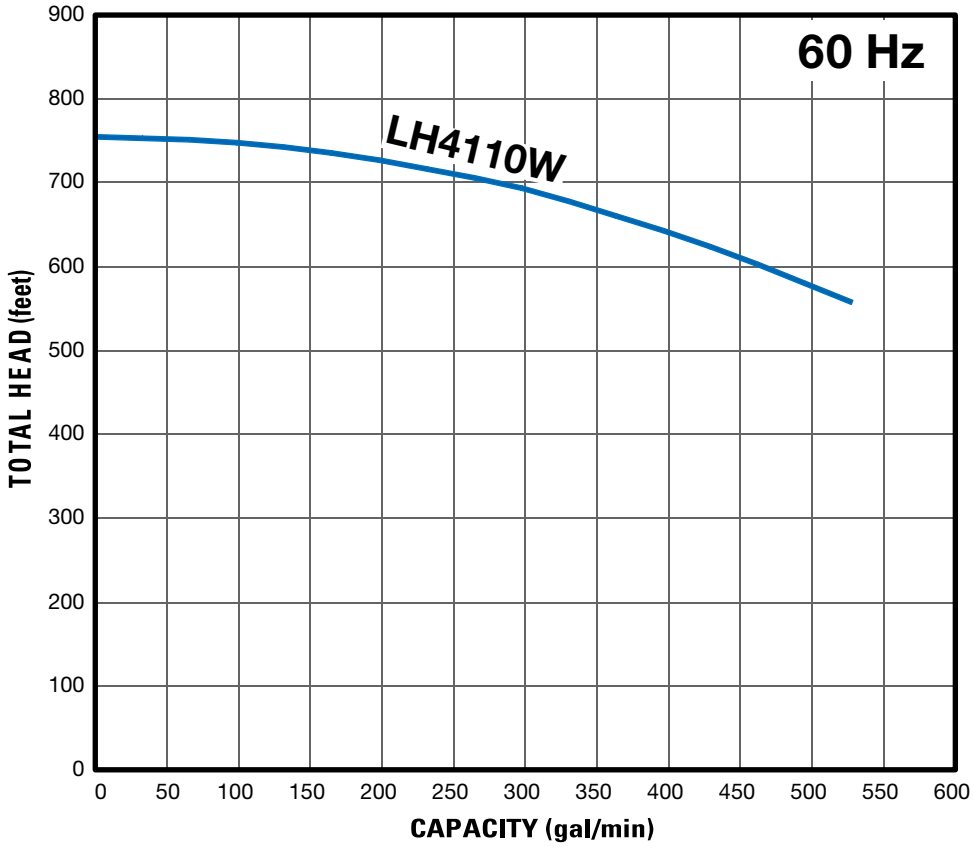
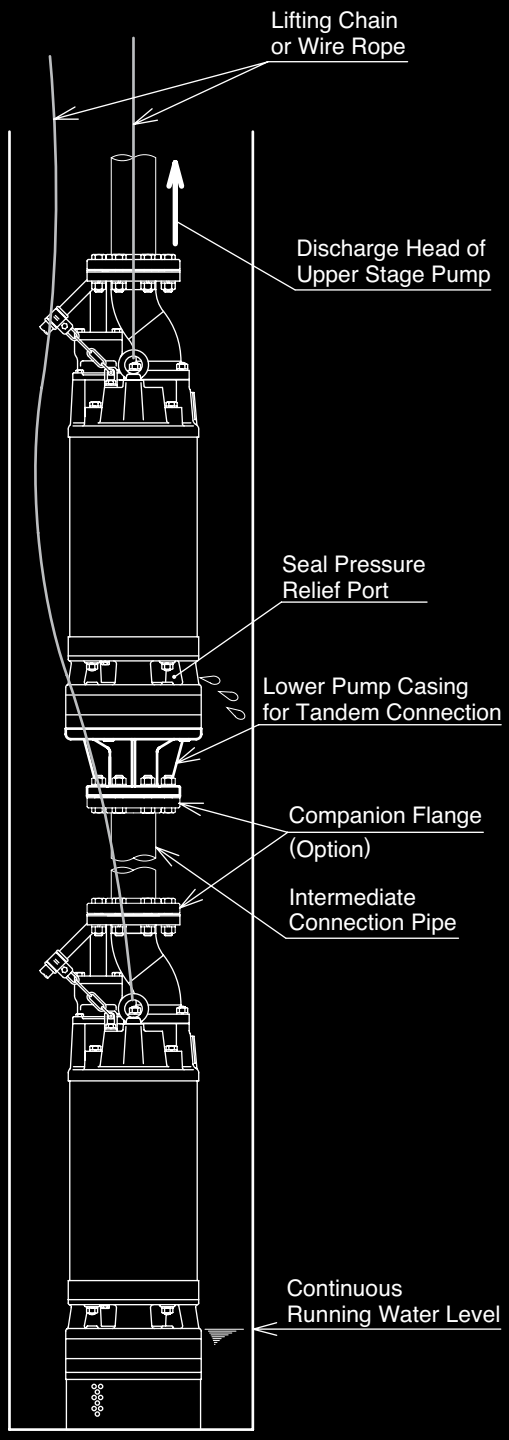


Tandem Operation

“Tandem operation” is an operation method that connects two pumps of the same model in series. This provides double pump head at the same flow rate in comparison with that of a single pump. The principle of tandem operation is the same as that with multistage pumps.



Precautions for Selection and Use

For model selection, piping and installation procedure, be sure to consult Tsurumi distributors in advance.

1. If the required total head exceeds the maximum head of the pump without the intermediate connection pipe shown in the selection table, insert a intermediate connection pipe of a length corresponding to the excess amount or more, to reduce the pressure applied to the pump in the upper stage.
2. Check the approximate weight of one pump and the allowable load for two eyebolts (per pump) shown in the selection table, and determine the piping weight, installation method and lifting procedure so that the allowable load is not exceeded.
3. The pump in the lower stage should be installed at the bottom of the vertical hole, unless special measures are taken. Do not suspend the pump in midair. Do not allow the weight of the upper pump and piping to be applied to the lower pump.
4. Since a certain amount of water spouts from the seal pressure relief port,* both the upper- and lower-stage pumps should be installed in the vertical hole. Do not use the pumps as booster pumps in the middle of a horizontal line lying on the ground.
   * excluding LH33.0 and LH23.0W
5. Do not connect pumps of different models in series. Do not use either of two connected pumps singly. Failure to observe these instructions may change the operating point improper, resulting in trouble.

Tandem Operation –LH / LH-W–

"Tandem operation" is an operation method that connects two pumps of the same model in series. This provides double pump head at the same flow rate in comparison with that of a single pump. The principle of tandem operation is the same as that with multistage pumps. The LH and LH-W series pumps adopt the center flange construction to align the discharge pipe with the cylindrical pump center axis.* Connecting the pumps in series with the tandem connector can provide higher pump head without affecting the advantage of the slim design. At construction sites, there are many cases where a higher pump head is required as construction work progresses. In such cases, the addition of a tandem pump may meet the required pump head, instead of using a new pump.

* Available as an option for separately purchased LH33.0 and LH23.0W.

LH23.0W
for Tandem Operation

Model	Motor Output	Discharge Bore	Starting Method	Max. Head in Tandem	Max. Head w/o Intermediate Connetion Pipe	Dimensions Dia. x Height	Dry Weight *2	Allowable Load on Eyebolts	Cable Length
	HP	inch		ft	ft	inch	lbs	lbs	ft
LH33.0	4	3	D.O.L.	118 / 144	108	7 5/16 x 28 3/4	119	331	65
LH23.0W	4	2	D.O.L.	256 / 282	164	7 5/16 x 29 7/8	130	331	65
LH25.5W	7.5	2	D.O.L.*1	427	320	9 5/8 x 31 13/16	212	485	65
LH311W	15	3	D.O.L.*1	531	399	10 5/8 x 41 1/16	276	992	65
LH322W	30	3	D.O.L.*1	669 / 709	531	13 x 49 7/16	805	2094	65
LH430W	40	4	Star-Delta	807 / 833	625	14 3/8 x 55 1/8	858	2094	65

*1 Star-Delta available upon request

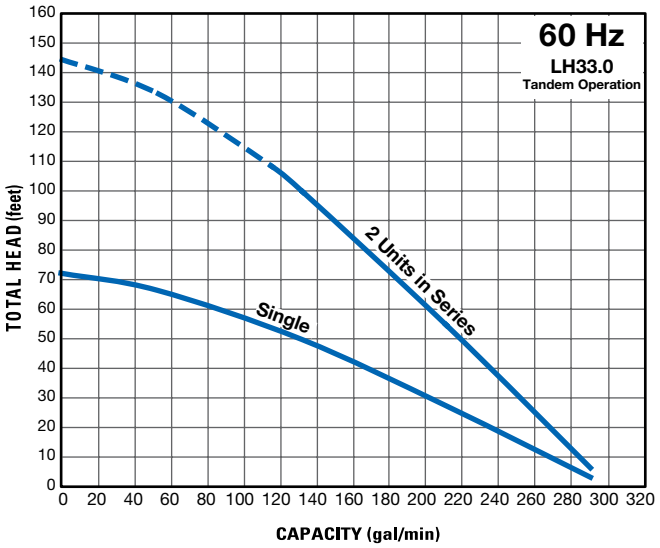
*2 Weights excluding cable

Performance Curves

REMARKS:

The intermediate connection pipe is not required in the range indicated as a bold line on curves. If the required total head exceeds the maximum head of the pump without an intermediate connection pipe (indicated as dashed line), an intermediate connection pipe of a length corresponding to the excess amount or more is equired.

< LH33.0 >



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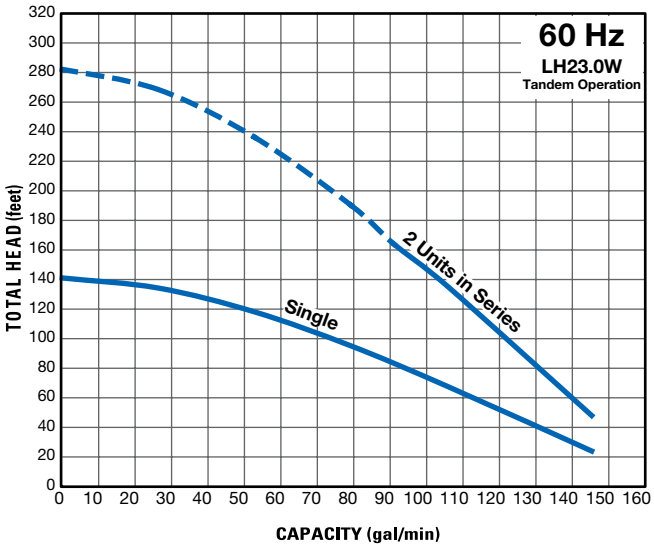

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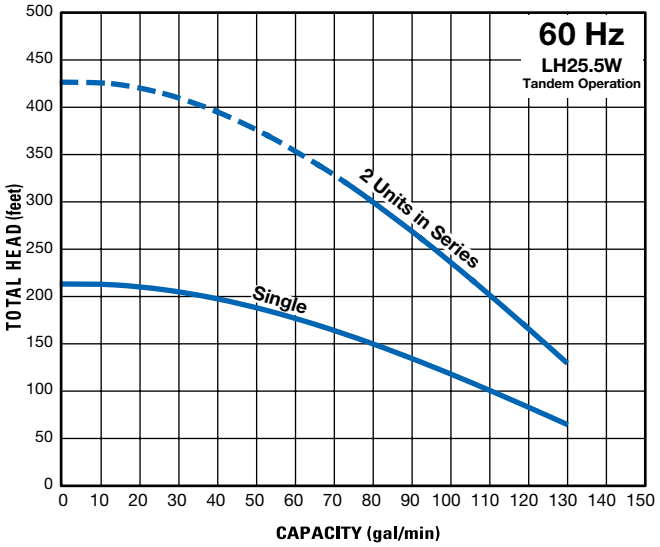

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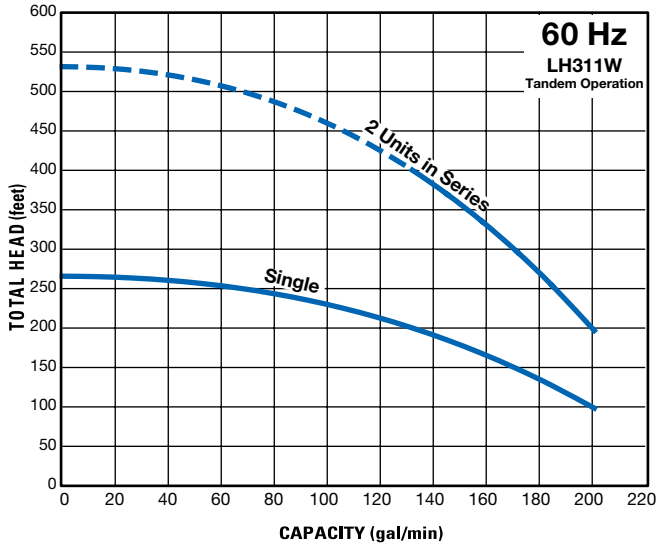

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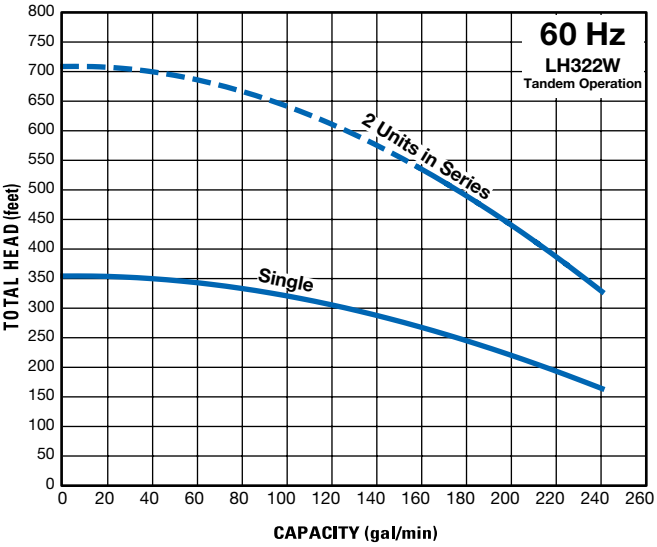

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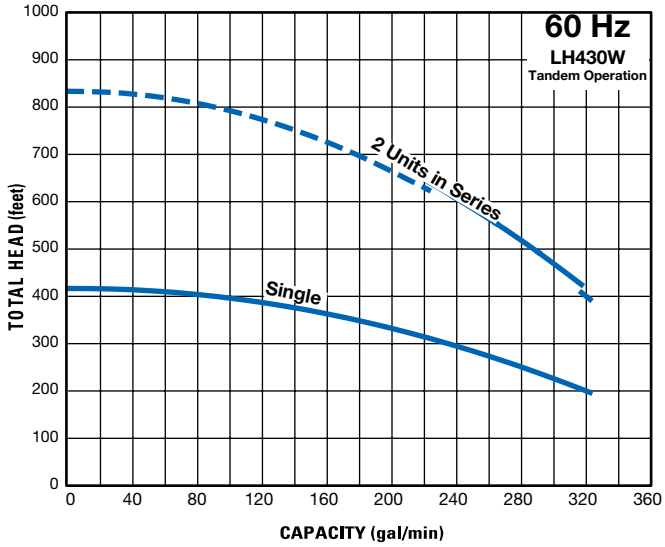

Specifications

		LH									
		LH33.0	**LH422**	**LH430**	**LH615**	**LH619**	**LH622**	**LH637**	**LH645**	**LH675**	**LH6110**
PUMP	Discharge Bore inch	3	4		6						
	Discharge Connection	Threaded Hose Connector	JIS 10kg/cm² Flange							JIS 20kg/cm² Flange	
	Solids Passage inch	0.236			0.334	0.472		0.236		0.315	0.394
	Impeller	Semi-open	Closed								
		High-chromium Cast Iron									
	Mouth Ring	—	High-chromium Cast Iron								
	Labyrinth Ring	—	304 Stainless Steel								
	Casing	Gray Cast Iron / Ductile Cast Iron									
	Shaft Seal	Dual Inside Mechanical Seal (with Oil Lifter)									
		Silicon Carbide									
	Shaft Sleeve	403 Stainless Steel									
	Galvanic Anode	—	Aluminium Alloy								
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor									
	Output HP	4	30	40	20	25	30	50	60	100	150
	Phase	Three-phase									
	Pole	2									
	Insulation	F	B	F	B			F			
	Starting Method	D.O.L.		Star-Delta	D.O.L.			Star-Delta			
	Motor Protector (built-in)	CTP		MTP	CTP			MTP			
	Leakage Sensor (built-in)	—								Electrode	
	Lubricant ml	380	6900		3740	6900		4800		6100	8000
		Turbine Oil (ISO VG32)									
	Shaft	420 Stainless Steel									
	Cable ft	65	32								65
		Chloroprene Rubber									
	Dry Weight* lbs	93	770	780	470	770	790	1090	1120	1910	2670

* Dry weight excluding cable

LH					LH-W					
LH837	**LH845**	**LH855**	**LH875**	**LH8110**	**LH23.0W**	**LH25.5W**	**LH311W**	**LH322W**	**LH430W**	**LH4110W**
8					2		3		4	
JIS 10kg/cm² Flange					Threaded Hose Connector	JIS 10kg/cm² Flange		JIS 20kg/cm² Flange		
0.787					0.236		0.334			0.315
Closed					Semi-open (Dual)	Closed (Dual)				Closed (Dual Back-to-back)
High-chromium Cast Iron										
High-chromium Cast Iron					—	High-chromium Cast Iron				
304 Stainless Steel										630 Stainless Steel
Gray Cast Iron / Ductile Cast Iron										
Dual Inside Mechanical Seal (with Oil Lifter)										
Silicon Carbide										
403 Stainless Steel										630 Stainless Steel
Aluminium Alloy					—	Zinc		Aluminium Alloy		
Continuous-duty Rated, Dry-type Induction Motor										
50	60	75	100	150	4	7.5	15	30	40	150
Three-phase										
2										
F						B			F	
Star-Delta					D.O.L.				Star-Delta	
MTP					CTP				MTP	
—	Electrode				—					Electrode
4800	6100			8000	380	720	800	2350		7800
Turbine Oil (ISO VG32)										
420 Stainless Steel										
32				65						
Chloroprene Rubber										
1090	1120	1810	1910	2670	101	176	287	670	714	2800

We reserve the right to change the specifications and designs for improvement without prior notice.

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