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# Vacuum Assisted Priming Centrifugal Pump

REAL

## CHINA PUMP CONSULTANCY

Emergency Flood Control, Water Drainage

Rush Repair, Extension, Parallel In,

Relocation of Pipe Network

Emergency Fire Fighting

Emergency Movable Pumping Station

Water Control of Civil Construction

Modern Agriculture

Well Drilling, Hydrofracturing

Water and Sewage Drainage of Mines

Water Environment Treatment

Industrial Wastewater Treatment

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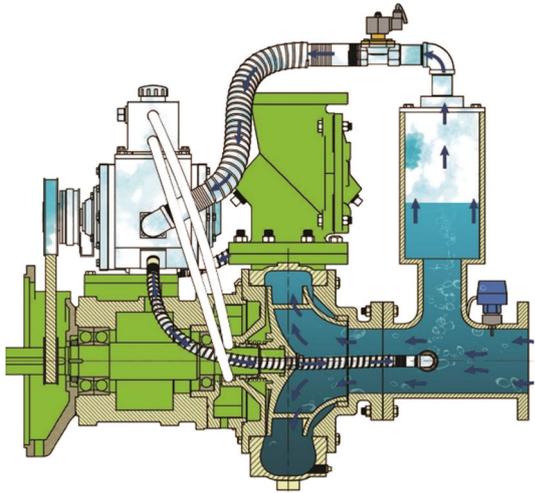


### All in One Pump Applications:

- Dewatering
- Well Point
- Bypass
- Water Transfer
- Lift Station Back Up
- Mining

# How It Works

A vacuum-assisted self-priming centrifugal pump is made up of two pumps, an end suction or split casing pump and a diaphragm pump. When there is no water in centrifugal pump, the diaphragm pump will operate to remove air out of the suction line until the pressure in suction line is less than atmospheric pressure which allows liquid to flow into pump. When there is sufficient water in the pump, which means it's primed and ready to pump, diaphragm pump continues to operate on low power until it's required again. If pump ever loses prime or there is no liquid left, the process starts automatically again.



# Why It Is Advantaged

## 1. ECO Friendly Vacuum Priming System

The self-priming system utilizes a specially designed 3rd generation vacuum pump technology. It enables any centrifugal pump finish priming within seconds to tens of seconds. It has extraordinary features like large air process capability, high vacuum, low operation temperature, maintenance free, oil and mechanical seal free etc, which sets up a new benchmark in self-priming pump market.

## 2. Auto Switch System

The self-priming system will be switched to sleep status automatically once priming was finished. When it is used for general purpose application, self-priming system only operates for a few seconds for priming, and which makes it almost unnecessary for daily maintenance or changing spare parts at its life cycle.



## 3. Dry Running Protection System



Vacuum assisted priming pumps can run dry for a long time without damaging its mechanical seal due to its dry running protection system, which consists of a normal mechanical seal, an oil chamber and an oil reservoir. The oil chamber and oil reservoir are connected by two hoses and forms an oil circulating loop. As an option, the mechanical seal stationary seat can also be made with an air cushion designed surface which eliminates the use of oil lubrication in case of pump's long time dry running. We can also use a set of lip seals to replace the mechanical seal as option 2, and it makes the sealing result even better and subsequent maintenance easier.

## 4. Cooling System

A pressurized cooling flush water is introduced from centrifugal pump's water passage through an access port into vacuum pump's water jacket which contains the entire vacuum pump. Cooling water flows into the water jacket from one side through a suction hose and discharges from the other side, then returns back to the centrifugal pump's suction side through a discharge hose. Pressurized flushing water cools the vacuum pump quickly and brings most of the heat out of the vacuum pump's cavity, which keeps the vacuum pump run at a very low temperature and makes the self-priming system an extraordinary long life.



## 5. Easy Disassembling Structure



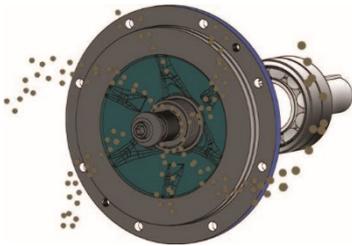
It is very convenient to remove the vacuum pump's cover from its non-drive end, and slides can be easily pulled out for inspection or replacement. It is also easy to access to the centrifugal pump's impeller, wear ring or mechanical seal for inspection or maintenance without removing diesel engine or pump's frame since the centrifugal pump's suction cover can be fully opened.

## 6. Non-Clogging Impeller Design

All the solids handling vacuum assisted priming pumps were designed with a wide water passage impeller which allows solids with 3" diameter or larger pass through the impeller easily. Vacuum assisted priming pumps can be widely used in any critical application like sewage, sludge and even processing fluid with large size stones.



## 7. Self-cleaning Function



Vacuum assisted priming pump's stuffing box was designed with a special structure to mix and discharge solids. Any small size solids or sands entering into the stuffing box will be mixed by the mixers located on the wall of stuffing box, and then be discharged to the outside of the stuffing box with the centrifugal force generated by the impeller back vanes. This self-cleaning function keeps the mechanical seal spring from clogging by any solids or sands accumulated inside of the stuffing box efficiently so as to avoid any mechanical seal failure.

## 8. Proven Technology

Vacuum assisted priming pumps own multiple proven technologies. Because of self-priming system's powerful function, they can be used in almost all aspects of fluid industry, such as Dewatering, By-Pass, Fire-Fighting, Lift station back-up system, mining, irrigation, water transfer and well point system etc.

## 9. Eco-friendly drain collector base

Attenuated pump base was designed to contain any possible leakages from pump, engine or from internally installed fuel tank. A drainage port and plug are available for easily draining the leaked liquid. All pump base was designed with a large internal space so as to contain min. 110% of the total capacity of the diesel tank and all engine fluids.



## 10. Air-Water Isolator

Vapor is normally generated during vacuum pump's evacuation, and then becomes either water or ice staying inside of the vacuum pump when ambient temperature is low. The accumulated water or ice is a big threat to vacuum pump especially in cold area, so an air-water isolator is suggested to be installed in every pump to collect the vapor/water before it enters into the vacuum pump.

## 11. Auto Start/Stop Control

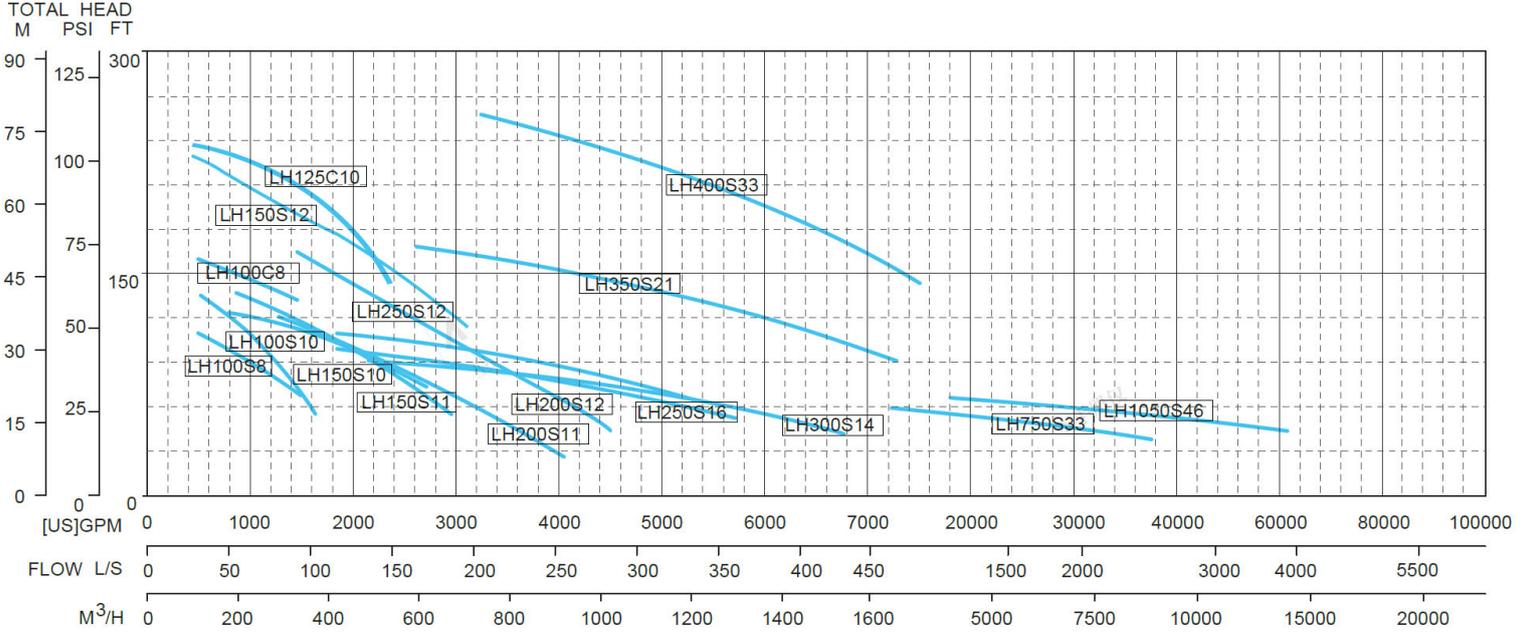


Remote control is available when a water level sensor is installed on the pump so as to control the pump's start/stop automatically. A state-of-the-art microprocessor-based digital engine control monitors all engine functions including alarms. The control panel features and easy-to-read 32-character display. It is ideal for conserving fuel, avoiding engine overhauls and comes standard on all vacuum assisted priming pumps.

# Selection Chart and Performance Range

## Low-Head

Model	Suct. size (inch)	Disch. size (inch)	Impeller dia. (inch)	Max. flow (gpm)	Max. head (feet)	Max. solids (inch)	RPM up to
LH100S8	4	4	8	1400	120	3	2200
LH100S10	4	4	10	1700	150	3	2000
LH150S10	6	6	10	2600	168	3	2200
LH150S11	6	6	11	2700	160	3	2000
LH200S11	8	8	11	4400	145	3	2000
LH200S12	8	8	12.25	4400	170	3	1800
LH250S12	10	10	12	5280	116	4	1800
LH300S15	12	12	15	6600	108	4	1250
LH350S21	14	14	24	12320	200	3.58	1000
LH500S39C	20	20	39	20680	183	5.98	585
LH600S33A	24	24	33	26400	107	6.5	585
LH750S33A	30	30	33	37400	65	8	485
LH1050S46B	42	42	46	66000	85	9.8	360

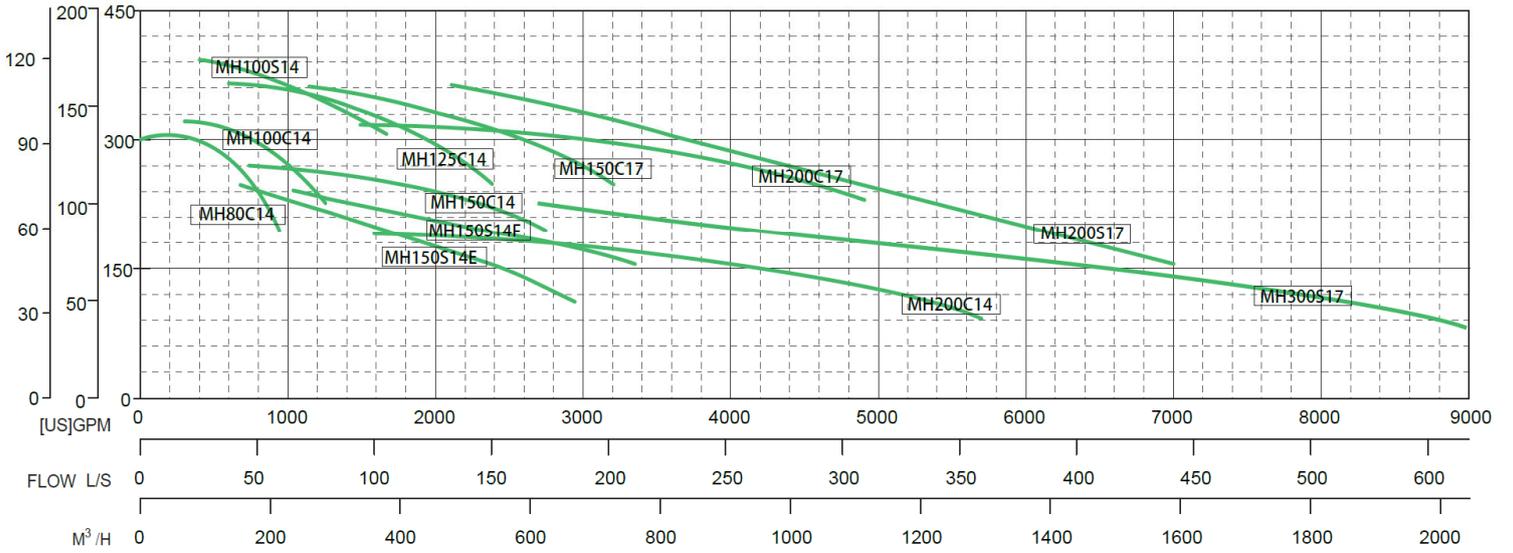


## Medium-Head

Model	Suct. size (inch)	Disch. size (inch)	Impeller dia. (inch)	Max. flow (gpm)	Max. head (feet)	Max. solids (inch)	RPM up to
MH100S14	4	4	14	1650	425	3	2300
MH150S14F	6	6	14	3100	270	3	2000
MH150S14E	6	6	14	3000	290	3	2000
MH200S17	10	8	17	6800	440	3.5	2000
MH300S17	12	12	17	9000	300	3.75	1780
MH80C14	5	3	14	950	354	Clean Water	3000
MH100C14	5	4	14	1260	340		3000
MH125C14	6	5	14	2376	340		2500
MH150C14	8	6	14	2700	280		2100
MH200C14	10	8	14	4750	175		1800
MH150C17	8	6	17	3168	370		1900
MH200C17	10	8	17	4900	320		1800

TOTAL HEAD

M PSI FT

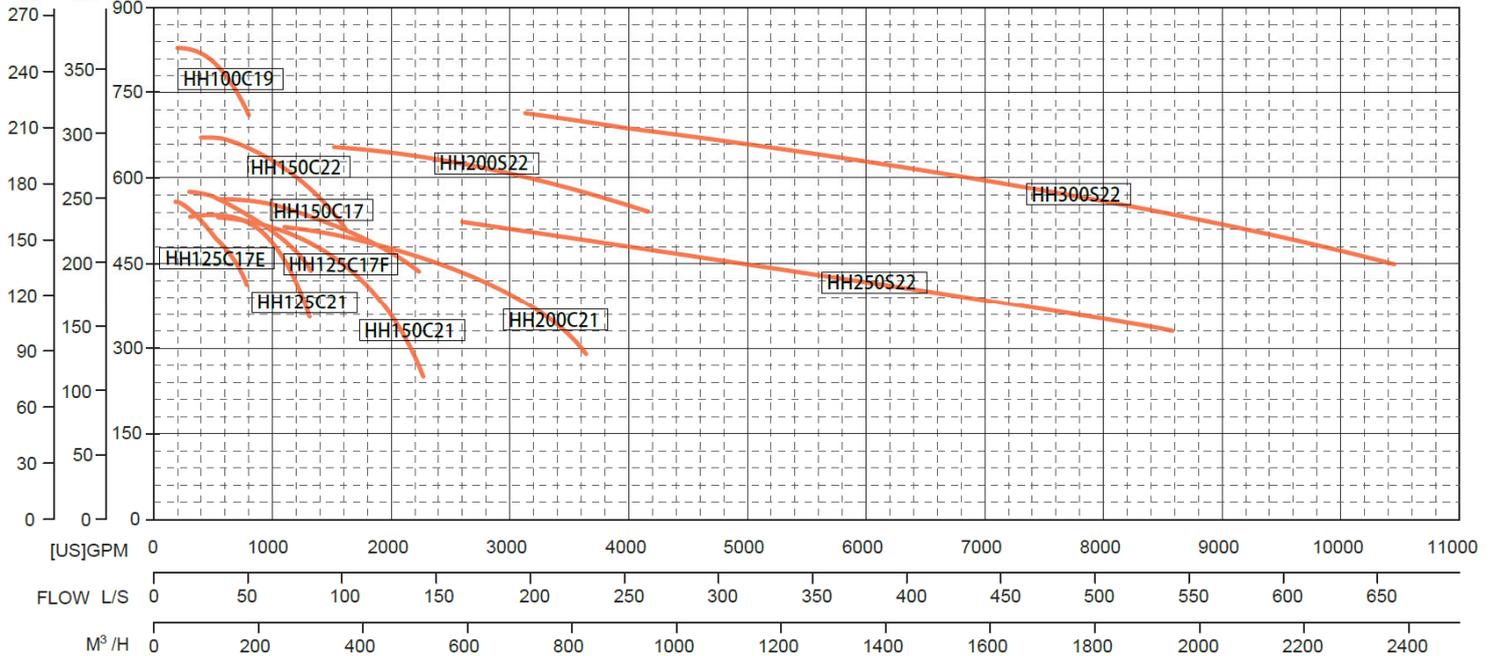


High-Head

Model	Suct. size (inch)	Disch. size (inch)	Impeller dia. (inch)	Max. flow (gpm)	Max. head (feet)	Max. solids (inch)	RPM up to
HH100C19	4	3	19	800	800	Clean Water	2400
HH125C17E	5	3	17	880	564		2300
HH125C17F	5	4	17	1260	557		2300
HH125C21	5	4	21	1200	520		1800
HH150C22	6	4	22	1650	600		1900
HH150C17	6	5	17	2100	550		2300
HH150C21	6	5	21	2200	530		1800
HH200C21	8	6	21	3500	510		1800
HH200S22	8	6	22	4200	640	2	1900
HH250S22	10	8	22	8400	590	4	1800
HH300S22	12	8	22	10560	780	3	2000

TOTAL HEAD

M PSI FT



# Material Construction

- \* Casing: Ductile Iron
  - \* Casing Cover: Ductile Iron
  - \* Impeller: CA6NM SS
  - \* Shaft: 17-4PH
  - \* Mechanical Seal: SiC-TC-Viton-304SS
- Option: Full SS wetted parts, or full Duplex SS wetted parts.  
Others as per requirement.

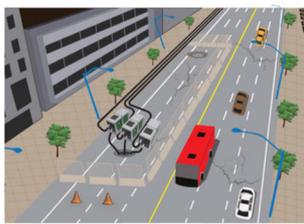


# Application

**Emergency Flood Control, Water Drainage**



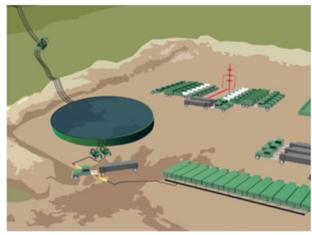
**Rush Repair, Extension, Parallel In, Relocation of Pipe Network**



**Emergency Fire Fighting**



**Well Drilling, Hydrofracturing**



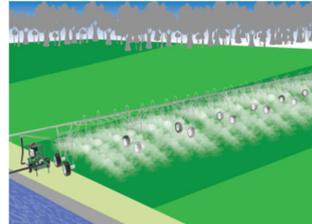
**Emergency Movable Pumping Station**



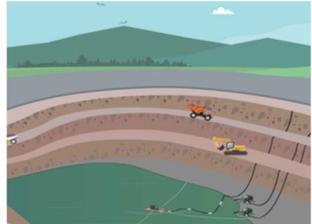
**Water Control of Civil Construction**



**Modern Agriculture**



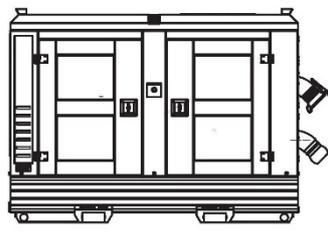
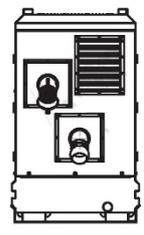
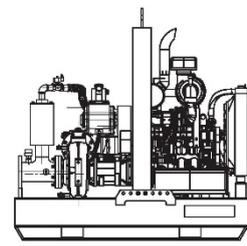
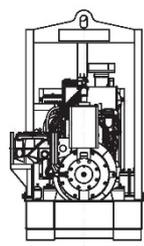
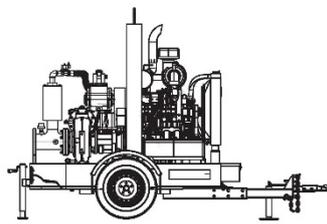
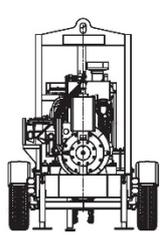
**Water and Sewage Drainage of Mines**



**Industrial Wastewater Treatment**



**Water Environment Treatment**



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