

LVS/LVR

Stainless Steel Vertical Multistage Pump



LVS

LVR

Application

- Suitable for transferring liquids of low viscosity, non-flammable and non-explosive, not containing solid particles or fibers
- Water supply & drainage for high-rise buildings, filtration and transfer at waterworks, pressure boosting in main pipe
- Washing and cleaning systems, boiler feeding, cooling water circulation, water treatment systems, auxiliary system, support equipment
- Ultra-filtration systems, reverse-osmosis systems, distillation systems, separators, swimming pools
- Agricultural irrigation: sprinkler irrigation, drip-feed irrigation
- Food & beverage industry
- Fire-fighting system

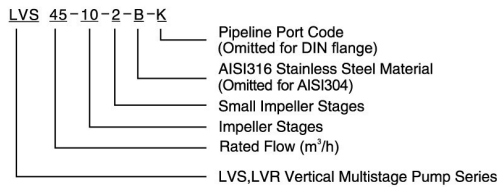
Operating Conditions

- Low viscosity, non-flammable and non-explosive liquids not containing solid particles or fibers. The liquids must not chemically attack the pump materials. When pumping liquids with a density or viscosity is higher than that of water, a motor with a higher output power rating shall be used.
- Liquid temperature: -20°C~+120°C
- Flow ranges: 0.7-120 m³/h
- Liquid pH value: 4 - 10
- Max. ambient temperature: +40°C
- Max. operation pressure: 33 bar
- Altitude: up to 1000 m

Motor

- Totally enclosed & fan-cooled motor
- Protection class: IP55
- Standard voltage: 50Hz 1 × 220V/3 × 380V

Identification Codes



LVS: Stainless steel wetted parts
LVR: Cast iron base & pump cover

Identifications codes of flange structure

A: Oval flange; K: Clamp connector;
G: Threaded connector

Minimum Inlet Pressure-Npsh

Calculation of the inlet pressure "H" is recommended in these situations:

- The liquid temperature is high.
- The flow is significantly higher than the rated flow.
- Water is drawn from depths.
- Water is drawn through long pipes.
- Inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in meters head can be calculated as follows:

$$H = P_b \times 10.2 - NPSH - H_r - H_s$$

P_b = Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems, P_b indicates the system pressure in bar.

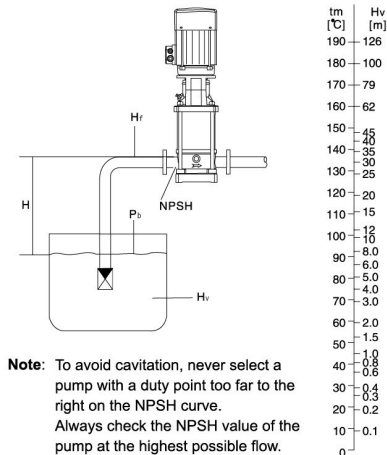
$NPSH$ = Net Positive Suction Head in meters head. (To be read from the NPSH curve at the highest flow the pump will be delivering.)

H_r = Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering.)

H_v = Vapor pressure in meters head. (To be read from the vapor pressure scale. "Hv" depends on the liquid temperature "tm")

H_s = Safety margin=minimum 0.5 meters head.

If the "H" calculated is positive, the pump can operate at a suction lift of maximum "H" meters head.
If the "H" calculated is negative, an inlet pressure of minimum "H" meters head is required.

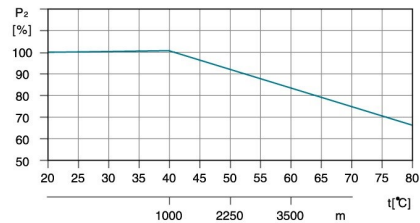


Note: To avoid cavitation, never select a pump with a duty point too far to the right on the NPSH curve. Always check the NPSH value of the pump at the highest possible flow.

Ambient Temperature

Max. ambient temperature: + 40°C. Ambient temperature above 40°C or installation at altitude of more than 1000 meters above sea level require the use of an oversize motor. Because of low air density and poor cooling effects, the motor output power P_2 will be decreased. See the picture.

In such cases, it may be necessary to use a motor with a higher output power rating.



For example, when the pump is installed at altitude of more than 3500 meters above sea level, P_2 will be decreased to 88%. When the ambient temperature is 70°C, P_2 will be decreased to 78%.

Maximum Inlet Pressure

The following table shows the maximum permissible inlet pressure. However, the current inlet pressure + the pressure against a closed valve must always be lower than the Max. permissible operating pressure.
If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal reduced.

Pump Type	Maximum Inlet Pressure [bar]
LVR1, LVS1	
1-2 — 1-36	10
LVR2, LVS2	
2-2	6
2-3 — 2-12	10
2-13 — 2-26	15
LVR3, LVS3	
3-2 — 3-29	10
3-31 — 3-26	15
LVR4, LVS4	
4-2	6
4-3 — 4-11	10
4-12 — 4-22	15
LVR5, LVS5	
5-2 — 5-16	10
5-18 — 5-29	15
LVR10, LVS10	
10-1 — 10-6	8
10-7 — 10-22	10
LVR15, LVS15	
15-1 — 15-3	8
15-4 — 15-17	10
LVR20, LVS20	
20-1 — 20-3	8
20-4 — 20-17	10
LVR32, LVS32	
32-1-1 — 32-4	4
32-5-2 — 32-10	10
32-11 — 32-14	15
LVR45, LVS45	
45-1-1 — 45-2	4
45-3-2 — 45-5	10
45-6-2 — 45-13-2	15
LVR64, LVS64	
64-1-1 — 64-2-2	4
64-2-1 — 64-4-2	10
64-4-1 — 64-8-1	15
LVR90, LVS90	
90-1-1 — 90-1	4
90-2-2 — 90-3-2	10
90-3 — 90-6	15