

NordicFlow® Jockey pump



Description

NordicFlow Jockey Pumps keep the system pressurized during normal conditions and prevent unnecessary activation of the main pump. They have compact design, high efficiency, low noise, reliable sealing and simple maintenance.

Technical data

Type: Vertical Multistage Centrifugal Pump

Liquid Temperature: - 20°C - +120°C

Flow Range: 1,2-4,5 m³/h

Liquid pH-value: 4-10

Max. ambient temperature: +40°C

Max. operating pressure: 24 bar

Max. installation altitude: 1000m

Product Code	Rated Flow (m ³ /h)	Rated Head (m)	Max. Flow (m ³ /h)	Max. Head (m)	Power (kW)	Max. inlet pressure (bar)	Voltage	Pipe Connection
LVR3-7-220V	3	32	5	44	0,55	10	50Hz ~ 220 V	Oval Flange G1
LVR3-7-380V	3	32	5	44	0,55	10	50Hz ~ 380 V	Oval Flange G1
LVR3-9-220V	3	42	5	57	0,75	10	50Hz ~ 220 V	Oval Flange G1
LVR3-9-380V	3	42	5	57	0,75	10	50Hz ~ 380 V	Oval Flange G1

Other Applications

- Suitable for transferring liquids that are low-viscosity, non-inflammable and non-explosive and contain no solid particles or fibers.
- Water supply: water supply and drainage for high-rise buildings, water filtration and transfer in waterworks, pressure increase in main pipes.
- Industry: rinsing and cleaning systems, boiler water supply, cooling water circulation, water treatment systems, auxiliary systems.
- Water treatment: ultra-filtration, reverse-osmosis and distillation systems, separators, swimming pools.
- Agricultural irrigation: sprinkler irrigation, drop irrigation.
- Food and beverage industries.
- Fire-fighting systems

General Notes:

- Enexia Oy reserves the right to change specifications, designs and/or standard equipment without notice and without incurring in any obligations.

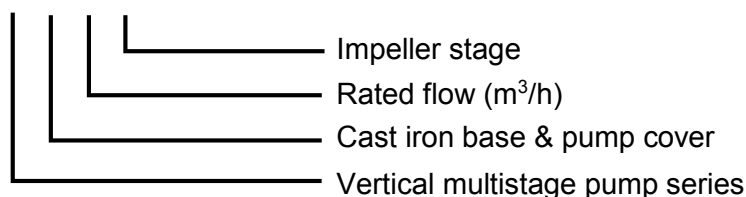
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Motor

- Totally enclosed & fan-cooled motor
- Protection class: IP 55
- Standard voltage: 50Hz ~ 1x220V / 3x380V

Identification Codes

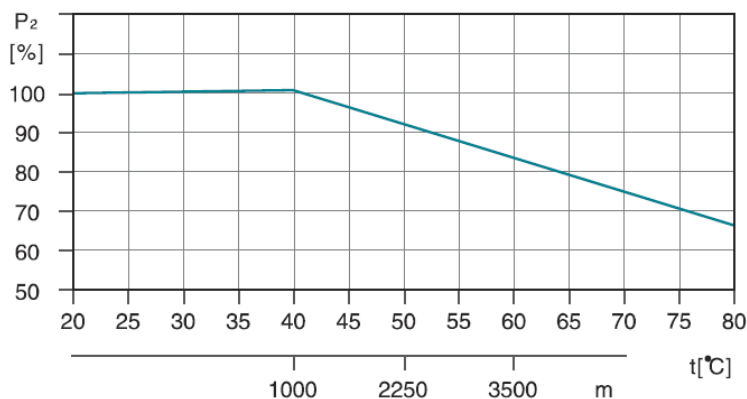
LV R 3-10



Ambient Temperature

Max. ambient temperature: +40°C.

When ambient temperature is above 40°C or the centrifugal pump is installed at altitude of more than 1000 meters above sea level, an oversized motor should be used. Because the motor output power P₂ will be decreased due to low air density and poor cooling effects. See the picture. In such cases, it is necessary to use a motor with a higher output power rating.



For example, when the pump is installed at altitude of over 3500 meters above sea level, P₂ will be decreased to 88%. When the ambient temperature is 70°C, P₂ will be decreased to 78%.

Minimum Inlet Pressure-Push of Vertical Multistage Centrifugal Pump

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

- High liquid temperature
- The flow is significantly higher than the rated flow.
- Water is drawn from depths or drawn through long pipes
- Poor inlet conditions

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In order to prevent 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::

$$H = P_b \times 10.2 - \text{NPSH} - H_f - H_v - H_s$$

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 NPSH curve at the highest flow the pump will be delivering).

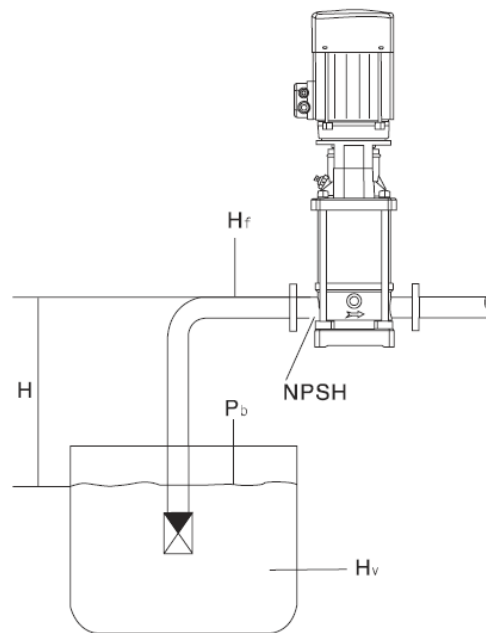
H_f = Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering).

H_v = Vapor pressure in meters head (To be read from the vapor pressure scale. "H_v" 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.



tm [°C]	Hv [m]
190	126
180	100
170	79
160	62
150	45
140	40
130	35
120	30
110	25
100	20
90	15
80	12
70	10
60	8.0
50	6.0
40	5.0
30	4.0
20	3.0
10	2.0
0	1.5
	1.0
	0.8
	0.6
	0.4
	0.3
	0.2
	0.1
	0

HUOM: To avoid cavitation, never choose 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.

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Maximum Inlet Pressure

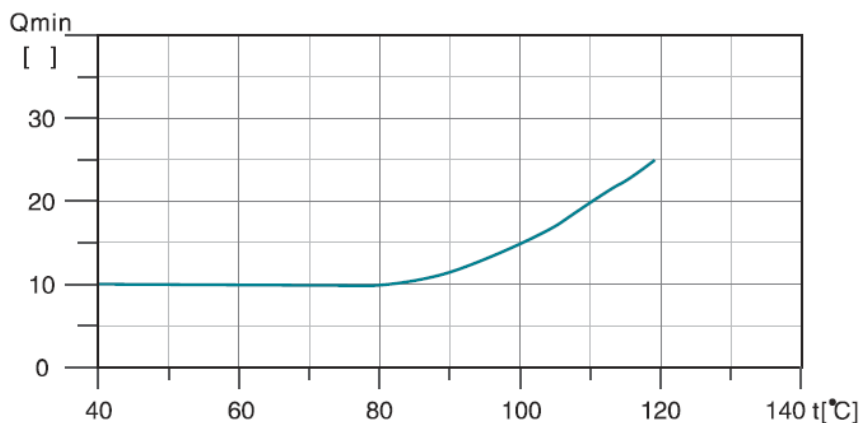
LVR3-7 – LVR3-9 = 10 bar

The maximum permissible operating pressure should be higher than the current inlet pressure + the pressure against a closed valve.

If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal may be reduced.

Minimum Flow Rate

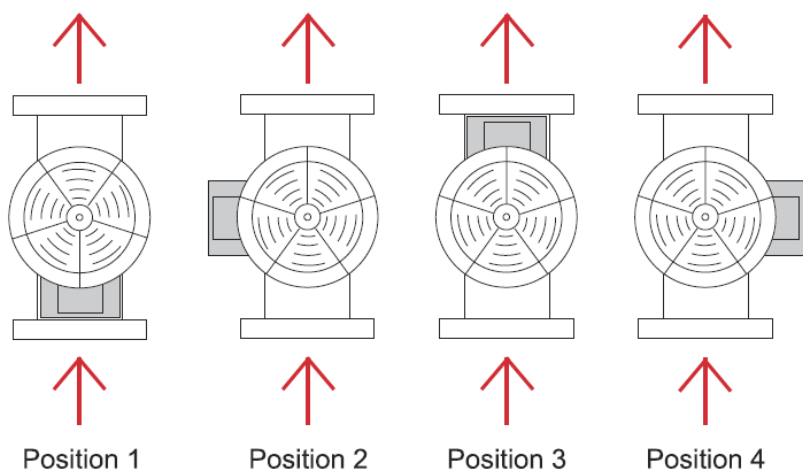
To avoid overheating, the pump should not be used at a flow below the minimum flow rate. The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.



NOTE: The outlet valve must be opened when the pump is in operation.

Junction Box Positions

(NOTE: Position 1 is used in transport)

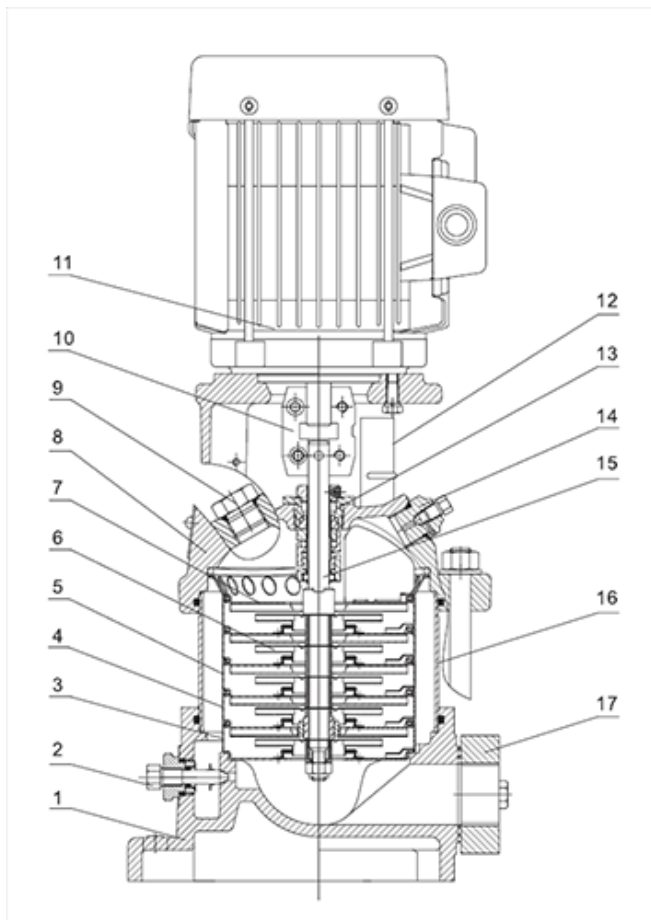


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Material specifications



Nr.	Part	Material
1	Base	HT200
2	Drainage plug assembly	AISI304
3	Primary diffuser	AISI304
4	Diffuser with bearing	AISI304
5	Medium diffuser	AISI304
6	Impeller	AISI304
7	Final diffuser	AISI304
8	Motor base	HT200
9	Filling plug	AISI304
10	Coupling	Iron based powder metallurgy
11	Motor	
12	Guarding plate	AISI304
13	Cartridge seal	
14	Vent plug assembly	AISI304
15	Pump shaft	AISI304
16	Pump barrel	AISI304
17	Oval flange	HT200

Guidelines To Performance Curves

Tolerances to ISO 9906, Annex A.

Measurements have been made with airless water at a temperature of 20°C and kinematic viscosity of 1mm²/s. Due to the risk of overheating of the motor, the pump should not be used against a high head for a long time.

Reading the Curve Charts

The first **QH-curves** apply to individual pumps.

The thin curves indicate the duty range where long-time operation is forbidden. The bold curves indicate the recommended duty range for best efficiency. Numbers on thin curves indicate the number of stages.

Eta-curve shows the efficiency of the pump. It is an average curve of all the pump types shown in the chart.

P2-curve indicates pump input per stage.

QH2900rpm-curve for each individual impeller. Curves for standard impellers are shown.

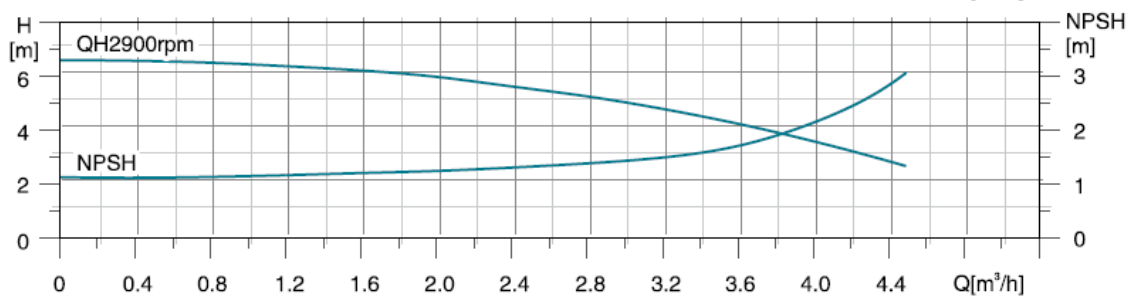
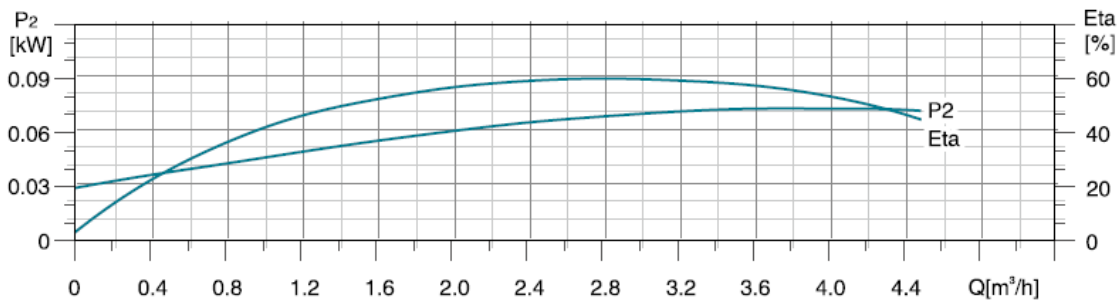
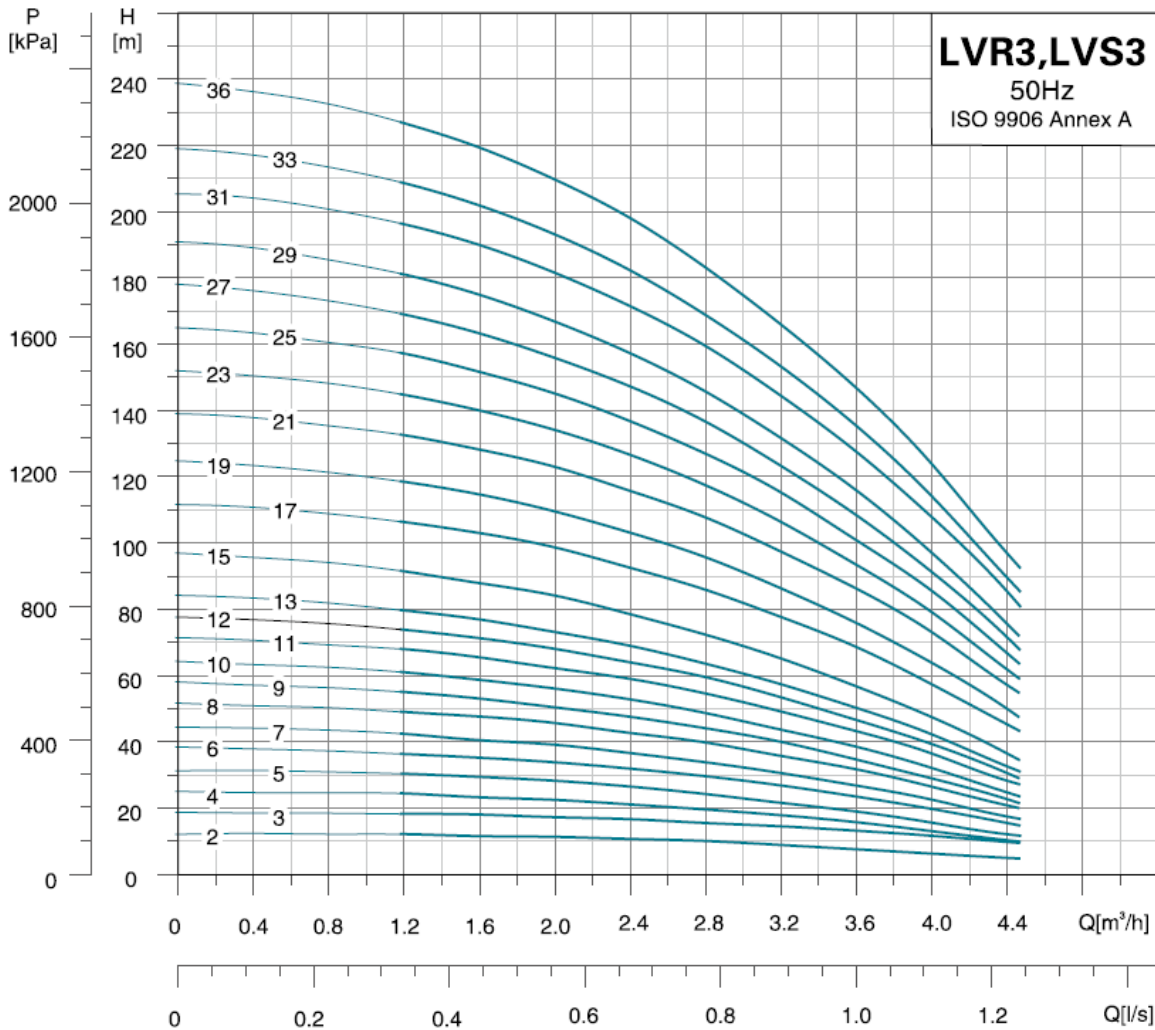
NPSH-curve is an average curve for all the variants shown. When choosing a pump, add a safety margin of at least 0,5 m.

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Pump Curve Charts

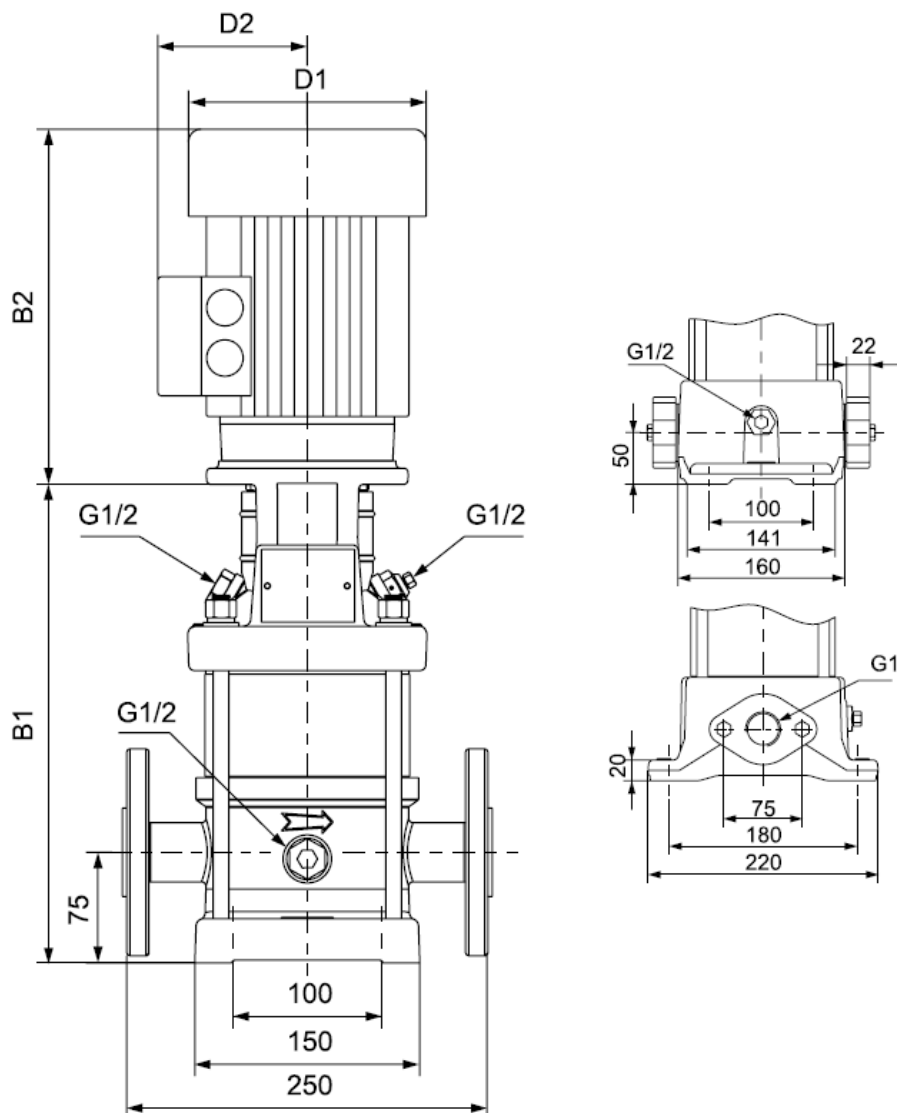


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Dimension Drawings



Model	B1	B1+B2	D1	D2
3-7	328	558	136	109
3-9	368	618	155	124

Model	Power (kW)	Q (m ³ /h)	1,2	1,6	2,0	2,4	2,8	3,2	3,6	4,0
3-7	0,55	H (m)	43	40	40	37	35	32	28	24
3-9	0,75		56	54	51	48	45	42	36	30

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