

## APPLICATIONS

LVR(S) series, vertical multistage centrifugal pump, is suitable for transferring liquids of low viscosity, non-inflammable and non-explosive, not containing solid particles or fibers.

- Water supply: water supply & drainage for high-rise buildings, filtration and transfer at waterworks, pressure boosting in main pipe
- Industry: Washing and cleaning systems, boiler feeding, cooling water circulation, water treatment systems, auxiliary system, support equipment
- Water treatment: ultra-filtration systems, reverse-osmosis systems, distillation systems, separators, swimming pools
- Agricultural irrigation: sprinkler irrigation, drip-feed irrigation
- Food & beverage industry
- Fire-fighting system

## FEATURES

- Compact, nice appearance, efficient, low noise, reliable seal, easy to use and maintain

## OPERATING CONDITIONS

Low viscosity, non-inflammable 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: -15°C+120°C
- Flow ranges: 0.7-85m³/h
- pH: 3~9
- Max. ambient temperature: +40°C
- Max. operation pressure: 33bar
- Altitude: up to 1000m

## MOTOR

- Totally enclosed & fan-cooled motor
- Protection class: IP 55
- Standard voltage: 50Hz 1×220V/3×380V

## IDENTIFICATION CODES

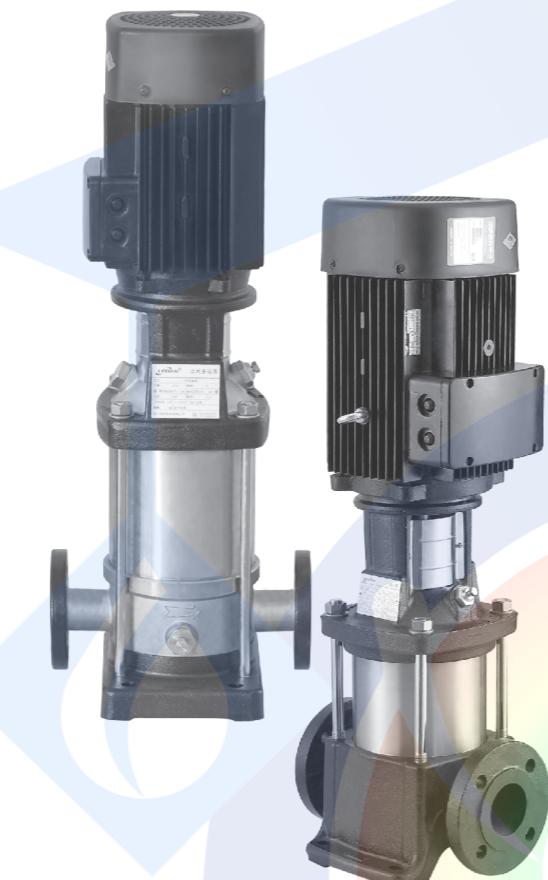
LVS	45-10-2-B-F	Pipeline port code (Omitted for DIN flange)
		AISI316 stainless steel material (Omitted for AISI304)
		Small impeller stages
		Impeller stage
		Rated flow(m³/h)
		LVS,LVR Vertical multistage pump series

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

### Identifications codes of flange structure

F: DIN flange : A: Oval flange

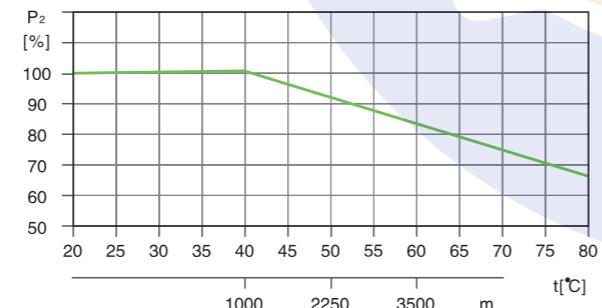
K: Clamp connector : G: Threaded connector



## AMBIENT TEMPERATURE

Max. ambient temperature: + 40°C. Ambient temperature above 40° 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%.

## 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:

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

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

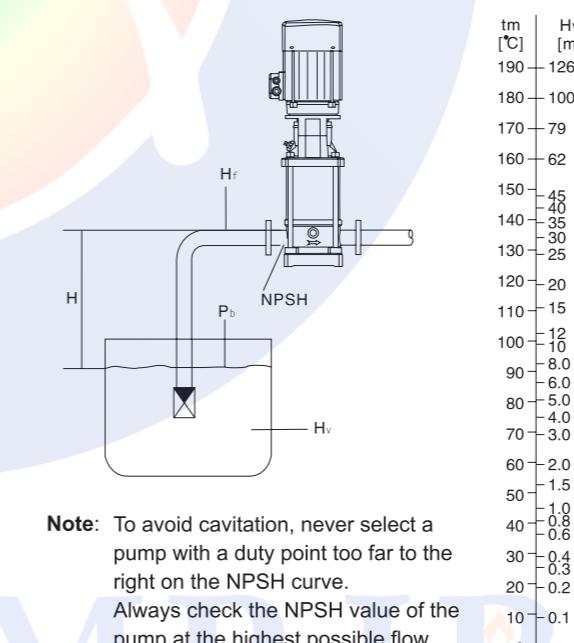
$H_f$  = Friction loss in suction pipe in meters head.  
(At the highest flow the pump will be delivering.)

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

$H_s$  = 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.

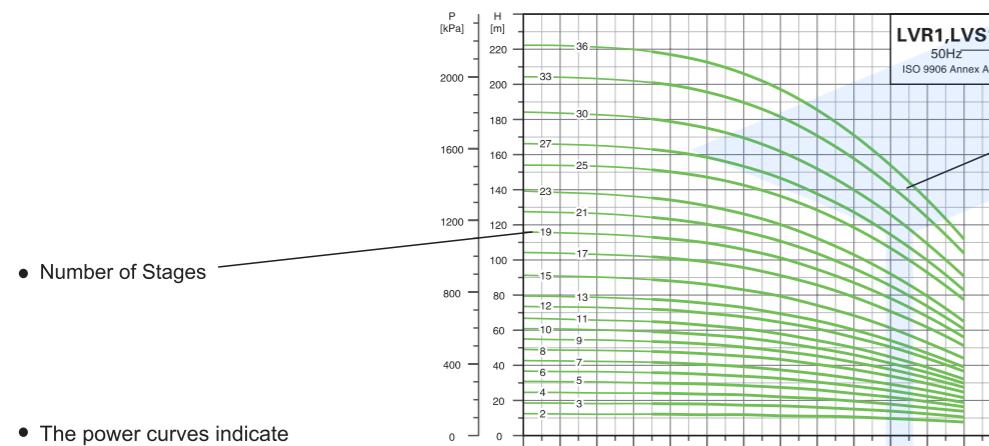
## MAXIMUM INLET PRESSURE

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	10
2-2 — 1-36	6
2-3 — 2-11	10
2-13 — 2-26	15
LVR3,LVS3	10
3-2 — 3-29	15
3-31 — 3-26	10
LVR4,LVS4	6
4-2 — 4-10	10
4-12 — 4-22	15
LVR5,LVS5	10
5-2 — 5-16	15
5-18 — 5-29	10
LVR10,LVS10	8
10-1 — 10-6	10
10-7 — 10-22	8
LVR15,LVS15	8
15-1 — 15-3	10
15-4 — 15-17	15
LVR20,LVS20	8
20-1 — 20-3	10
20-4 — 20-17	8
LVR32,LVS32	4
32-1-1 — 32-4	10
32-5-2 — 32-10	15
32-11 — 32-14	4
LVR45,LVS45	10
45-1-1 — 45-2	15
45-3-2 — 45-5	4
45-6-2 — 45-13-2	10
LVR64,LVS64	15
64-1-1 — 64-2-2	4
64-2-1 — 64-4-2	10
64-4-1 — 64-8-1	15

## HOW TO READ THE CURVE CHARTS

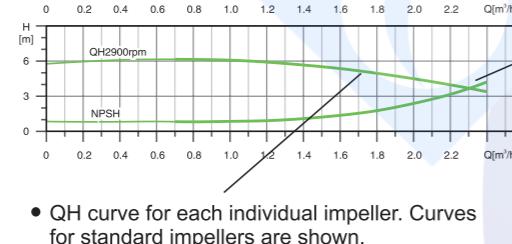


- Number of Stages

- The power curves indicate pump input per stage.

## 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.
- To avoid overheating of the motor, the pump should not be used against a high head for a long time.

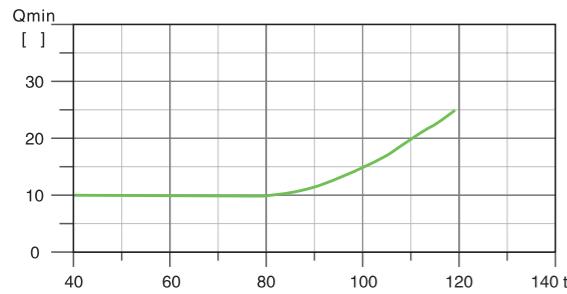


- QH curve for each individual impeller. Curves for standard impellers are shown.
- The eta curve shows the efficiency of the pump. The eta curve is an average curve of all the pump types shown in the chart.
- The NPSH curve is an average curve for all the variants shown. When choosing the pump, add a safety margin of at least 0.5m.

## MINIMUM FLOW RATE

Due to the risk of 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.

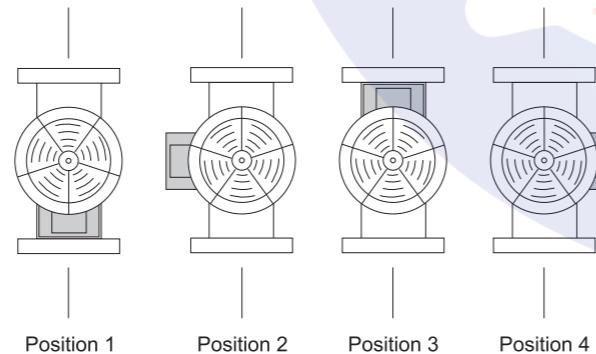
Air cooling apparatus



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

## TERMINAL BOX POSITIONS

(Note: set to position 1 before delivery)

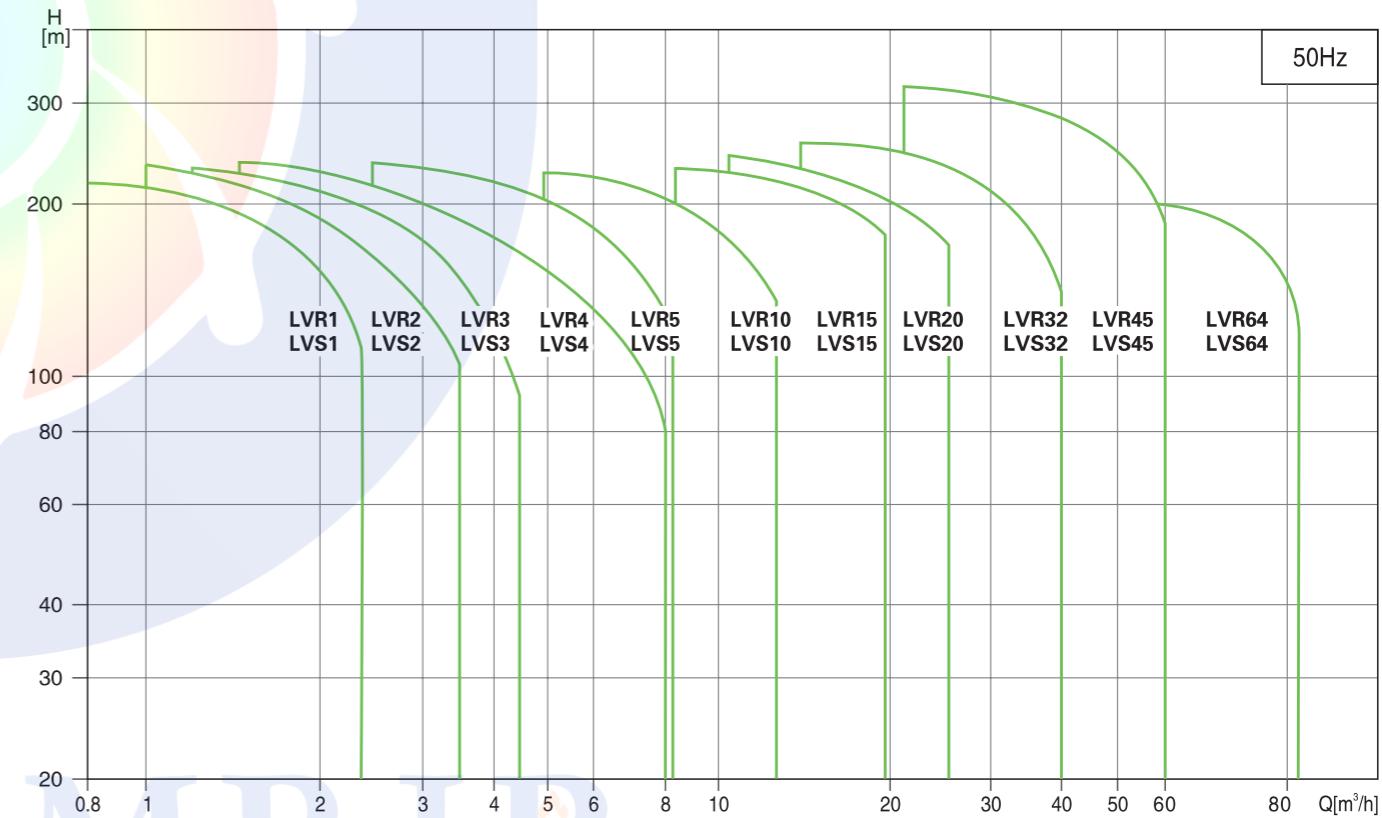


## PRODUCT RANGE

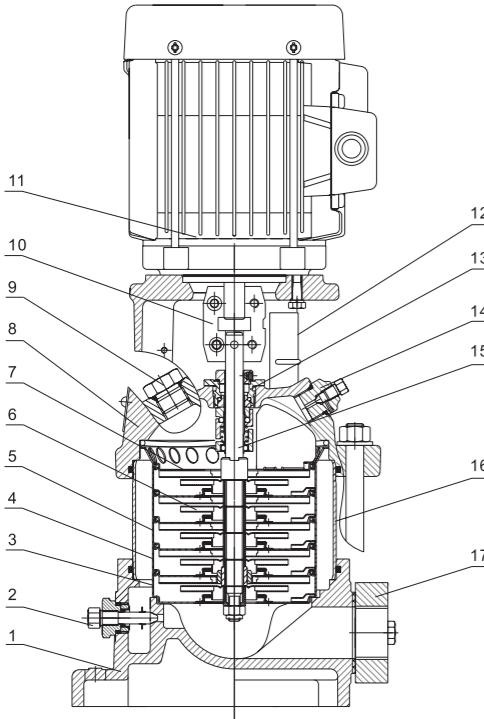
MODEL DESCRIPTION	LVR(S)1	LVR(S)2	LVR(S)3	LVR(S)4	LVR(S)5	LVR(S)10	LVR(S)15	LVR(S)20	LVR(S)32	LVR(S)45	LVR(S)64
Rated flow [m³/h]	1	2	3	4	5	10	15	20	32	45	64
Flow range [m³/h]	0.7–2.4	1.0–3.5	1.2–4.5	1.5–8	2.5–8.5	5–13	8–23	10.5–29	15–40	22–58	30–85
Max. pressure [bar]	22	23	24	21	24	22	23	25	28	33	22
Motor power [kW]	0.37–2.2	0.37–3	0.37–3	0.37–4	0.37–4	0.37–7.5	1.1–15	1.1–18.5	1.5–30	3–45	4–45
Temperature Range [°C]	–20°C~+120°C (Note: Both the Max. permissible pressure and liquid temperature range refer to the pump capacity.)										
Max. pump efficiency [%]	45	46	55	59	60	65	70	72	78	79	80
Pipe connection-LVR											
Oval flange	G1	G1	G1	G1 1/4	G1 1/4	–	–	–	–	–	–
DIN flange	–	–	–	–	–	DN 42	DN 50	DN 50	DN 65	DN 80	DN 100
Flange structure	○	○	○	○	○	○	○	○	●	●	●
Pipe connection-LVS											
Oval flange	–	–	–	–	–	–	–	–	–	–	–
DIN flange	DN 32	DN 32	DN 32	DN 32	DN 32	DN 42	DN 50	DN 50	DN 65	DN 80	DN 100
Clamp connector	φ42	φ42	φ42	φ42	φ42	–	–	–	–	–	–
Threaded connector	G1 1/4	G1 1/4	G1 1/4	G1 1/4	G1 1/4	–	–	–	–	–	–
Flange structure	●	●	●	●	●	●	●	●	●	●	●

Note: ○ It means stationary flange structure , ● It means dynamic flange structure

## SCOPE OF PERFORMANCE-LVR,LVS

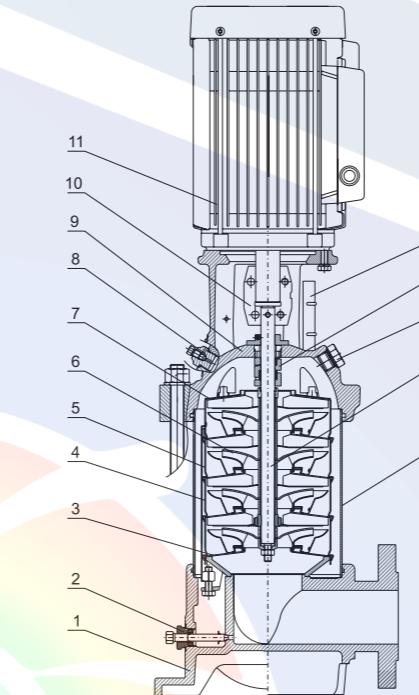


## CROSS SECTION



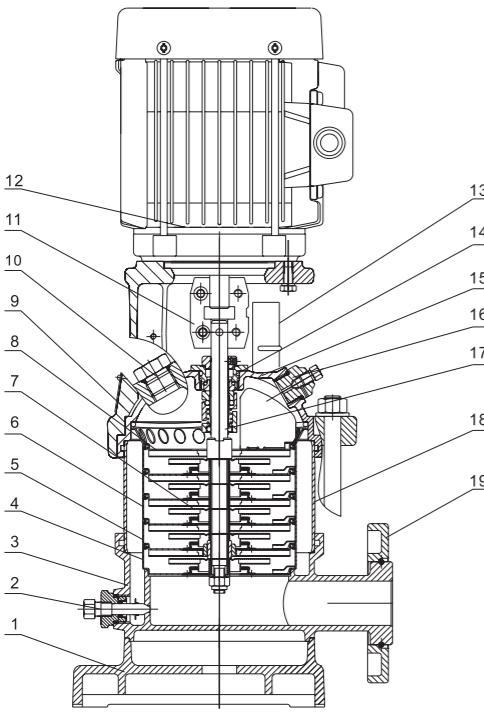
**MODEL: LVR1(2,3,4,5)**

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



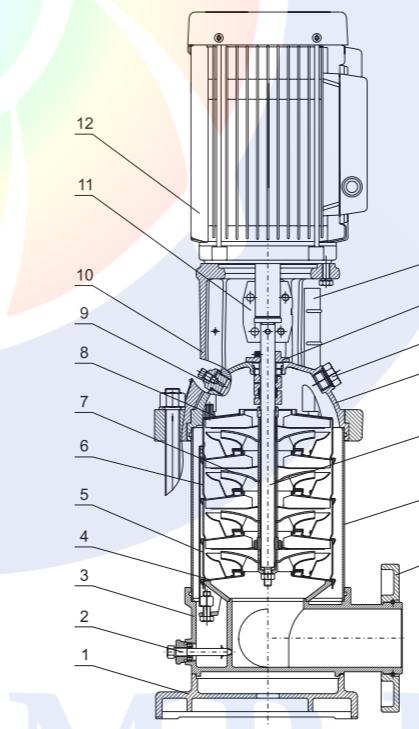
**MODEL: LVR10(15,20)**

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 Filling plug	AISI304
9 Motor base	HT200
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



**MODEL: LVS1(2,3,4,5)**

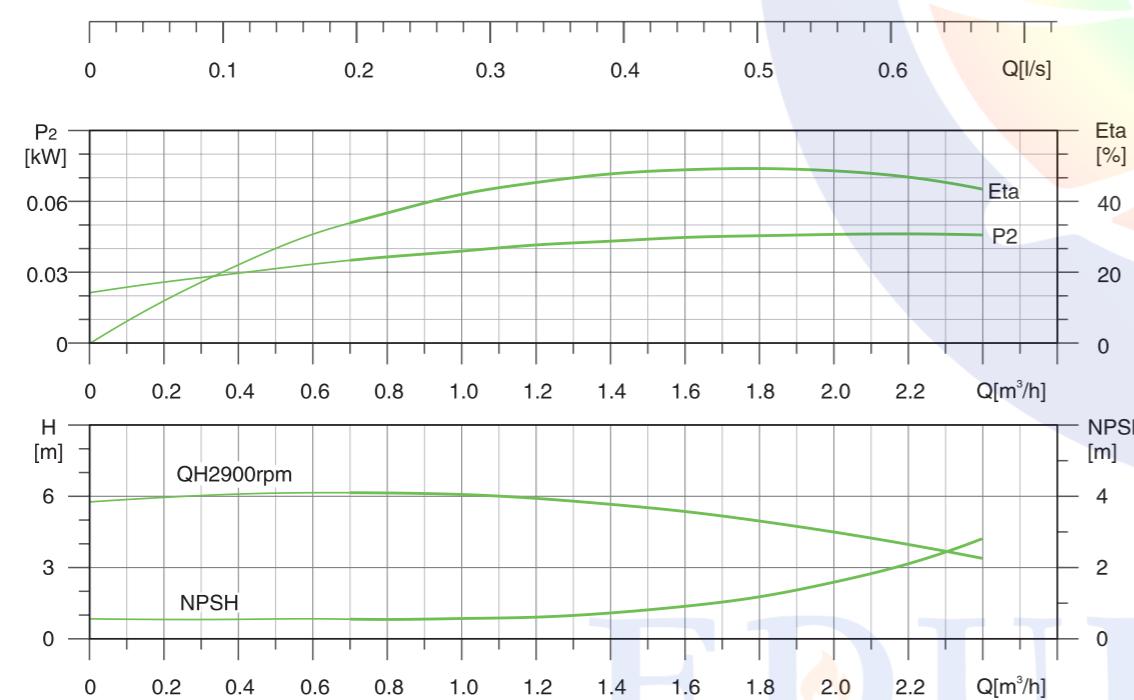
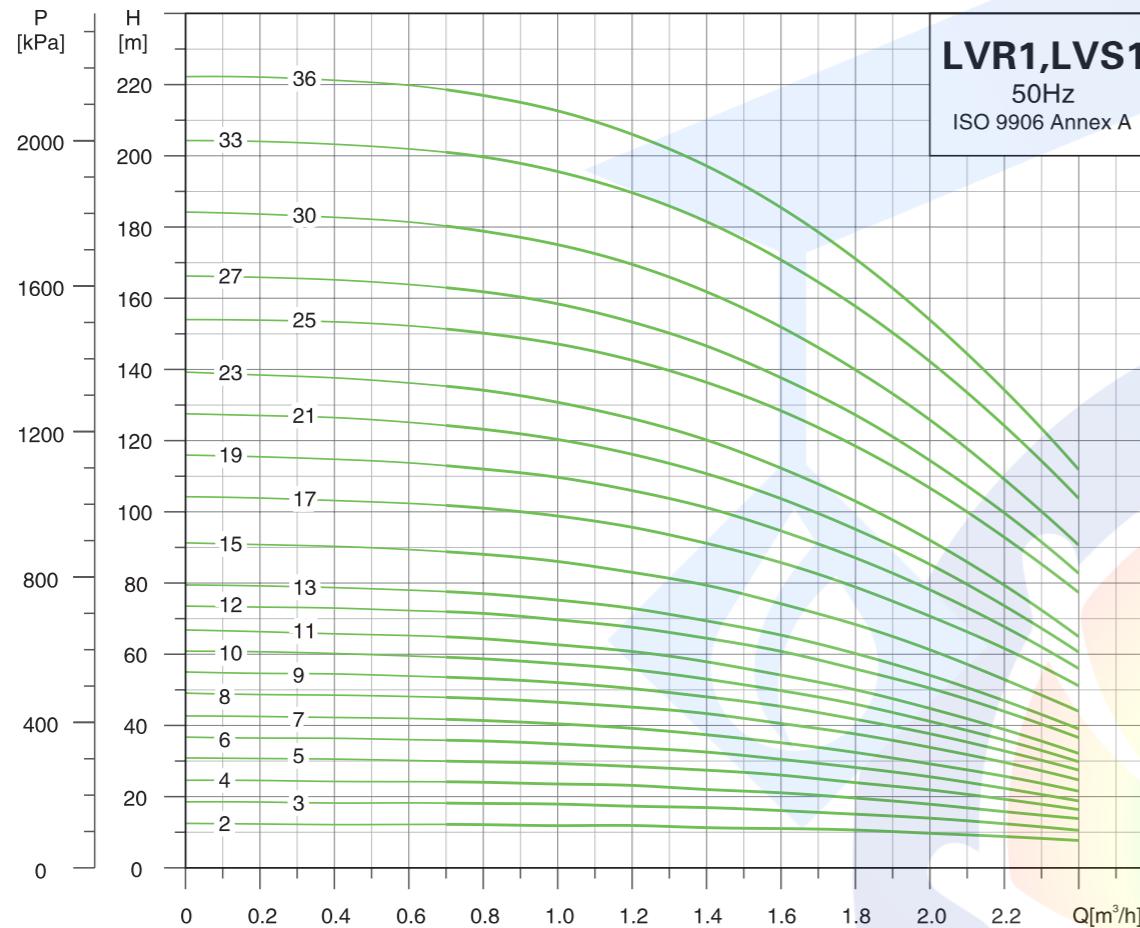
Part	Material	Optional Material
1 Base plate	HT200	
2 Drainage plug assembly	AISI304	AISI316
3 Chassis	ZG304	ZG316
4 Primary diffuser	AISI304	AISI316
5 Diffuser with bearing	AISI304	AISI316
6 Medium diffuser	AISI304	AISI316
7 Impeller	AISI304	AISI316
8 Final diffuser	AISI304	AISI316
9 Motor base	HT200	
10 Filling plug	AISI304	AISI316
11 Coupling	Iron based powder metallurgy	
12 Motor		
13 Guarding plate	AISI304	
14 Cartridge seal		
15 Pump cover	ZG304	ZG316
16 Vent plug assembly	AISI304	AISI316
17 Pump shaft	AISI304	AISI316
18 Pump barrel	AISI304	AISI316
19 Flange	ZG35	



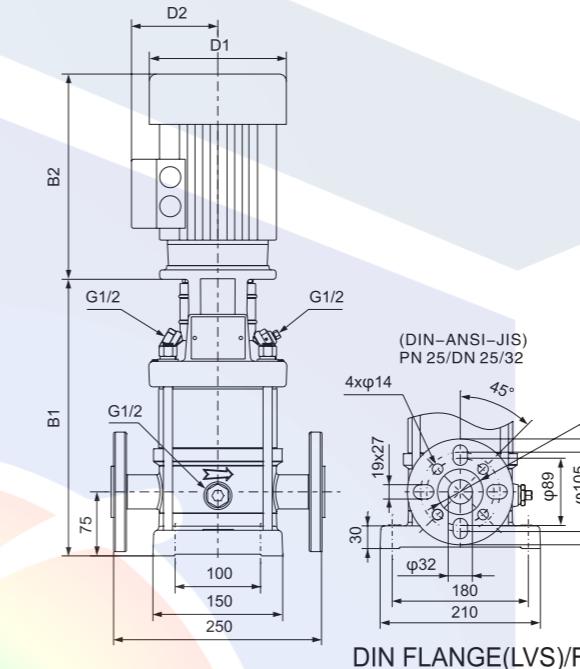
**MODEL: LVS10(15,20)**

Part	Material	Optional Material
1 Base plate	HT200	
2 Drainage plug assembly	AISI304	AISI316
3 Chassis	ZG304	ZG316
4 Primary diffuser	AISI304	AISI316
5 Diffuser with bearing	AISI304	AISI316
6 Medium diffuser	AISI304	AISI316
7 Impeller	AISI304	AISI316
8 Final diffuser	AISI304	AISI316
9 Filling plug	AISI304	AISI316
10 Motor base	HT200	
11 Coupling	Iron based powder metallurgy	
12 Motor		
13 Guarding plate	AISI304	
14 Cartridge seal		
15 Vent plug assembly	AISI304	AISI316
16 Pump cover	ZG304	AISI316
17 Pump shaft	AISI304	AISI316
18 Pump barrel	AISI304	AISI316
19 Flange	ZG35	

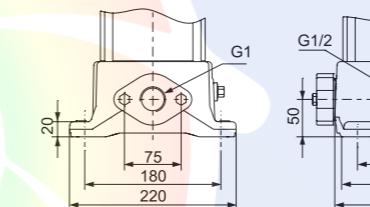
# HYDRAULIC PERFORMANCE CURVES



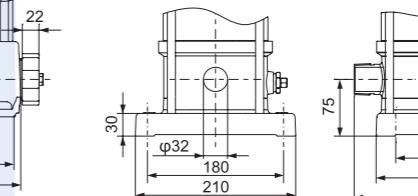
## DIMENSION DRAWING



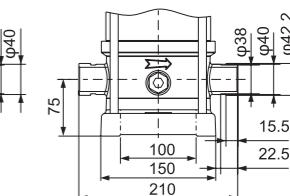
DIN FLANGE(LVS)



OVAL FLANGE(LVR)



THREADED C



/S/G CLAMP CONNECTOR (IVS)

MODEL	POWER[kW]	Q[m³/h]	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
1-2	0.37	H(m)	12	12	12	12	12	11	11	10	10
1-3	0.37		18	18	18	18	17	17	16	15	14
1-4	0.37		24	24	24	23	22	22	21	19	18
1-5	0.37		30	30	30	29	28	27	26	24	22
1-6	0.37		36	36	35	35	34	32	30	28	25
1-7	0.37		42	42	41	41	39	37	35	32	30
1-8	0.55		48	48	47	46	45	43	40	37	34
1-9	0.55		54	54	53	52	50	48	45	41	37
1-10	0.55		60	59	58	57	55	53	50	46	41
1-11	0.55		65	65	64	62	61	58	54	50	45
1-12	0.75		73	72	71	69	67	64	61	55	50
1-13	0.75		78	78	77	75	73	69	65	60	54
1-15	0.75		90	90	88	86	83	79	74	68	61
1-17	1.1		103	102	101	99	95	91	85	79	70
1-19	1.1		115	114	112	109	106	101	94	87	78
1-21	1.1		126	125	123	120	116	110	103	95	85
1-23	1.1		137	136	134	131	126	120	112	103	92
1-25	1.5		153	152	150	147	142	136	128	118	106
1-27	1.5		165	164	162	158	153	146	137	127	114
1-30	1.5		182	181	178	175	169	162	152	140	126
1-33	2.2		203	202	199	195	189	181	170	157	142
1-36	2.2		221	220	217	212	206	197	185	171	154



## اولین و بزرگترین

سایت تخصصی سیستم‌های پمپاژ  
با امکان محاسبه آنلاین و انتخاب پمپ

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در کلاس‌های S3 - S2 - S1  
مورد تایید سازمان آتش نشانی تهران



اولین و بزرگترین مرجع انتخاب آنلاین سیستم‌های پمپاژ

انتخاب آنلاین انواع بوستر پمپ  
انتخاب آنلاین انواع پمپ  
ارائه مطالب تخصصی



## اولین سایت مرجع انتخاب آنلاین پمپ

در حوزه‌های:  
ایمنی و آتش‌نشانی  
آب و فاضلاب  
صنایع غذایی  
استخراج  
صنعت  
معدن

## تولید بوستر پمپ آبرسانی دور متغیر بدون محدودیت برنده

## آموزش

سرمايش و گرمایش موتورخانه  
نرم افزار فنی و مهندسی  
استخراج، سونا و جکوزی  
سیستم‌های پمپاژ

تهویه و تخلیه دود  
سیستم‌های پمپاژ  
ایمنی معماری  
اطفاء حریق  
اعلام حریق

## مشاوره - طراحی - اجراء

تاسیسات مکانیکی (موتورخانه - استخراج)  
تهویه و تخلیه دود  
سیستم‌های پمپاژ  
ایمنی معماری  
اعلام حریق  
اطفاء حریق