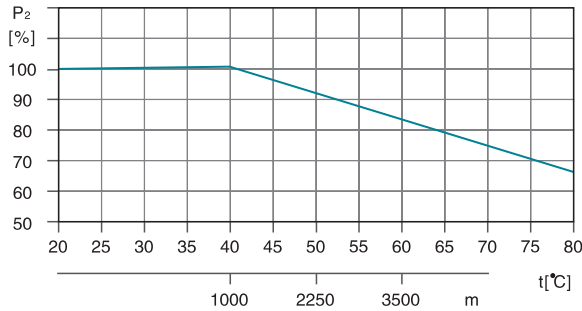




Ambient Temperature

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 P2 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, P2 will be decreased to 88%. When the ambient temperature is 70°C, P2 will be decreased to 78%.

Application

- Suitable for transferring liquids of low viscosity, non-inflammable 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

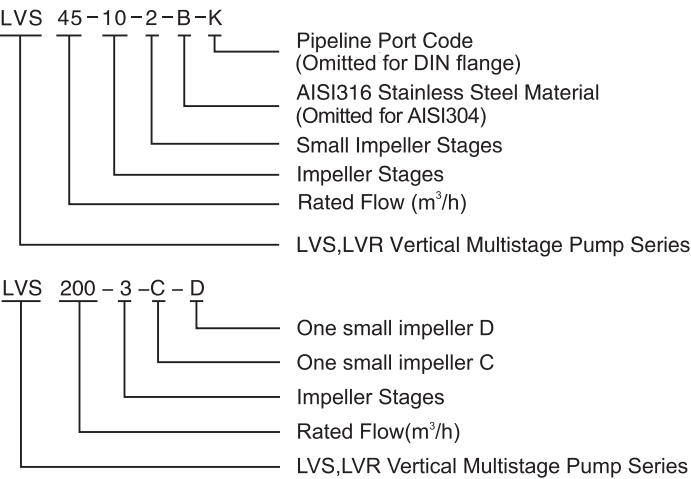
Operating Conditions

- Low viscosity, non-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: -20°C~+120°C
- Flow ranges: 0.7-240m³/h
- Liquid pH value: 4 -10
- Max. ambient temperature: +40°C
- Max. operation pressure: 33 bar
- Altitude: up to 1000 m

Motor

- IE 2 motor (IE 3 motor optional)
- Totally enclosed & fan-cooled
- 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

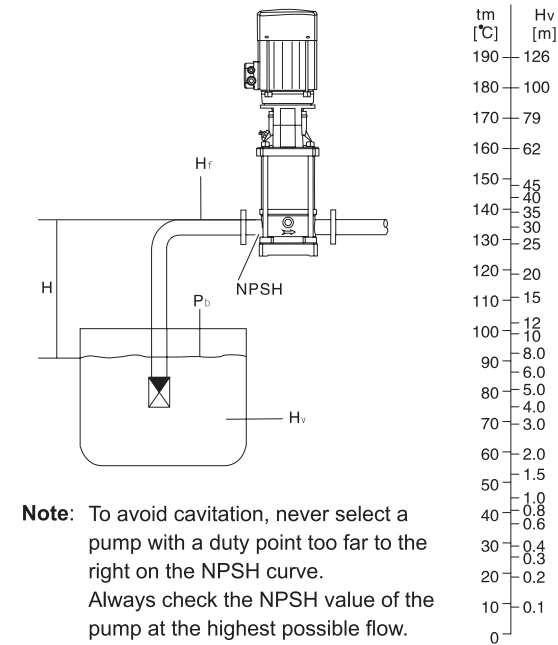
Minimum Inlet Pressure–Npsh

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

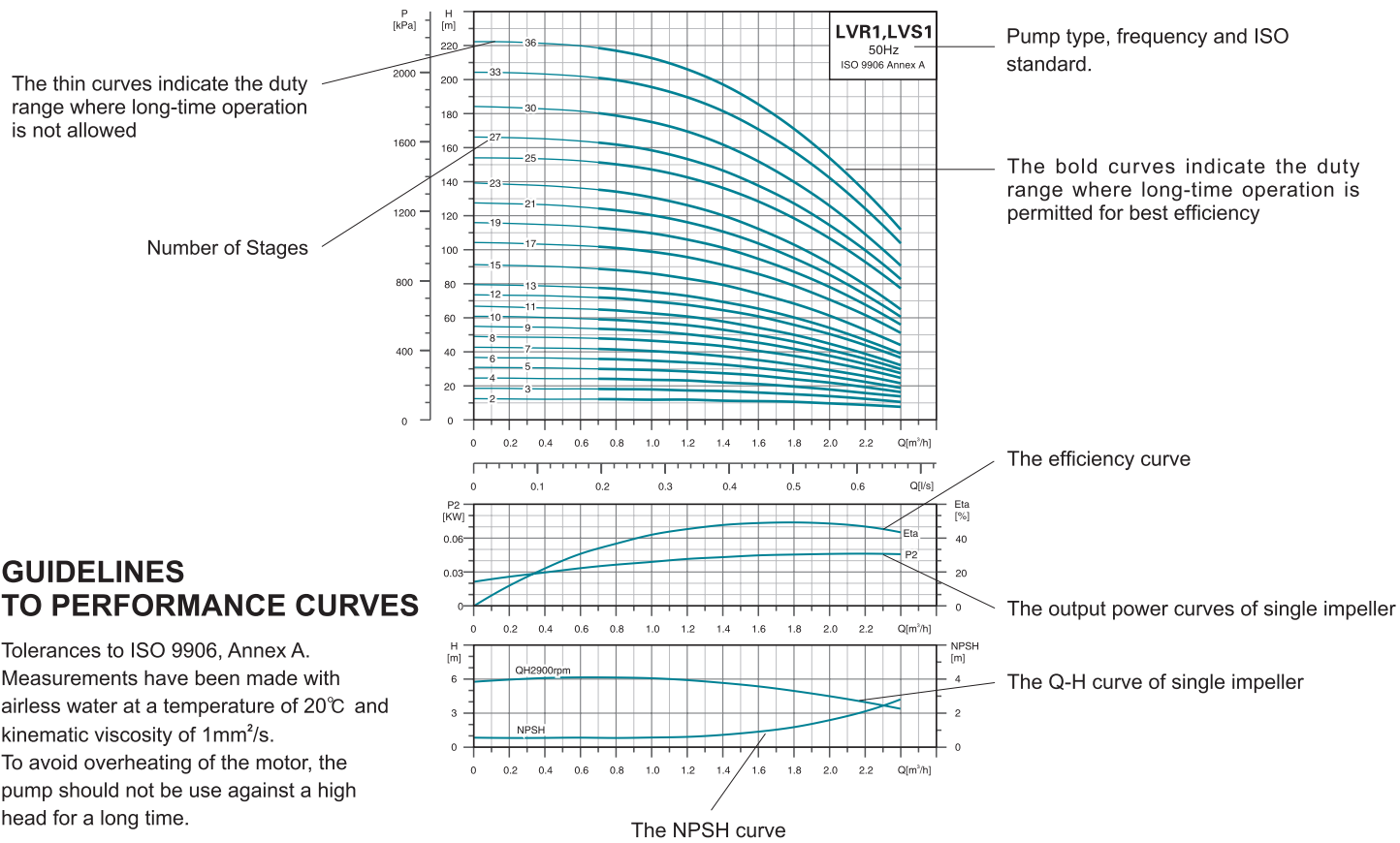


Maximum Inlet Pressure

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 — 2-12	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 — 4-11	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
LVR90,LVS90	
120-1 — 120-2-1	10
120-2 — 120-5-1	15
120-5 — 120-7	20
LVR150,LVS150	
150-1-1 — 150-2-2	10
150-2-1 — 150-4-1	15
150-4 — 150-6	20
LVR200,LVS200	
200-1-D — 200-2-2C	10
200-1-C — 200-2-2C	15
200-2-C — 200-4	20

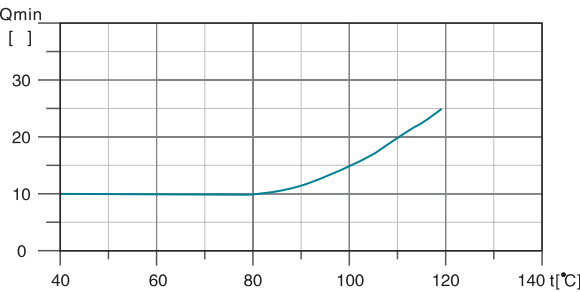
How To Read The Curve Charts



Minimum Flow Rate

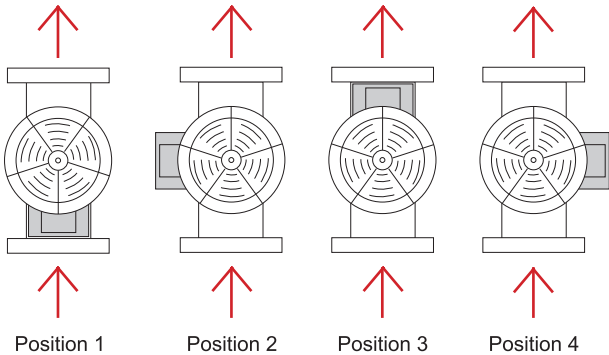
Due to the risk of overheating, the pump should not be used at a flow below the minimum flow rate. The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.

Air cooling apparatus



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

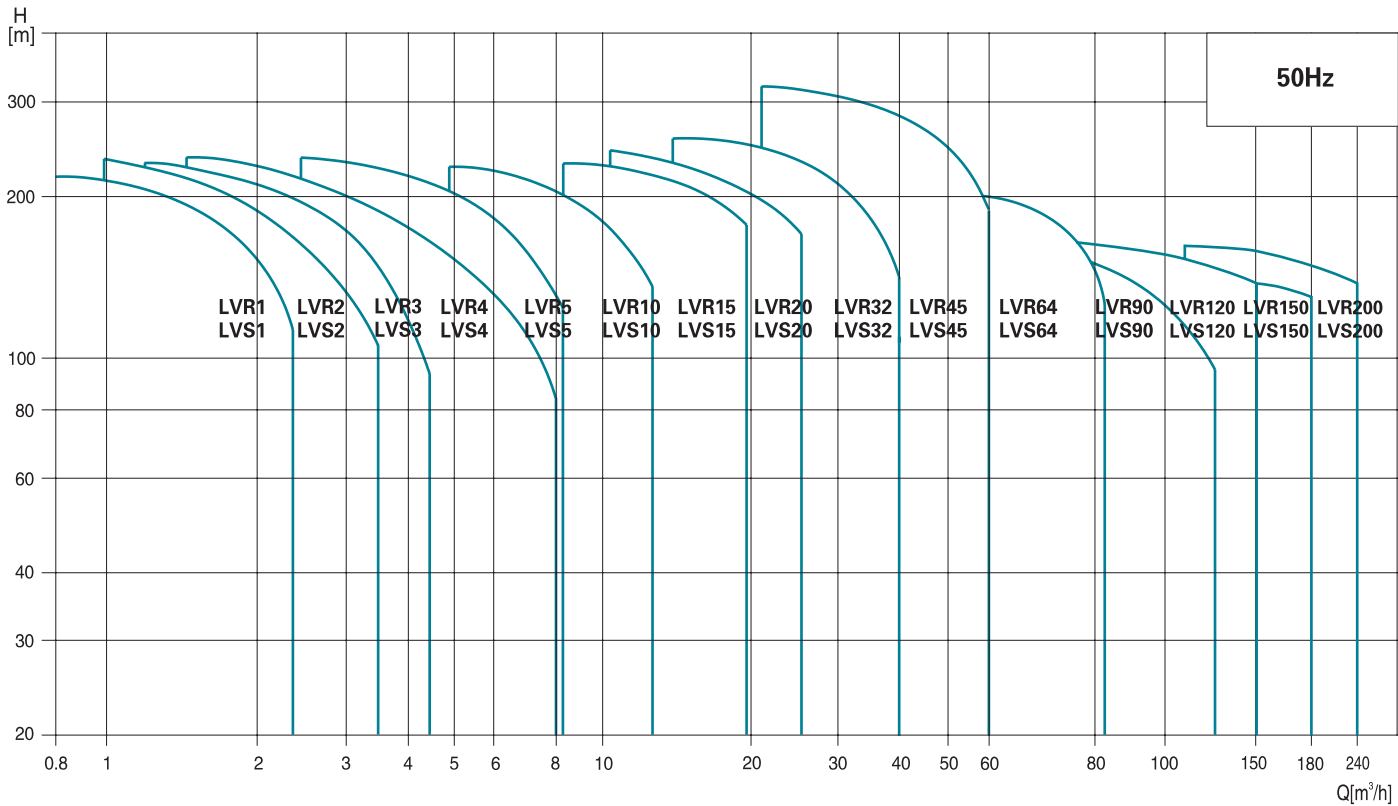
Terminal Box Positions
(Note: set to position 1 before delivery)



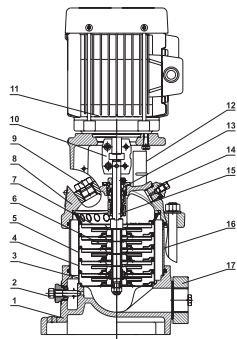
Product Range

MODEL	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	LVR(S)90	LVR(S)120	LVR(S)150	LVR(S)200
DESCRIPTION															
Rated flow [m³/h]	1	2	3	4	5	10	15	20	32	45	64	90	120	150	200
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	45–120	60–150	80–180	100–240
Max. pressure [bar]	22	23	24	21	24	22	23	25	28	33	22	20	16	16	16
Motor power [kW]	0.37–2.2	0.37–3	0.37–3	0.37–4	0.37–4	1.1–7.5	1.1–15	1.1–18.5	1.5–30	3–45	4–45	5.5–45	11–75	11–75	18.5–110
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	81	74	73	79
Pipe connection-LVR															
Oval flange	G1	G1	G1	G1 1/4	G1 1/4	–	–	–	–	–	–	–	–	–	–
DIN flange	DN25	DN25	DN25	DN32	DN32	DN40	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150
Pipe connection-LVS															
Oval flange	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DIN flange	DN32	DN32	DN32	DN32	DN32	DN40	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150
Clamp connector	φ 42	φ 42	φ 42	φ 42	φ 42	–	–	–	–	–	–	–	–	–	–
Threaded connector	G1 1/4	G1 1/4	G1 1/4	G1 1/4	G1 1/4	–	–	–	–	–	–	–	–	–	–

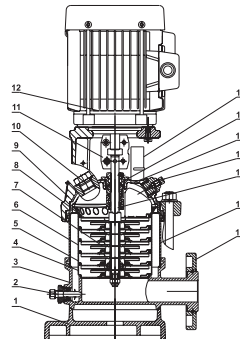
Scope Of Performance–LVR,LVS



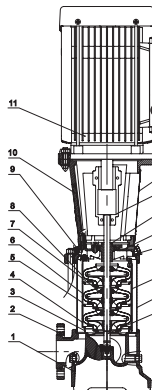
Cross Section



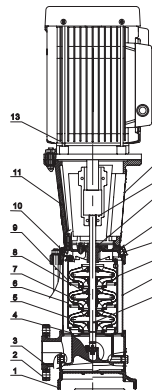
MODEL:LVR1(2,3,4,5)		
Part	Material	
1	Base	HT200
2	Drainage plug assembly	AISI304
3	Primary diffuser	AISI304
4	Diffuser with bearing	AISI304
5	Medium diffuser	AISI304
6	Impeller	AISI304
7	Final volute	AISI304
8	Motor base	HT200
9	Filling plug	AISI304
10	Coupling	Iron based powder metallurgy
11	Motor	
12	Guarding plate	AISI304
13	Cartridge seal	
14	Vent plug assembly	AISI304
15	Pump shaft	AISI304
16	Pump barrel	AISI304
17	Oval flange	HT200



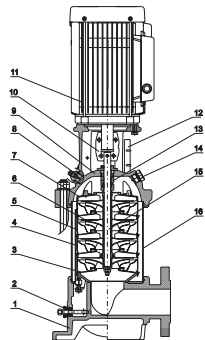
MODEL:LVS1(2,3,4,5)			
Part	Material	Optional Material	
1	Base plate	HT200	
2	Drainage plug assembly	AISI304	AISI316
3	Chasis	ZG304	ZG316
4	Primary diffuser	AISI304	AISI316
5	Diffuser with bearing	AISI304	AISI316
6	Medium diffuser	AISI304	AISI316
7	Impeller	AISI304	AISI316
8	Final volute	AISI304	AISI316
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	



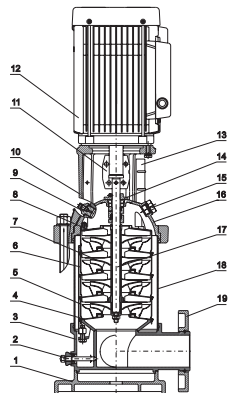
MODEL:LVR32(46,64,90)	
Part	Material
1	Base plate
2	Flange
3	Primary diffuser
4	Medium diffuser
5	Diffuser with bearing
6	Impeller
7	Shaft sleeve assembly
8	Final diffuser
9	Vent plug assembly
10	Motor base
11	Motor
12	Guarding plate
13	Coupling
14	Cartridge seal
15	HT200 Pump head
16	Filling plug
17	Tension plate
18	Pump barrel
19	Pump shaft



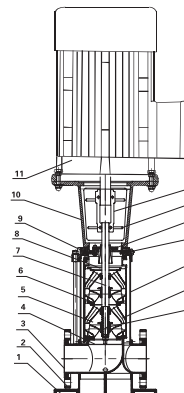
MODEL:LVS32(46,64,90)			
Part	Material	Optional Material	
1	Base plate	HT200	
2	Flange	ZG35	
3	Chasis	ZG304	ZG316
4	Primary diffuser	AISI304	AISI316
5	Medium diffuser	AISI304	AISI316
6	Diffuser with bearing	AISI304	AISI316
7	Impeller	AISI304	AISI316
8	Shaft sleeve assembly		
9	Final diffuser	AISI304	AISI316
10	Vent plug assembly	AISI304	AISI316
11	Motor base	HT200	
12	Motor		
13	Guarding plate	AISI304	
14	Coupling	QT400	
15	Cartridge seal		
16	Pump head	ZG304	ZG316
17	Filling plug	AISI304	AISI316
18	Tension plate	AISI304	AISI316
19	Pump barrel	AISI304	AISI316
20	Pump shaft	AISI304	AISI316



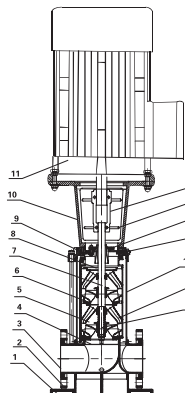
MODEL:LVR10(15,20)	
Part	Material
1	Base
2	Drainage plug assembly
3	Primary diffuser
4	Diffuser with bearing
5	Medium diffuser
6	Impeller
7	Final volute
8	Filling plug
9	Motor base
10	Coupling
11	Motor
12	Guarding plate
13	Cartridge seal
14	Vent plug assembly
15	Pump shaft
16	Pump barrel



MODEL:LVS10(15,20)			
Part	Material	Optional Material	
1	Base plate	HT200	
2	Drainage plug assembly	AISI304	AISI316
3	Chasis	ZG304	ZG316
4	Primary diffuser	AISI304	AISI316
5	Diffuser with bearing	AISI304	AISI316
6	Medium diffuser	AISI304	AISI316
7	Impeller	AISI304	AISI316
8	Final volute	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	

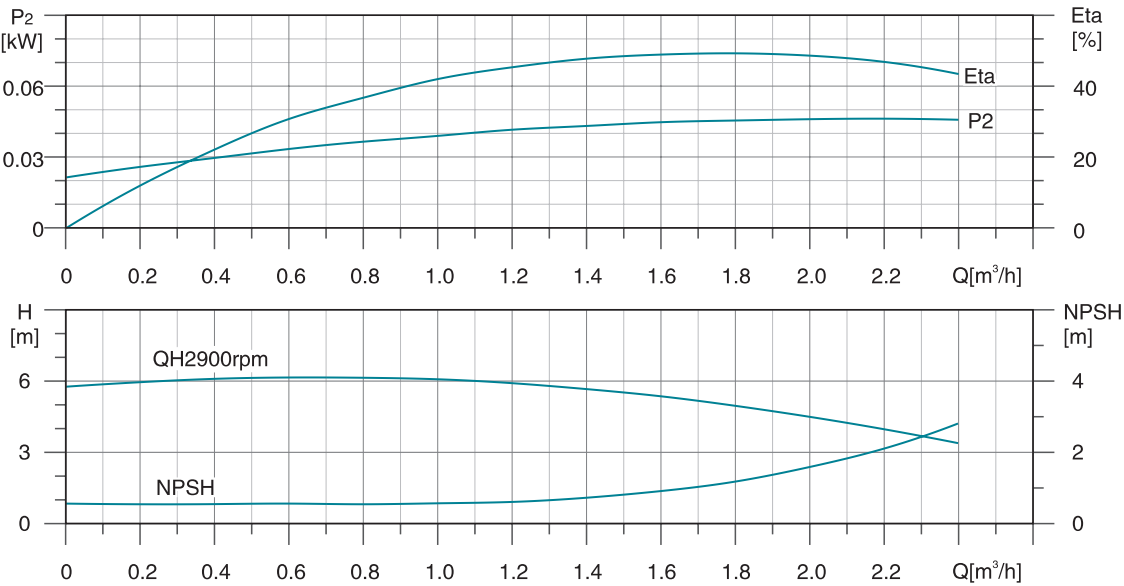
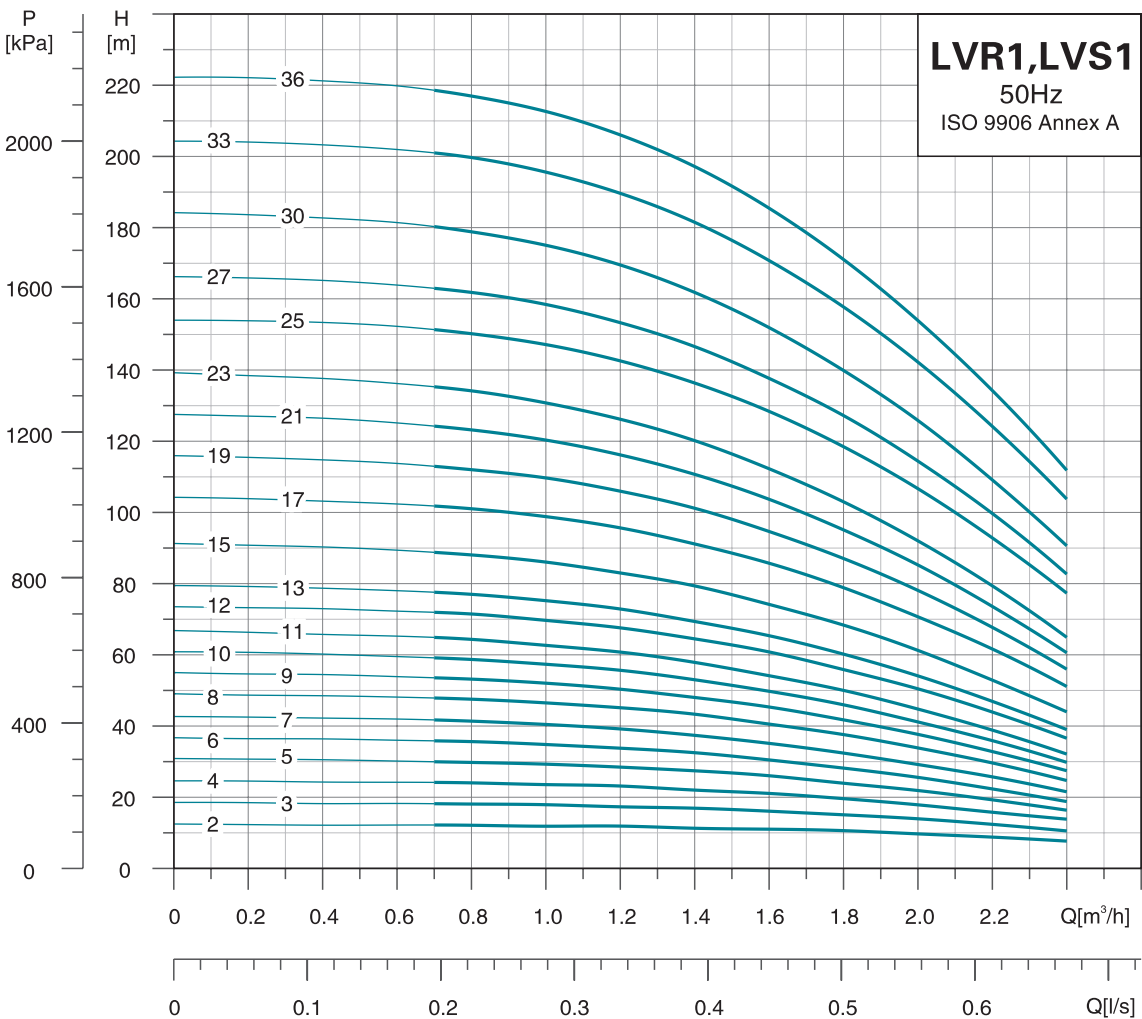


MODEL:LVR120(150,200)	
Part	Material
1	Base plate
2	Flange
3	Base
4	Primary diffuser
5	Medium diffuser
6	Diffuser with bearing
7	Impeller
8	Final diffuser
9	Pump head
10	Motor base
11	Motor
12	Coupling
13	Guarding plate
14	Cartridge seal
15	Filling plug
16	Tension plate
17	Pump barrel
18	Pump shaft

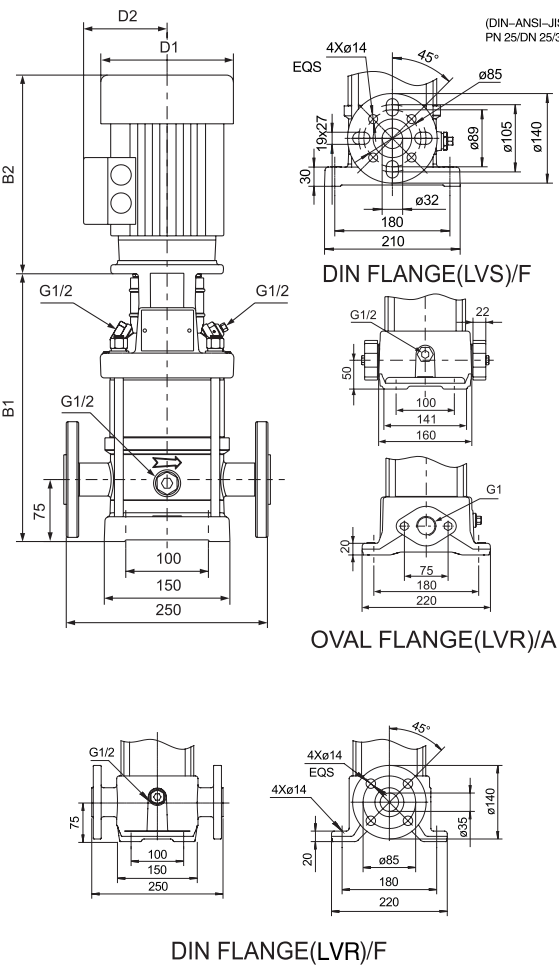


MODEL:LVS120(150,200)			
Part	Material	Optional Material	
1	Base plate	HT200	
2	Flange	ZG35	
3	Chasis	ZG304	ZG316
4	Primary diffuser	AISI304	AISI316
5	Medium diffuser	AISI304	AISI316
6	Diffuser with bearing	AISI304	AISI316
7	Impeller	AISI304	AISI316
8	Final diffuser	AISI304	AISI316
9	Pump head	ZG304	ZG316
10	Motor base	HT200	
11	Motor		
12	Coupling	QT400	
13	Guarding plate	AISI304	
14	Cartridge seal		
15	Filling plug	AISI304	AISI316
16	Tension plate	AISI304	AISI316
17	Pump barrel	AISI304	AISI316
18	Pump shaft	AISI304	AISI316

Hydraulic Performance Curves

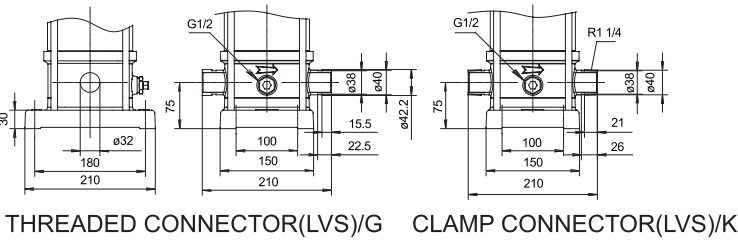


Dimension Drawing



MODEL	OVAL FLANGE(LVR)		DIN FLANGE(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
1-2	238	468	264	494	136	109
1-3	256	486	282	512	136	109
1-4	274	504	300	530	136	109
1-5	292	522	318	548	136	109
1-6	310	540	336	566	136	109
1-7	328	558	354	584	136	109
1-8	346	576	372	602	136	109
1-9	364	594	390	620	136	109
1-10	382	612	408	638	136	109
1-11	400	630	426	656	136	109
1-12	422	672	448	698	155	124
1-13	440	690	466	716	155	124
1-15	476	726	502	752	155	124
1-17	512	762	538	788	155	124
1-19	548	798	574	824	155	124
1-21	584	834	610	860	155	124
1-23	620	870	646	896	155	124
1-25	672	982	698	1008	175	137
1-27	708	1018	734	1044	175	137
1-30	762	1072	788	1098	175	137
1-33	816	1126	842	1152	175	137
1-36	870	1180	896	1206	175	137

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange.



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	24	22	22	21	19	18
1-5	0.37		30	30	30	29.5	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	40.5	39	37	35	32	30
1-8	0.55		48	48	47	46.5	45	43	40	38	34
1-9	0.55		54	54	53	52	50	48	45	42	37
1-10	0.55		60	59	58	57.5	55	53	50	46	41
1-11	0.55		65	65	64	63	61	58	54	51	45
1-12	0.75		73	72	71	70	67	64	61	56	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	98	95	91	85	78	70
1-19	1.1		115	114	112	110	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	130	126	120	112	103	92
1-25	1.5		153	152	150	145	142	136	128	119	106
1-27	1.5		165	164	162	157	153	146	137	128	114
1-30	1.5		182	181	178	173	169	162	152	140	126
1-33	2.2		203	202	199	194	189	181	170	158	142
1-36	2.2		221	220	217	210	206	197	185	170	154