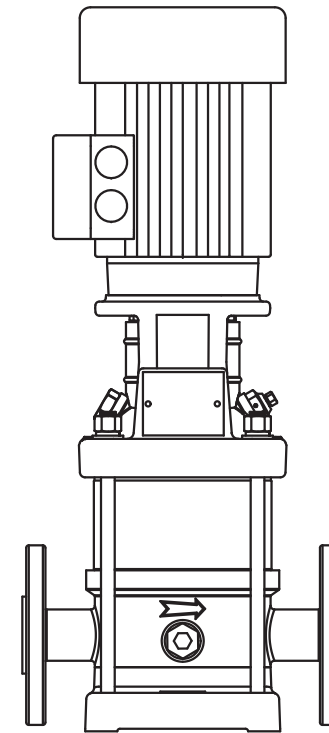




Stainless Steel Vertical Multistage Pump

Instruction Manual



• LVR • LVS

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This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Attention!

If the appliance or the supply cord is damaged, it must be repaired by manufacturer, its service agent or qualified person.



Meaning of crossed –out wheeled dustbin:
Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.
Contact you local government for information regarding the collection systems available.

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Carefully read this manual before operation. Install and operate pump according to all code requirements.

1. Assembly and Disassembly

- (1) All the motors are equipped with eye bolts, but they can not be used to carry the pump.
- (2) Pump with a standard motor must be lifted by the pump head with the steel belt or the like.

2. Identification Codes

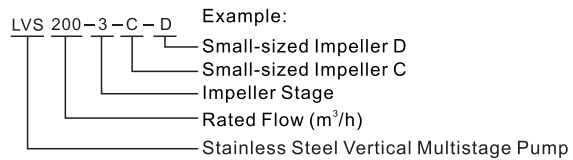
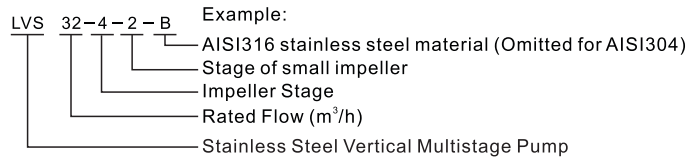
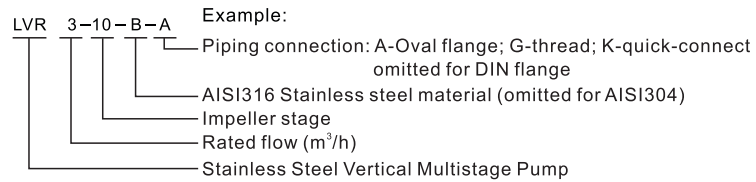
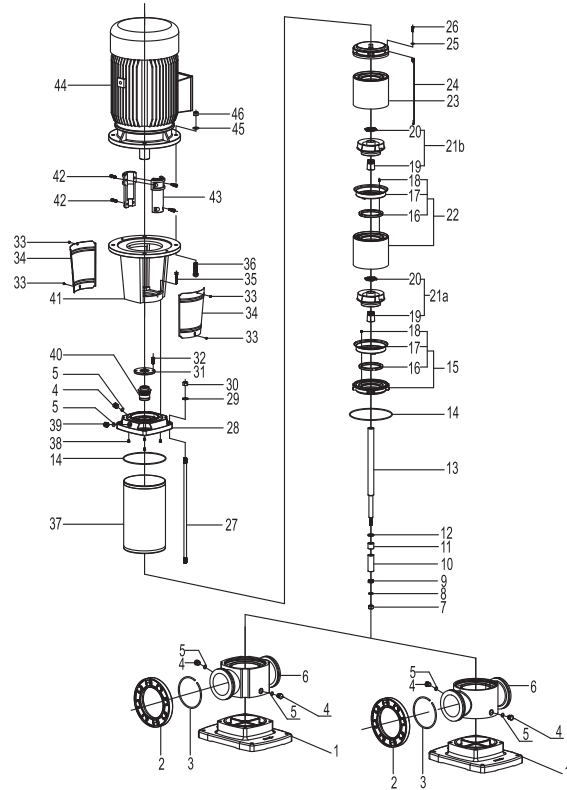


Figure 6: Exploded views for LVR, LVS 120, 150, 200



Sequence	Name	Sequence	Name
1	baseboard	24	bolt
2	flange	25	gasket
3	snap ring	26	socket head cap screw
4	injection screw	27	Tension stripe
5	o-ring	28	pump head
6	base	29	gasket
7	locknut	30	hexagon nut
8	gasket 14	31	sealing flat
9	Sleeve	32	socket head cap screw
10		33	Bolt
11	Sleeve	34	guard board
12	Spring gasket	35	socket head cap screw
13	Shaft	36	hexagon screw
14	o-ring	37	pump body
15	first guide-chamber	38	adjustable gasket
16	snap ring	39	Air valve part
17	snap ring cover	40	mechanical seal
18	Bolt	41	motor base
19	split conical sleeve	42	socket head cap screw
20	locking cap	43	coupling
21a	impeller	44	Motor
21b	small impeller	45	Flat washer
22	middle guide-chamber	46	Hex bolt
23	guide-chamber with bearing		

3.Applications and Operation Ranges

(1) **Features:** high efficiency, low noise, compact, lightweight, small, good appearance, light corrosion resistant, reliable sealing and easy for maintenance.

(2) **Applications:**

- ◆ Boiler feed and condensate systems
 - ◆ Water treatment, infiltration & filter system
 - ◆ Food and beverage industry
 - ◆ Water supply & drainage for tall buildings
 - ◆ Agricultural, nursery and golf course irrigation
 - ◆ Fire-fighting system
 - ◆ Industrial cleaning system
- Liquid transfer, circulating and lifting

(3) **Operation Ranges**

- ◆ Liquid temperature: -20°C---+120°C
- ◆ Flow range: 0.7~240 m³/h
- ◆ Max. pressure: 33bar
- ◆ pH: 3~9
- ◆ Max. ambient temperature: +40°C
- Altitude: up to 1000m

(4) **Service Fluid**

Thin, 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 higher than that of a water, a motor with a higher output power rating shall be used.

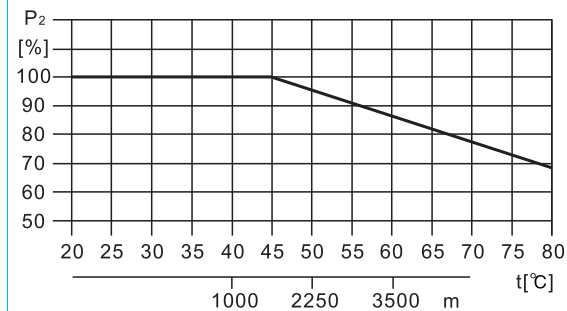
All the flow passage components shall be made of special material when it shall be made of high level stainless steel as per the system requirements.

4. Technical Parameters

(1) **Ambient Temperature**

Max. ambient temperature: +40°C. Ambient temperature above +40°C or installation at an altitude of more than 1000 meters above sea level requires the use of an oversize motor. Because of low air density and poor cooling effects, the motor output power P₂ will be decreased. See figure 1. In such cases, it may be necessary to use a motor with a higher output power rating.

Figure 1: connection between motor output power (P₂) and ambient temperature



For example:
when the pump is installed at an 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%.

(2) Liquid Temperature

See figure 3 for reference. It shows the correlation between the liquid temperature and the max. permissible working pressure.

Attention: the maximum permissible operating pressure and liquid temperature refer to the pump capability.

(3) How to calculate the minimum inlet pressure

The max. 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 (m). (To be read from the NPSH curve).

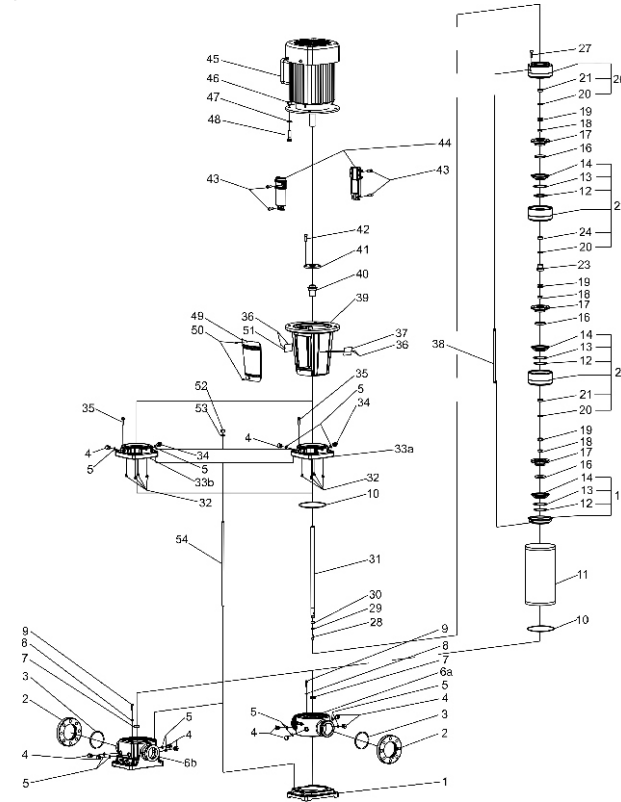
H_f = Friction loss in suction pipe in meters head.

H_v = Vapor Pressure in meters head.

H_s = Safety margin, min. 0.5 meters head.

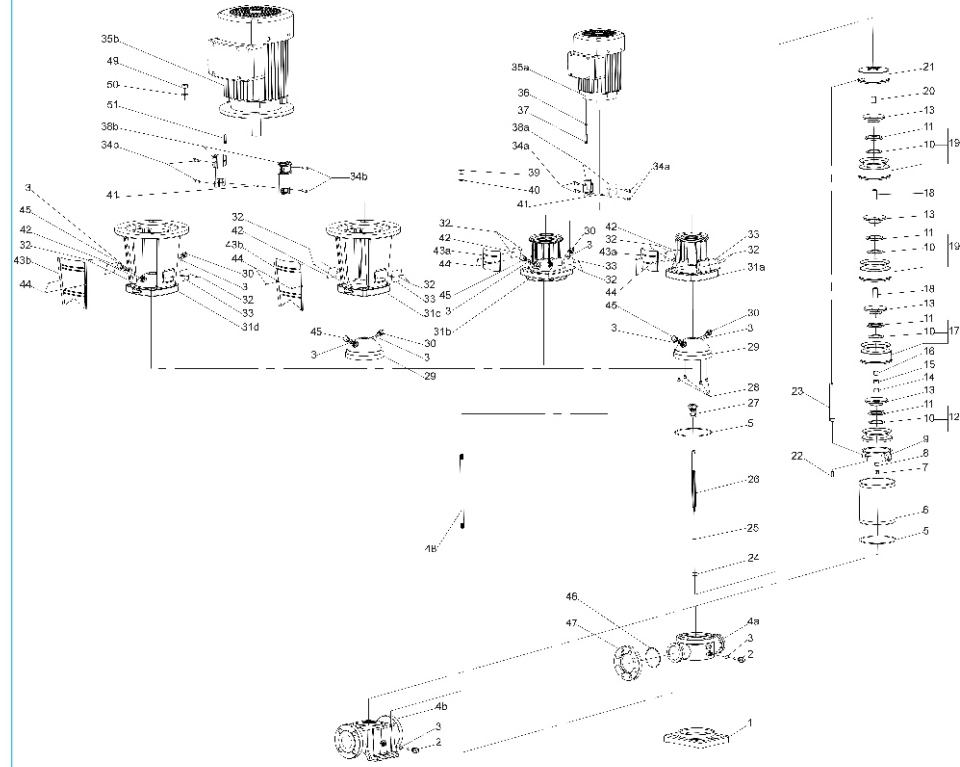
If the "H" calculated is positive, the pump can operate at a suction lift of max. "H" meters head. If the "H" calculated is negative, an inlet pressure of min. "H" meters head is required to prevent cavitation.

Figure 5: Exploded views for LVR, LVS 32, 45, 64, 90



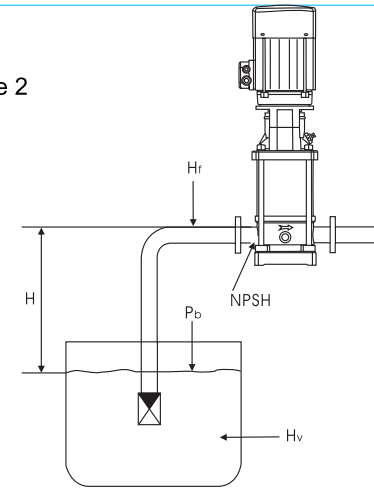
Sequence	Name	Sequence	Name	Sequence	Name
1	Bottom plate	21	Guide bearing	41	Pressure plate
2	Active flange	22	Intermediate volute	42	Hex socket cap screw
3	Clamp	23	Sleeve assembly	43	Hex socket cap screw
4	Filling plug	24	Alloyed bearing (30)	44	Coupling
5	O ring	25	Volute with bearing	45	Motor
6a	Foundation (ZG304)	26	Final volute	46	Hex nut
6b	Base (HT200)	27	Hex socket cap screw	47	Flat washer
7	Alloyed bearing (22)	28	Hex socket cap screw	48	Cylinder bolt
8	Spring washer	29	Sleeve at the shaft end	49	Guarding plate
9	Hex socket cap screw	30	Alloyed sleeve (22)	50	Hex socket cap screw
10	O ring	31	Pump shaft	51	Nameplate
11	Pump barrel	32	Adjusting block	52	Hex nut
12	Impeller ring	33a	Pump head (ZG304)	53	Flat washer
13	Impeller ring	33b	Pump head (HT200)	54	Tension rod
14	Guide disk	34	Air vent plug		
15	Primary volute	35	Hex socket cap screw		
16	Wear ring	36	Rivet		
17	Impeller	37	Warning label		
18	Taper sleeve	38	Tension stripe		
19	Locking cap	39	Motor case		
20	Retainer ring	40	Mechanical seal		

Figure 4: Exploded views for LVR, LVS 10, 15, 20



Sequence	Name	Sequence	Name	Sequence	Name
1	Bottom plate	21	Final volute	37	Hex bolt
2	Drainage plug	22	Hex bolt	38a	Semi-coupling
3	O ring	23	Tension stripe	38b	Semi-coupling
4a	Foundation	24	Locating sleeve for shaft	39	Hex bolt
4b	Base	25	Retainer ring	40	Flat washer
5	O ring	26	Pump shaft	41	Cylindrical pin
6	Pump barrel	27	Mechanical seal	42	Warning label
7	Self-locking nut	28	Adjusting block	43a	Guarding plate
8	Sleeve at the shaft end	29	Pump cover	43b	Guarding plate
9	Inlet gland	30	Air vent plug	44	Phillips pan screw
10	Impeller ring	31a	Motor base	45	Filling plug
11	Impeller ring cover	31b	Motor base	46	Clamp
12	Primary volute	31c	Motor base	47	Multipurpose flange
13	Impeller	31d	Motor base	48	Tensionrod
14	Sleeve a	32	Rivet	49	Hex bolt
15	Sleeve for guide shaft	33	Nameplate	50	Flat washer
16	Sleeve b	34a	Hex socket cap screw	51	Hex bolt
17	Volute with bearing	34b	Hex socket cap screw		
18	Sleeve c	35a	Motor (B14)		
19	Intermediate volute	35b	Motor (B5)		
20	Bushing d	36	Spring washer		

Figure 2



(4) Pressure and Temperature

Figure 3 Utmost limits of pressure and temperature

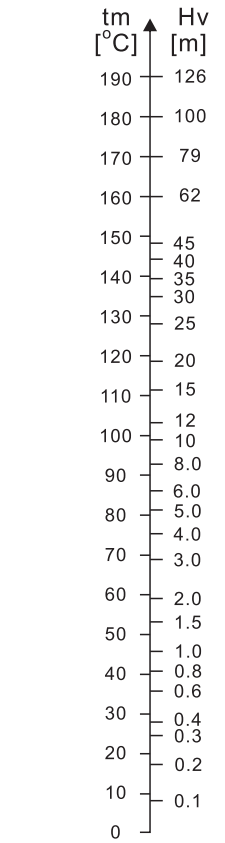
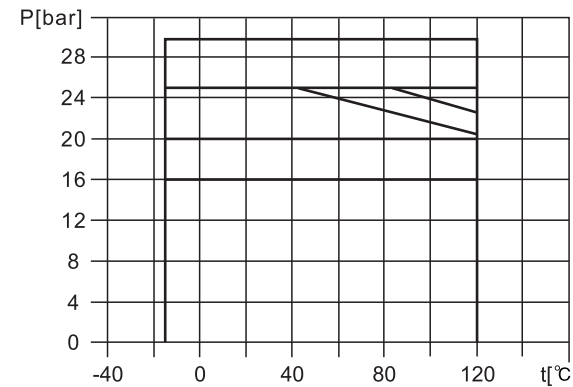


Figure 4 Vaporization pressure



Attention: Outlet valve must be opened during operation

(5) Electrical Parameters

Refer to the rating plate on the motor

(6) Numbers of start/stop for motor

4KW or less than: Maximum 100 times per hour
5.5KW or above: Maximum 20 times per hour

(7) Dimension and Weight

Refer to Annex 3 for the installation dimensions
Refer to label on the package for weight

(8) Noise Level

As shown in table 1

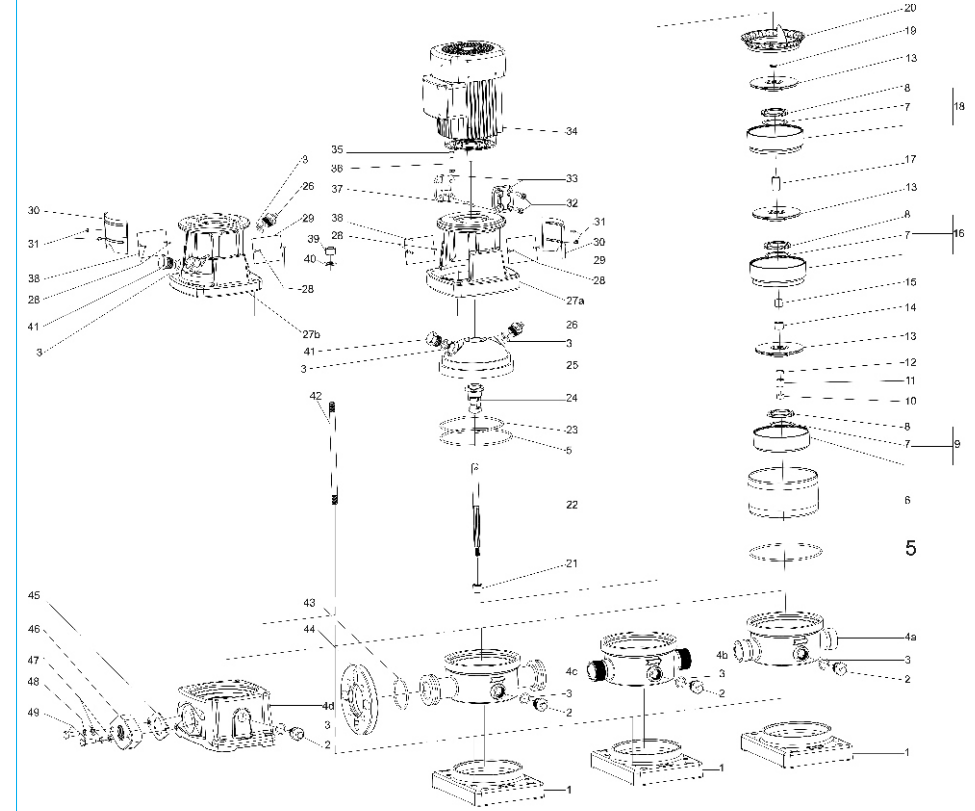
5. Notices for Installation



Apply the following processes before installation in case of damage to the pump.

	Arrows on the pump base show the flow direction of the liquids.				
	The dimension of the pump base, pipeline connection, location and dimension of the anchor bolt are shown on page 21-26.		The pump can be installed horizontally and vertically. To ensure complete cooling for the motor, it is forbidden to place the motor upside down.		In order to minimize the noise as much as possible, it is advisable to fit a shockproof hose on the pump inlet and shockproof base on the pump bottom. Install gate valves on the both side of the pump makes it easy for cleaning and maintenance. Inverted valve can be installed to protect against damage caused by backflow.
	Make sure that there is no air left in the pipeline, especially the pump inlet.		The outlet pipe must have a slight upward slope toward the pump to avoid siphoning. To prevent dirty water from flowing back is essential. A vacuum vent valve is needed close to the pump outlet.		The pump can be installed outdoors with suitable shield.
Procedures	Processes				

Figure 3: Exploded views for LVR, LVS 1, 2, 3, 4, 5



Sequence	Name
1	Bottom plate
2	Drainage plug
3	O ring
4a	Foundation (Clamp connection)
4b	Foundation (Thread connection)
4c	Foundation (Flange connection)
4d	Base
5	O ring
6	Pump barrel
7	Impeller ring
8	Impeller ring cover
9	Primary volute
10	Self-locking nut
11	Sleeve at the shaft end
12	Sleeve a
13	Impeller
14	Sleeve for guide shaft
15	Sleeve b
16	Volute with bearing
17	Sleeve c
18	Intermediate volute

Sequence	Name
19	Sleeve d
20	Final volute
21	Locating sleeve for shaft
22	Pump shaft
23	Wave spring
24	Cartridge mechanical seal
25	Pump cover
26	Air vent plug
27a	Motor case
27b	Motor case
28	Rivet
29	Nameplate
30	Guarding plate
31	Phillips pan screw
32	Hex socket cap screw
33	Semi-coupling
34	Motor (B14)
35	Spring washer
36	Hex bolt
37	Cylindrical pin
38	Warning label

Sequence	Name
39	Hex nut
40	Flat washer
41	Filling plug
42	Tension rod
43	Clamp
44	Multipurpose flange
45	Flange gasket
46	Oval flange
47	Flat washer
48	Spring washer
49	Hex bolt

Figure 1: Starting

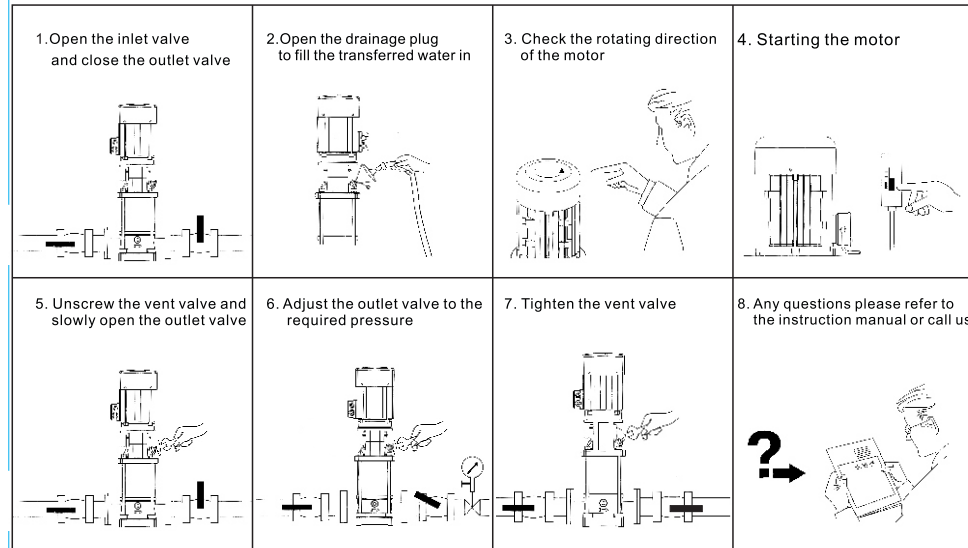
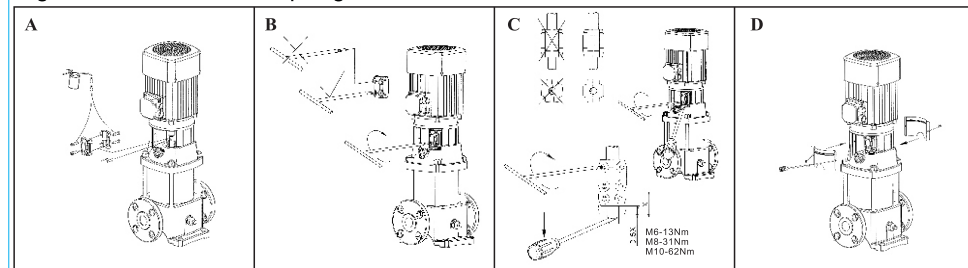


Figure 2: Sketch for coupling installation of LVR and LVS series



6. Electrical Connection



The pump motor shall be safely grounded.
Be sure that the pump is disconnected from the power source before disassembling terminal box or the pump.
The single-phase motor is equipped with a built-in thermal protector. A three-phase protector must be installed before the installation of the three-phase motor.



All electrical work should be performed by a qualified electrician.

Make sure that the motor voltage and frequency match the incoming electrical supply.

A junction box is installed on the inlet side at the factory.

The angle of the terminal box can be adjusted by 0°, 180° and 270° according to the following procedures.

(1) The coupling guard shall be uninstalled if required. Do not uninstall the coupling.

(2) Unscrew all screws

(3) Rotate the motor to the direction needed

(4) Tighten all screws

(5) Mount the coupling guard

Please refer to the attached wiring diagram in the junction box while wiring.

Table 1---Pump noise

Power [kW]	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
50Hz Noise [dB(A)]	53	53	53	55	58	58	59	66	73	73	75	70	70	69	73	73	73	73	75	77	77
60Hz Noise [dB(A)]	58	56	57	60	63	64	65	71	73	78	79	74	74	74	73	77	77	77	79	81	81

7. Starting



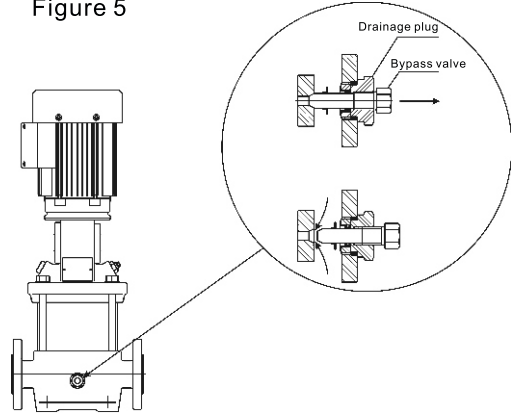
Read carefully the warning on the motor base before starting.



Notice: do not start the pump until the pump has been filled with liquid. Dry operation of the pump will cause damage to the bearing and mechanical seal. Make sure that the discharged liquid will not injure persons nearby while priming. Pay particular attention to the risk of injury from scalding hot water.

It is advisable to open the bypass valve while starting. It is easy for priming water since the bypass valve (see figure 5) connects the pump inlet and outlet. Tighten the bypass valve once the pump is in stable operation. You'd better open the bypass valve when there are bubbles in the transferred liquid and the operating pressure is below 6bar, otherwise high flow speed of the transferred liquid will damage the outlet.

Figure 5



Check before starting the pump

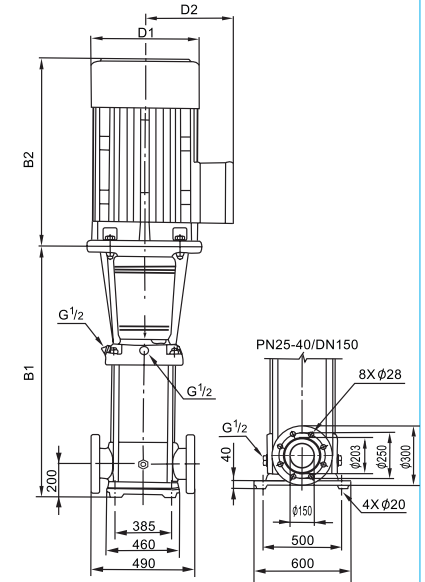
- ◆ Check that the anchor bolts are all tightened.
- ◆ Check that the pump is filled full with water.
- ◆ Check that the supplied power source is correct.
- ◆ Check that the rotating direction is correct.
- ◆ Verify that all the pipelines are firmly connected and pipelines can properly supply water.
- ◆ Be sure that valves in the inlet pipeline can be opened completely. Slowly open the outlet valve after the pump starts
- ◆ If pressure gauges have been installed, check and record operating pressures.
- ◆ Check all controls for proper operation. If a pressure switch is fitted, using it to check and adjust the cut-in and cut-out pressure. The full load ampere through the pressure switch shall not exceed the maximum permissible current.

8. LVR(S)1Models and Powers

Models	Power [kW]	Rated Flow [m ³ /h]	Rated Head [m]	Max. Flow [m ³ /h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
1--2	0.37	1.8	10	3.2	13	10.0	- 20~+120
1--3	0.37	1.8	15	3.2	19	10.0	- 20~+120
1--4	0.37	1.8	19	3.2	25	10.0	- 20~+120
1--5	0.37	1.8	24	3.2	31	10.0	- 20~+120
1--6	0.37	1.8	28	3.2	38	10.0	- 20~+120
1--7	0.37	1.8	32	3.2	44	10.0	- 20~+120
1--8	0.55	1.8	38	3.2	50	10.0	- 20~+120
1--9	0.55	1.8	42	3.2	57	10.0	- 20~+120
1--10	0.55	1.8	46	3.2	63	10.0	- 20~+120
1--11	0.55	1.8	51	3.2	69	10.0	- 20~+120
1--12	0.75	1.8	56	3.2	76	10.0	- 20~+120
1--13	0.75	1.8	60	3.2	82	10.0	- 20~+120
1--15	0.75	1.8	68	3.2	88	10.0	- 20~+120
1--17	1.1	1.8	78	3.2	107	10.0	- 20~+120
1--19	1.1	1.8	87	3.2	120	10.0	- 20~+120
1--21	1.1	1.8	95	3.2	132	10.0	- 20~+120
1--23	1.1	1.8	103	3.2	145	10.0	- 20~+120
1--25	1.5	1.8	119	3.2	158	10.0	- 20~+120
1--27	1.5	1.8	128	3.2	170	10.0	- 20~+120
1--30	1.5	1.8	140	3.2	188	10.0	- 20~+120
1--33	2.2	1.8	158	3.2	208	10.0	- 20~+120
1--36	2.2	1.8	170	3.2	225	10.0	- 20~+120

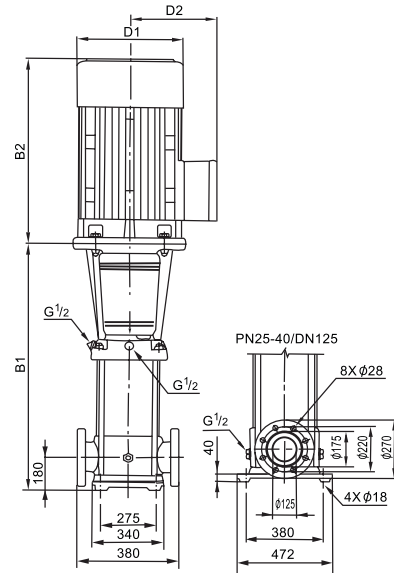
Dimensions for LVR200 and LVS200

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)		D1	D2
	B1	B1+B2		
200-1-D	907	1467	330	250
200-1-C	907	1507	380	280
200-1	907	1587	420	305
200-2-2D	1101	1781	420	305
200-2-2C	1101	1816	470	335
200-2-C	1131	1916	510	370
200-2	1131	1916	510	370
200-3-2D	1325	2170	580	410
200-3-C-D	1325	2170	580	410
200-3-2C	1325	2170	580	410
200-3-D	1325	2170	580	410
200-3-C	1325	2170	580	410
200-3	1325	2220	580	410
200-4-2D	1519	2414	580	410
200-4-2C	1519	2619	645	530
200-4-C	1519	2619	645	530
200-4	1519	2619	645	530



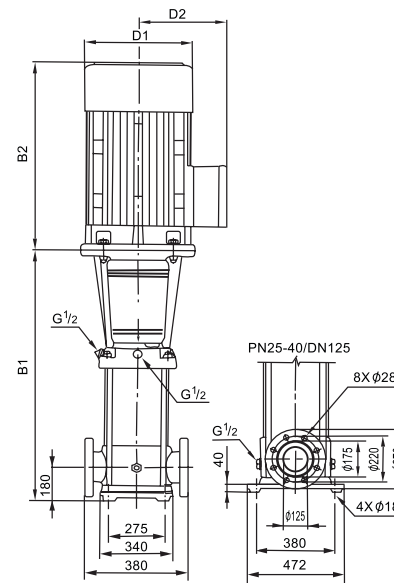
Dimensions for LVR120 and LVS120

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
120-1	840	1333	254	175
120-2-2	1000	1493	254	175
120-2-1	1000	1560	330	250
120-2	1000	1600	380	280
120-3-2	1160	1840	420	305
120-3-1	1160	1840	420	305
120-3	1160	1840	420	305
120-4-2	1320	2000	420	305
120-4-1	1320	2000	420	305
120-4	1320	2035	470	335
120-5-2	1480	2195	470	335
120-5-1	1480	2195	470	335
120-5	1510	2295	510	370
120-6-2	1670	2455	510	370
120-6-1	1670	2455	510	370
120-6	1670	2515	580	410
120-7-2	1830	2675	580	410
120-7-1	1830	2675	580	410
120-7	1830	2675	580	410



Dimensions for LVR150 and LVS150

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
150-1-1	840	1333	254	175
150-1	840	1333	254	175
150-2-2	1000	1560	330	250
150-2-1	1000	1600	380	280
150-2	1000	1680	420	305
150-3-2	1160	1840	420	305
150-3-1	1160	1840	420	305
150-3	1160	1840	420	305
150-4-2	1320	2035	470	335
150-4-1	1320	2035	470	335
150-4	1350	2135	510	370
150-5-2	1510	2295	510	370
150-5-1	1510	2355	580	410
150-5	1510	2355	580	410
150-6-2	1670	2515	580	410
150-6-1	1670	2515	580	410
150-6	1670	2515	580	410



LVR(S)2Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
2-2	0.37	2.5	13.5	5	18.5	6	-20~+120
2-3	0.37	2.5	19.5	5	28	10	-20~+120
2-4	0.55	2.5	27	5	38	10	-20~+120
2-5	0.55	2.5	32.5	5	46	10	-20~+120
2-6	0.75	2.5	40	5	57	10	-20~+120
2-7	0.75	2.5	45.5	5	66	10	-20~+120
2-8	1.1	2.5	51	5	78	10	-20~+120
2-9	1.1	2.5	60	5	86	10	-20~+120
2-10	1.1	2.5	65	5	92	10	-20~+120
2-11	1.1	2.5	71.5	5	104	10	-20~+120
2-12	1.5	2.5	78	5	115	10	-20~+120
2-13	1.5	2.5	86.5	5	124	15	-20~+120
2-14	1.5	2.5	92	5	134	15	-20~+120
2-15	1.5	2.5	98	5	142	15	-20~+120
2-16	2.2	2.5	104	5	154	15	-20~+120
2-17	2.2	2.5	111	5	165	15	-20~+120
2-18	2.2	2.5	122	5	172	15	-20~+120
2-19	2.2	2.5	128	5	182	15	-20~+120
2-20	2.2	2.5	134	5	192	15	-20~+120
2-21	2.2	2.5	140	5	201	15	-20~+120
2-22	2.2	2.5	145	5	208	15	-20~+120
2-23	3	2.5	153	5	218	15	-20~+120
2-24	3	2.5	160	5	228	15	-20~+120
2-25	3	2.5	168	5	238	15	-20~+120
2-26	3	2.5	176	5	248	15	-20~+120

LVR(S)3Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
3--2	0.37	3	10	5	13	10.0	-20~+120
3--3	0.37	3	15	5	19	10.0	-20~+120
3--4	0.37	3	19	5	25	10.0	-20~+120
3--5	0.37	3	24	5	31	10.0	-20~+120
3--6	0.55	3	28	5	38	10.0	-20~+120
3--7	0.55	3	32	5	44	10.0	-20~+120
3--8	0.75	3	38	5	50	10.0	-20~+120
3--9	0.75	3	42	5	57	10.0	-20~+120
3--10	0.75	3	46	5	63	10.0	-20~+120
3--11	1.1	3	51	5	69	10.0	-20~+120
3--12	1.1	3	56	5	76	10.0	-20~+120
3--13	1.1	3	60	5	82	10.0	-20~+120
3--15	1.1	3	68	5	88	10.0	-20~+120
3--17	1.5	3	78	5	107	10.0	-20~+120
3--19	1.5	3	87	5	120	10.0	-20~+120
3--21	2.2	3	97	5	132	10.0	-20~+120
3--23	2.2	3	105	5	145	10.0	-20~+120
3--25	2.2	3	115	5	158	10.0	-20~+120
3--27	2.2	3	124	5	170	10.0	-20~+120
3--29	2.2	3	133	5	182	10.0	-20~+120
3--31	3.0	3	142	5	195	15.0	-20~+120
3--33	3.0	3	152	5	208	15.0	-20~+120
3--36	3.0	3	165	5	225	15.0	-20~+120

LVR(S)4 Models and Powers

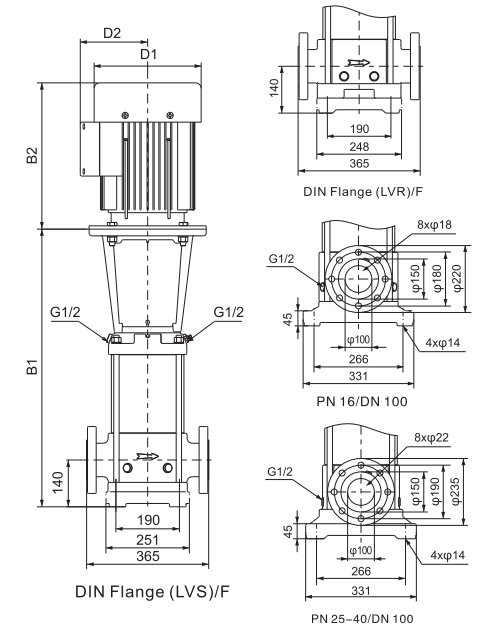
Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
4-2	0.37	6	10.5	9	19	6	-20~+120
4-3	0.55	6	18	9	29	10	-20~+120
4-4	0.75	6	24.5	9	39	10	-20~+120
4-5	1.1	6	31.5	9	49	10	-20~+120
4-6	1.1	6	36	9	58	10	-20~+120
4-7	1.5	6	44.5	9	68	10	-20~+120
4-8	1.5	6	49.5	9	79	10	-20~+120
4-9	2.2	6	56	9	90	10	-20~+120
4-10	2.2	6	64	9	100	10	-20~+120
4-11	2.2	6	69	9	109	10	-20~+120
4-12	2.2	6	75	9	118	15	-20~+120
4-13	3	6	83	9	131	15	-20~+120
4-14	3	6	90	9	140	15	-20~+120
4-15	3	6	96	9	150	15	-20~+120
4-16	3	6	102	9	159	15	-20~+120
4-17	4	6	108	9	170	15	-20~+120
4-18	4	6	115	9	180	15	-20~+120
4-19	4	6	123	9	192	15	-20~+120
4-20	4	6	128	9	203	15	-20~+120
4-21	4	6	134	9	213	15	-20~+120
4-22	4	6	139	9	220	15	-20~+120

LVR(S)5 Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
5--2	0.37	5	9	10	13	10.0	-20~+120
5--3	0.55	5	15	10	20	10.0	-20~+120
5--4	0.55	5	19	10	27	10.0	-20~+120
5--5	0.75	5	24	10	33	10.0	-20~+120
5--6	1.1	5	28	10	40	10.0	-20~+120
5--7	1.1	5	32	10	47	10.0	-20~+120
5--8	1.1	5	40	10	54	10.0	-20~+120
5--9	1.5	5	47	10	60	10.0	-20~+120
5--10	1.5	5	53	10	67	10.0	-20~+120
5--11	2.2	5	59	10	74	10.0	-20~+120
5--12	2.2	5	63	10	80	10.0	-20~+120
5--13	2.2	5	68	10	87	10.0	-20~+120
5--14	2.2	5	74	10	94	10.0	-20~+120
5--15	2.2	5	79	10	100	10.0	-20~+120
5--16	2.2	5	85	10	107	10.0	-20~+120
5--18	3.0	5	98	10	120	15.0	-20~+120
5--20	3.0	5	108	10	134	15.0	-20~+120
5--22	4.0	5	120	10	147	15.0	-20~+120
5--24	4.0	5	132	10	160	15.0	-20~+120
5--26	4.0	5	145	10	174	15.0	-20~+120
5--29	4.0	5	155	10	195	15.0	-20~+120

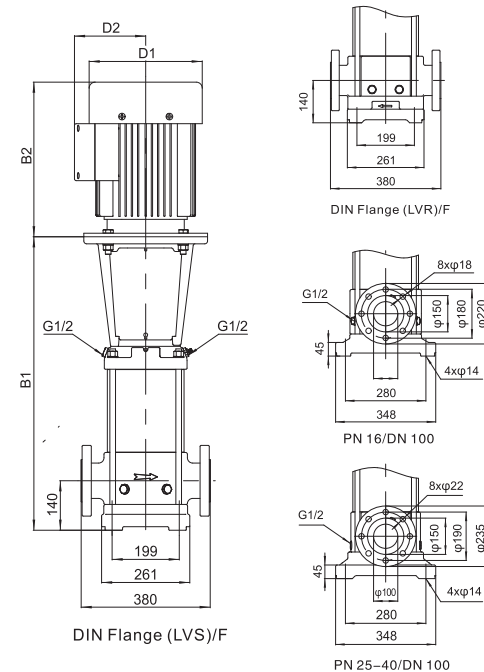
Dimensions for LVR64 and LVS64

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
64-1-1	561	933	220	134
64-1	561	952	220	134
64-2-2	644	1035	220	134
64-2-1	754	1252	334	263
64-2	754	1252	334	263
64-3-2	836	1334	334	263
64-3-1	836	1334	334	263
64-3	836	1334	334	263
64-4-2	919	1417	334	263
64-4-1	919	1481	382	305
64-4	919	1481	382	305
64-5-2	1001	1661	420	372
64-5-1	1001	1661	420	372
64-5	1001	1661	420	372
64-6-2	1084	1744	420	372
64-6-1	1084	1744	420	372
64-6	1084	1744	420	372
64-7-2	1166	1826	420	372
64-7-1	1166	1826	420	372
64-7	1166	1842	458	427
64-8-2	1249	1925	458	427
64-8-1	1249	1925	458	427



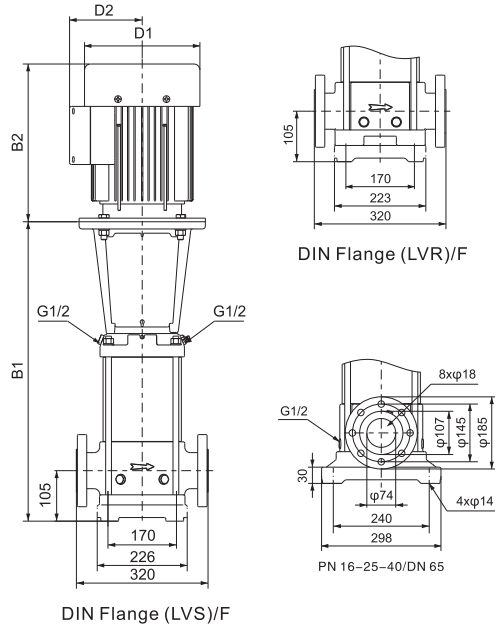
Dimensions for LVR90 and LVS90

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
90-1-1	659	969	275	210
90-1	659	969	275	210
90-2-2	773	1278	330	255
90-2	773	1278	330	255
90-3-2	865	1425	330	255
90-3	865	1455	380	280
90-4-2	975	1617	420	305
90-4	975	1617	420	305
90-5-2	1049	1709	420	305
90-5	1049	1709	420	305
90-6-2	1141	1851	470	335
90-6	1141	1851	470	335



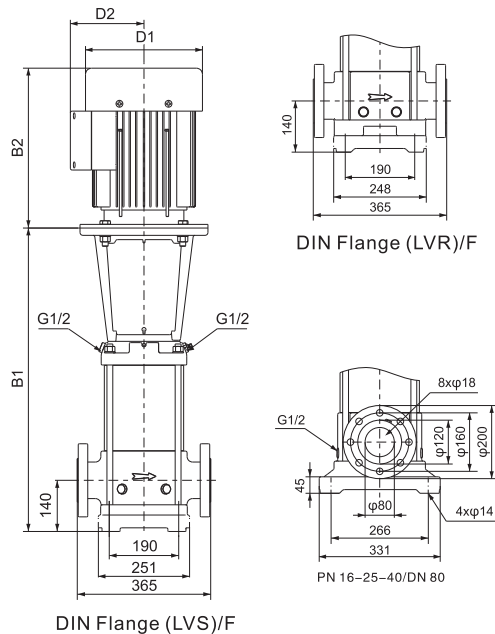
Dimensions for LVR32 and LVS32

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
32-1-1	505	786	178	110
32-1	505	826	178	110
32-2-2	575	910	198	120
32-2	575	947	220	134
32-3-2	645	1036	220	134
32-3	645	1036	220	134
32-4-2	715	1106	220	134
32-4	715	1106	220	134
32-5-2	895	1393	334	263
32-5	895	1393	334	263
32-6-2	965	1463	334	263
32-6	965	1463	334	263
32-7-2	1035	1533	334	263
32-7	1035	1533	334	263
32-8-2	1105	1603	334	263
32-8	1105	1603	334	263
32-9-2	1175	1673	334	263
32-9	1175	1673	334	263
32-10-2	1245	1743	334	263
32-10	1245	1743	334	263
32-11-2	1315	1877	382	305
32-11	1315	1877	382	305
32-12-2	1385	1947	382	305
32-12	1385	1947	382	305
32-13-2	1455	2115	420	372
32-13	1455	2115	420	372
32-14-2	1525	2185	420	372
32-14	1525	2185	420	372



Dimensions for LVR45 and LVS45

Pump Models	Dimensions			
	DIN Flange(LVR, LVS)			
	B1	B1+B2	D1	D2
45-1-1	559	894	198	120
45-1	559	931	220	134
45-2-2	639	1030	220	134
45-2	639	1030	220	134
45-3-2	829	1327	334	263
45-3	829	1327	334	263
45-4-2	909	1407	334	263
45-4	909	1407	334	263
45-5-2	989	1487	334	263
45-5	989	1487	334	263
45-6-2	1069	1631	382	305
45-6	1069	1631	382	305
45-7-2	1149	1809	420	372
45-7	1149	1809	420	372
45-8-2	1229	1889	420	372
45-8	1229	1889	420	372
45-9-2	1309	1969	420	372
45-9	1309	1969	420	372
45-10-2	1389	2049	420	372
45-10	1389	2049	420	372
45-11-2	1469	2145	458	427
45-11	1469	2145	458	427
45-12-2	1549	2225	458	427
45-12	1549	2225	458	427
45-13-2	1629	2305	458	427



LVR(S)10Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
10--1	0.37	10	7.5	16	10	8.0	-20~+120
10--2	0.75	10	15	16	21	8.0	-20~+120
10--3	1.1	10	23	16	31	8.0	-20~+120
10--4	1.5	10	32	16	42	8.0	-20~+120
10--5	2.2	10	40	16	52	8.0	-20~+120
10--6	2.2	10	48	16	63	8.0	-20~+120
10--7	3.0	10	56	16	73	10.0	-20~+120
10--8	3.0	10	64	16	84	10.0	-20~+120
10--9	3.0	10	70	16	94	10.0	-20~+120
10--10	4.0	10	80	16	105	10.0	-20~+120
10--12	4.0	10	95	16	115	10.0	-20~+120
10--14	5.5	10	113	16	147	10.0	-20~+120
10--16	5.5	10	128	16	168	10.0	-20~+120
10--18	7.5	10	145	16	188	10.0	-20~+120
10--20	7.5	10	164	16	210	10.0	-20~+120
10--22	7.5	10	178	16	230	10.0	-20~+120

LVR(S)15Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
15--1	1.1	15	11	24	13	8.0	-20~+120
15--2	2.2	15	23	24	26	8.0	-20~+120
15--3	3.0	15	35	24	43	8.0	-20~+120
15--4	4.0	15	47	24	56	10.0	-20~+120
15--5	4.0	15	58	24	70	10.0	-20~+120
15--6	5.5	15	71	24	84	10.0	-20~+120
15--7	5.5	15	83	24	98	10.0	-20~+120
15--8	7.5	15	96	24	112	10.0	-20~+120
15--9	7.5	15	108	24	125	10.0	-20~+120
15--10	11.0	15	120	24	140	10.0	-20~+120
15--12	11.0	15	142	24	168	10.0	-20~+120
15--14	11.0	15	166	24	195	10.0	-20~+120
15--17	15.0	15	205	24	238	10.0	-20~+120

LVR(S)20Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
20--1	1.1	20	10.5	29	14	8.0	-20~+120
20--2	2.2	20	22.5	29	28	8.0	-20~+120
20--3	4.0	20	36	29	42	8.0	-20~+120
20--4	5.5	20	48	29	56	10.0	-20~+120
20--5	5.5	20	60	29	70	10.0	-20~+120
20--6	7.5	20	72	29	86	10.0	-20~+120
20--7	7.5	20	84	29	98	10.0	-20~+120
20--8	11.0	20	96	29	115	10.0	-20~+120
20--10	11.0	20	120	29	148	10.0	-20~+120
20--12	15.0	20	144	29	178	10.0	-20~+120
20--14	15.0	20	168	29	208	10.0	-20~+120
20--17	18.5	20	205	29	250	10.0	-20~+120

LVR(S)32Models and Powers

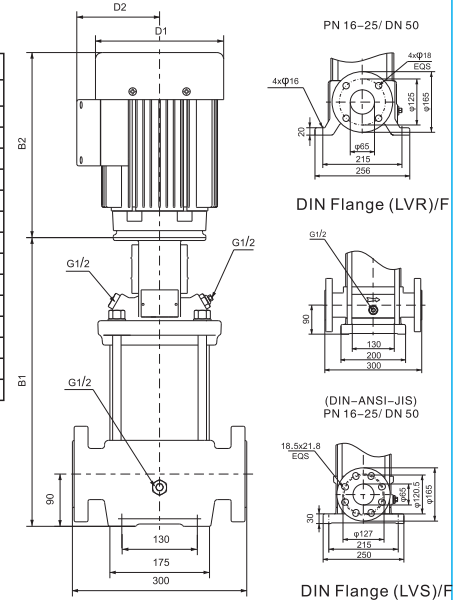
Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
32-1-1	1.5	32	10	40	16	4	-20~+120
32-1	2.2	32	13	40	19.5	4	-20~+120
32-2-2	3	32	20.5	40	31.5	4	-20~+120
32-2	4	32	27.5	40	39.5	4	-20~+120
32-3-2	5.5	32	35.5	40	51.5	4	-20~+120
32-3	5.5	32	41.5	40	58.5	4	-20~+120
32-4-2	7.5	32	49.5	40	71	4	-20~+120
32-4	7.5	32	56	40	78	4	-20~+120
32-5-2	11	32	65.5	40	91.5	10	-20~+120
32-5	11	32	72	40	98.5	10	-20~+120
32-6-2	11	32	79.5	40	111	10	-20~+120
32-6	11	32	85.5	40	118	10	-20~+120
32-7-2	15	32	94.5	40	131	10	-20~+120
32-7	15	32	101	40	138	10	-20~+120
32-8-2	15	32	108	40	150	10	-20~+120
32-8	15	32	115	40	157	10	-20~+120
32-9-2	18.5	32	124	40	170	10	-20~+120
32-9	18.5	32	131	40	177	10	-20~+120
32-10-2	18.5	32	138	40	189	10	-20~+120
32-10	18.5	32	145	40	196	10	-20~+120
32-11-2	22	32	154	40	210	15	-20~+120
32-11	22	32	161	40	216	15	-20~+120
32-12-2	22	32	168	40	229	15	-20~+120
32-12	22	32	176	40	235	15	-20~+120
32-13-2	30	32	187	40	250	15	-20~+120
32-13	30	32	193	40	257	15	-20~+120
32-14-2	30	32	201	40	269	15	-20~+120
32-14	30	32	207	40	276	15	-20~+120

LVR(S)45Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
45-1-1	3	45	14.5	55	21.5	4	-20~+120
45-1	4	45	19	55	26.5	4	-20~+120
45-2-2	5.5	45	30.5	55	41.5	4	-20~+120
45-2	7.5	45	39	55	51.5	4	-20~+120
45-3-2	11	45	52	55	67.5	10	-20~+120
45-3	11	45	59.5	55	77	10	-20~+120
45-4-2	15	45	72	55	93	10	-20~+120
45-4	15	45	79.5	55	103	10	-20~+120
45-5-2	18.5	45	92.5	55	119	10	-20~+120
45-5	18.5	45	100	55	129	10	-20~+120
45-6-2	22	45	113	55	145	15	-20~+120
45-6	22	45	121	55	154	15	-20~+120
45-7-2	30	45	135	55	172	15	-20~+120
45-7	30	45	144	55	181	15	-20~+120
45-8-2	30	45	155	55	198	15	-20~+120
45-8	30	45	164	55	207	15	-20~+120
45-9-2	30	45	175	55	223	15	-20~+120
45-9	37	45	185	55	233	15	-20~+120
45-10-2	37	45	196	55	249	15	-20~+120
45-10	37	45	205	55	259	15	-20~+120
45-11-2	45	45	222	55	280	15	-20~+120
45-11	45	45	230	55	290	15	-20~+120
45-12-2	45	45	242	55	307	15	-20~+120
45-12	45	45	251	55	316	15	-20~+120
45-13-2	45	45	263	55	333	15	-20~+120

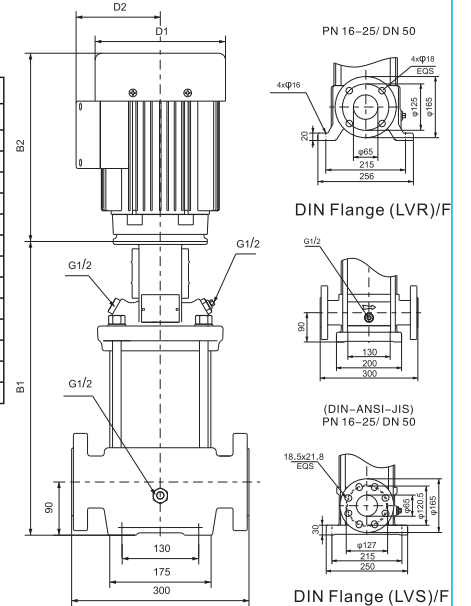
Dimensions for LVR15 and LVS15

Pump Models	Dimensions					
	DIN Flange(LVR)		DIN Flange(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
15--1	354	604	352	602	155	124
15--2	415	725	413	723	175	137
15--3	465	795	463	793	195	151
15--4	510	867	508	865	219	169
15--5	555	912	553	910	219	169
15--6	632	1030	630	1028	258	188
15--7	677	1075	675	1073	258	188
15--8	722	1120	720	1118	258	188
15--9	767	1165	765	1163	258	188
15--10	889	1388	887	1386	315	242
15--12	979	1478	977	1476	315	242
15--14	1071	1570	1067	1566	315	242
15--17	1204	1703	1202	1701	315	242



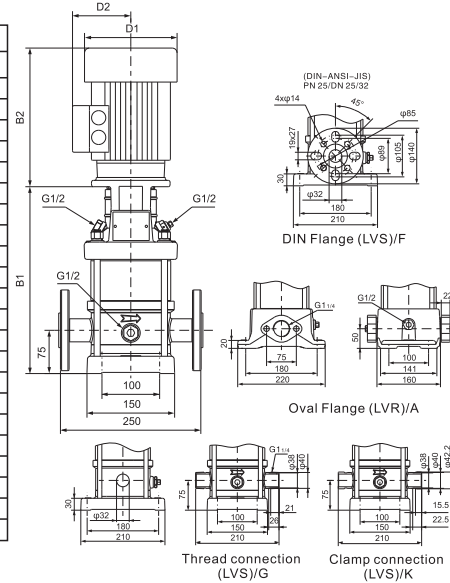
Dimensions for LVR20 and LVS20

Pump Models	Dimensions					
	DIN Flange(LVR)		DIN Flange(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
20--1	354	604	352	602	155	124
20--2	415	725	413	723	175	137
20--3	465	822	463	820	219	169
20--4	542	940	540	938	258	188
20--5	587	985	585	983	258	188
20--6	632	1030	630	1028	258	188
20--7	677	1075	675	1073	258	188
20--8	799	1298	797	1296	315	242
20--10	889	1388	887	1386	315	242
20--12	979	1478	977	1476	315	242
20--14	1069	1568	1067	1566	315	242
20--17	1204	1747	1202	1745	315	242



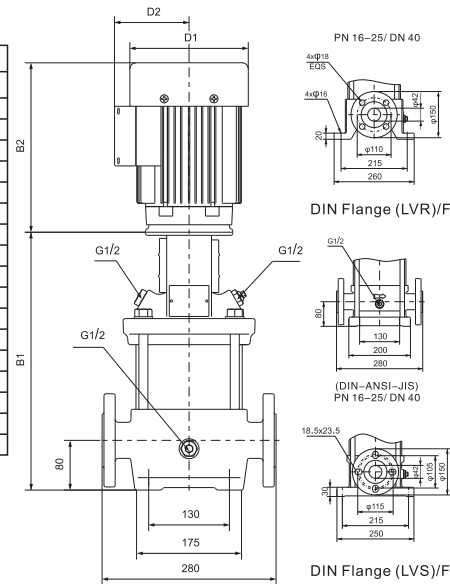
Dimensions for LVR5 and LVS5

Pump Models	Dimensions					
	Oval Flange(LVR)		DIN Flange(LVS)			
	B1	B1+B2	B1	B1+B2	D1	D2
5--2	256	486	282	512	136	109
5--3	283	513	309	539	136	109
5--4	310	540	336	566	136	109
5--5	341	591	367	617	155	124
5--6	368	618	394	644	155	124
5--7	395	645	421	671	155	124
5--8	422	672	448	698	155	124
5--9	465	775	491	801	175	137
5--10	492	802	518	828	175	137
5--11	519	829	545	855	175	137
5--12	546	856	572	882	175	137
5--13	573	883	599	909	175	137
5--14	600	910	626	936	175	137
5--15	627	937	653	963	175	137
5--16	654	964	680	990	175	137
5--18	712	1042	738	1068	195	151
5--20	766	1096	792	1122	195	151
5--22	820	1177	846	1203	219	169
5--24	874	1231	900	1257	219	169
5--26	928	1285	954	1311	219	169
5--29	1009	1366	1035	1392	219	169



Dimensions for LVR10 and LVS10

Pump Models	Dimensions					
	DIN Flange(LVR)		DIN Flange(LVS)			
	B1	B1+B2	B1	B1+B2	D1	D2
10--1	336	566	334	564	136	109
10--2	369	619	367	617	155	124
10--3	399	649	397	647	155	124
10--4	445	755	443	753	175	137
10--5	475	785	473	783	175	137
10--6	505	815	503	813	175	137
10--7	540	870	538	868	195	151
10--8	570	900	568	898	195	151
10--9	600	930	598	928	195	151
10--10	630	987	628	985	219	169
10--12	690	1047	688	1045	219	169
10--14	782	1180	780	1178	258	188
10--16	842	1240	840	1238	258	188
10--18	902	1300	900	1298	258	188
10--20	962	1360	960	1358	258	188
10--22	1022	1420	1020	1418	258	188



LVR(S)64Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
64-1-1	4	64	15.5	80	22	4	-20~+120
64-1	5.5	64	21.5	80	31.5	4	-20~+120
64-2-2	7.5	64	31	80	40.5	4	-20~+120
64-2-1	11	64	38	80	51	10	-20~+120
64-2	11	64	44.5	80	60.5	10	-20~+120
64-3-2	15	64	54	80	69.5	10	-20~+120
64-3-1	15	64	60	80	79	10	-20~+120
64-3	18.5	64	66.5	80	89.5	10	-20~+120
64-4-2	18.5	64	76	80	98	10	-20~+120
64-4-1	22	64	82.5	80	109	15	-20~+120
64-4	22	64	89	80	118	15	-20~+120
64-5-2	30	64	100	80	128	15	-20~+120
64-5-1	30	64	106	80	138	15	-20~+120
64-5	30	64	113	80	148	15	-20~+120
64-6-2	30	64	122	80	157	15	-20~+120
64-6-1	37	64	129	80	167	15	-20~+120
64-6	37	64	135	80	177	15	-20~+120
64-7-2	37	64	145	80	186	15	-20~+120
64-7-1	37	64	151	80	196	15	-20~+120
64-7	45	64	163	80	208	15	-20~+120
64-8-2	45	64	172	80	218	15	-20~+120
64-8-1	45	64	180	80	227	15	-20~+120

LVR(S)90Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
LVR(S)90-1-1	5.5	90	14	110	26	4	-20~+120
LVR(S)90-1	7.5	90	20	110	35	4	-20~+120
LVR(S)90-2-2	11	90	29.5	110	48	10	-20~+120
LVR(S)90-2	15	90	42	110	68	10	-20~+120
LVR(S)90-3-2	18.5	90	51	110	81	10	-20~+120
LVR(S)90-3	22	90	64	110	102	15	-20~+120
LVR(S)90-4-2	30	90	75	110	115	15	-20~+120
LVR(S)90-4	30	90	87.5	110	136	15	-20~+120
LVR(S)90-5-2	37	90	97	110	149	15	-20~+120
LVR(S)90-5	37	90	109.5	110	170	15	-20~+120
LVR(S)90-6-2	45	90	121	110	184	15	-20~+120
LVR(S)90-6	45	90	133	110	205	15	-20~+120

LVR(S)120 Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
LVR(S)120-1	11	120	18.5	150	23	10	-20~+120
LVR(S)120-2-2	15	120	28.5	150	36	10	-20~+120
LVR(S)120-2-1	18.5	120	34.5	150	43	10	-20~+120
LVR(S)120-2	22	120	40	150	48	15	-20~+120
LVR(S)120-3-2	30	120	49	150	59	15	-20~+120
LVR(S)120-3-1	30	120	55.5	150	66	15	-20~+120
LVR(S)120-3	30	120	61	150	72	15	-20~+120
LVR(S)120-4-2	37	120	69	150	83	15	-20~+120
LVR(S)120-4-1	37	120	76	150	92	15	-20~+120
LVR(S)120-4	45	120	81	150	97	15	-20~+120
LVR(S)120-5-2	45	120	90	150	108	15	-20~+120
LVR(S)120-5-1	45	120	97	150	114	15	-20~+120
LVR(S)120-5	55	120	101.5	150	121	20	-20~+120
LVR(S)120-6-2	55	120	110	150	131	20	-20~+120
LVR(S)120-6-1	55	120	118	150	139	20	-20~+120
LVR(S)120-6	75	120	123	150	143	20	-20~+120
LVR(S)120-7-2	75	120	130	150	154	20	-20~+120
LVR(S)120-7-1	75	120	137.5	150	161	20	-20~+120
LVR(S)120-7	75	120	145	150	167	20	-20~+120

LVR(S)150 Models and Powers

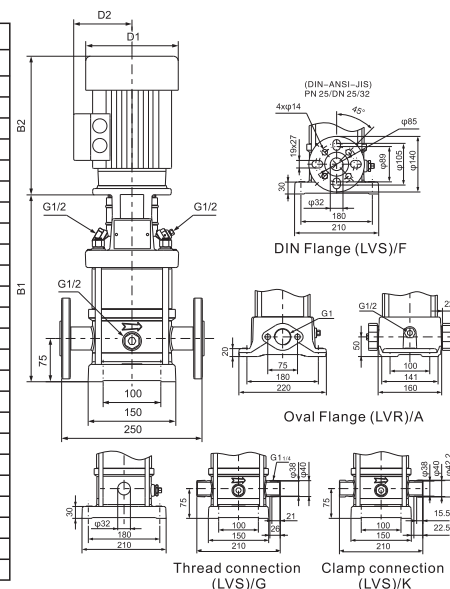
Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
LVR(S)150-1-1	11	150	12.5	180	19	10	-20~+120
LVR(S)150-1	15	150	18.5	180	25	10	-20~+120
LVR(S)150-2-2	18.5	150	27.5	180	40	10	-20~+120
LVR(S)150-2-1	22	150	35	180	47	15	-20~+120
LVR(S)150-2	30	150	40	180	55	15	-20~+120
LVR(S)150-3-2	30	150	49	180	69	15	-20~+120
LVR(S)150-3-1	37	150	56	180	75	15	-20~+120
LVR(S)150-3	37	150	63	180	83	15	-20~+120
LVR(S)150-4-2	45	150	70.5	180	95	15	-20~+120
LVR(S)150-4-1	45	150	77	180	104	15	-20~+120
LVR(S)150-4	55	150	84	180	113	20	-20~+120
LVR(S)150-5-2	55	150	92	180	126	20	-20~+120
LVR(S)150-5-1	75	150	99	180	133	20	-20~+120
LVR(S)150-5	75	150	106.5	180	140	20	-20~+120
LVR(S)150-6-2	75	150	112	180	149	20	-20~+120
LVR(S)150-6-1	75	150	120.5	180	158	20	-20~+120
LVR(S)150-6	75	150	130	180	167	20	-20~+120

LVR(S)200 Models and Powers

Models	Power [kW]	Rated Flow [m³/h]	Rated Head [m]	Max. Flow [m³/h]	Max. Head [m]	Max. Inlet Pressure [bar]	Applicable temperature [°C]
LVR(S)200-1-D	18.5	200	20	240	28	10	-20~+120
LVR(S)200-1-C	22	200	24	240	31	15	-20~+120
LVR(S)200-1	30	200	34	240	41	15	-20~+120
LVR(S)200-2-2D	37	200	41	240	56	15	-20~+120
LVR(S)200-2-2C	45	200	49	240	63	15	-20~+120
LVR(S)200-2-C	55	200	59	240	73	20	-20~+120
LVR(S)200-2	55	200	69	240	82	20	-20~+120
LVR(S)200-3-2D	75	200	75	240	97	20	-20~+120
LVR(S)200-3-C-D	75	200	79	240	101	20	-20~+120
LVR(S)200-3-2C	75	200	84	240	106	20	-20~+120
LVR(S)200-3-D	75	200	89	240	111	20	-20~+120
LVR(S)200-3-C	75	200	93	240	114	20	-20~+120
LVR(S)200-3	90	200	103	240	124	20	-20~+120
LVR(S)200-4-2D	90	200	110	240	140	20	-20~+120
LVR(S)200-4-2C	110	200	118	240	147	20	-20~+120
LVR(S)200-4-C	110	200	128	240	157	20	-20~+120
LVR(S)200-4	110	200	138	240	167	20	-20~+120

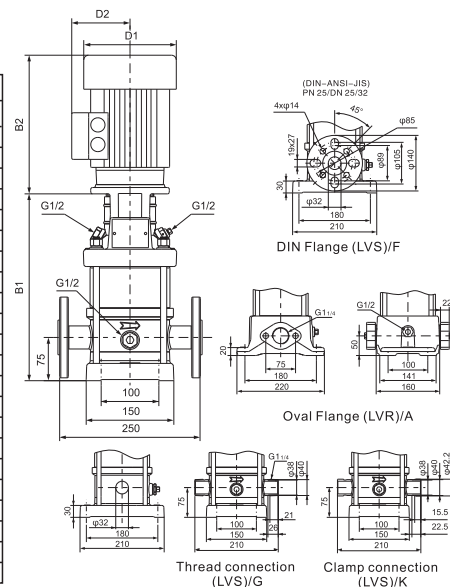
Dimensions for LVR3 and LVS3

Pump Models	Dimensions					
	Oval Flange(LVR)		DIN Flange(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
3--2	238	468	264	494	136	109
3--3	256	486	282	512	136	109
3--4	274	504	300	530	136	109
3--5	292	522	318	548	136	109
3--6	310	540	336	566	136	109
3--7	328	558	354	584	136	109
3--8	350	600	376	626	155	124
3--9	368	618	394	644	155	124
3--10	386	636	412	662	155	124
3--11	404	654	430	680	155	124
3--12	422	672	448	698	155	124
3--13	440	690	466	716	155	124
3--15	476	726	502	752	155	124
3--17	528	838	554	864	175	137
3--19	564	874	590	900	175	137
3--21	600	910	626	936	175	137
3--23	636	946	662	972	175	137
3--25	672	982	698	1008	175	137
3--27	708	1018	734	1044	175	137
3--29	744	1054	770	1080	175	137
3--31	784	1114	810	1140	195	151
3--33	820	1150	846	1176	195	151
3--36	874	1204	900	1230	195	151



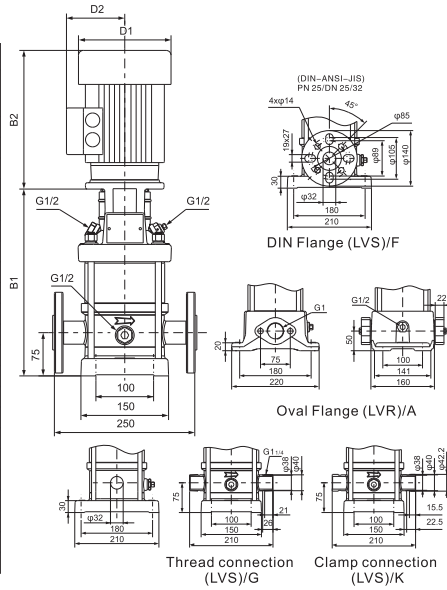
Dimensions for LVR4 and LVS4

Pump Models	Dimensions					
	Oval Flange(LVR)		DIN Flange(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
4-2	238	458	263	483	140	110
4-3	265	485	290	510	140	110
4-4	297	547	322	572	160	125
4-5	324	574	349	599	160	125
4-6	351	601	376	626	160	125
4-7	395	685	420	710	180	125
4-8	422	712	447	737	180	125
4-9	449	739	474	764	180	125
4-10	476	766	501	791	180	125
4-11	503	793	528	818	180	125
4-12	530	820	555	845	180	125
4-13	565	895	590	920	190	140
4-14	592	922	617	947	190	140
4-15	619	949	644	974	190	140
4-16	646	976	671	1001	190	140
4-17	673	1003	698	1028	220	150
4-18	700	1030	725	1055	220	150
4-19	727	1057	752	1085	220	150
4-20	754	1084	779	1109	220	150
4-21	781	1111	806	1136	220	150
4-22	808	1138	833	1163	220	150



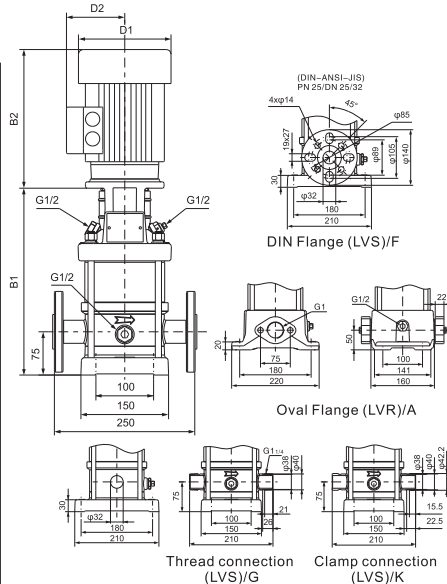
Annex 3
Dimensions for LVR1 and LVS1

Pump Models	Dimensions					
	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

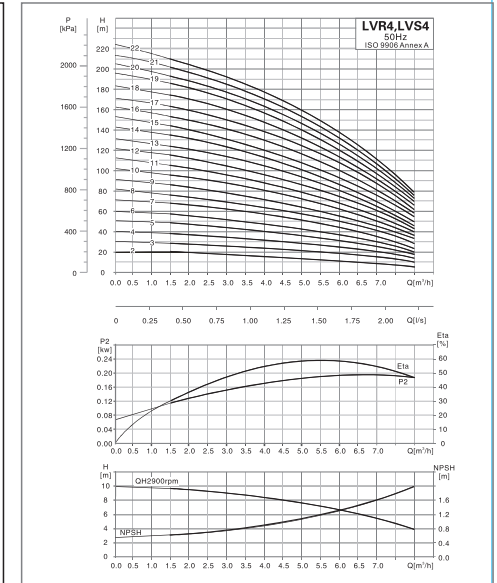
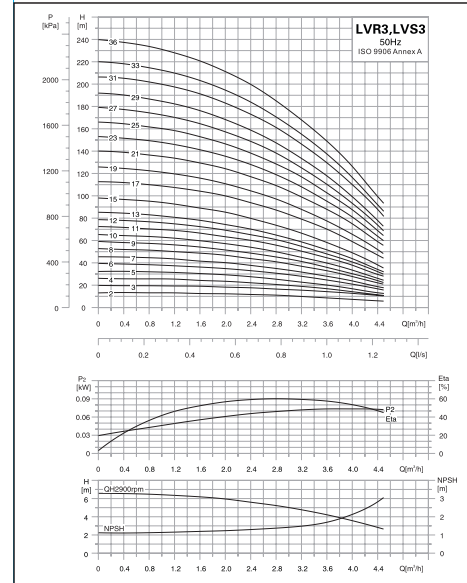
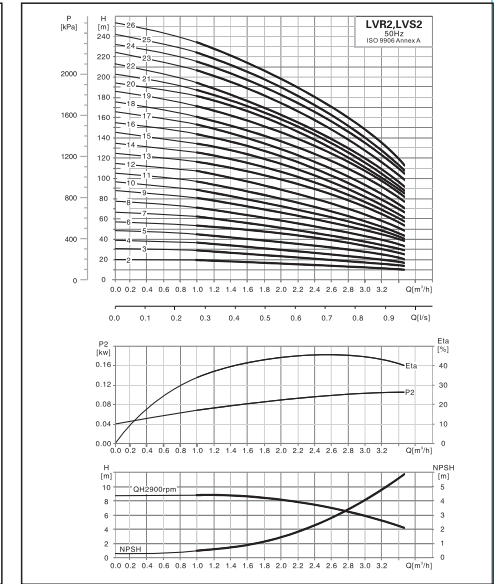
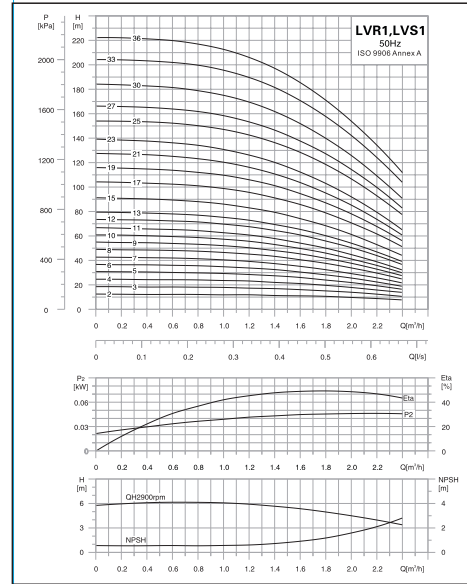


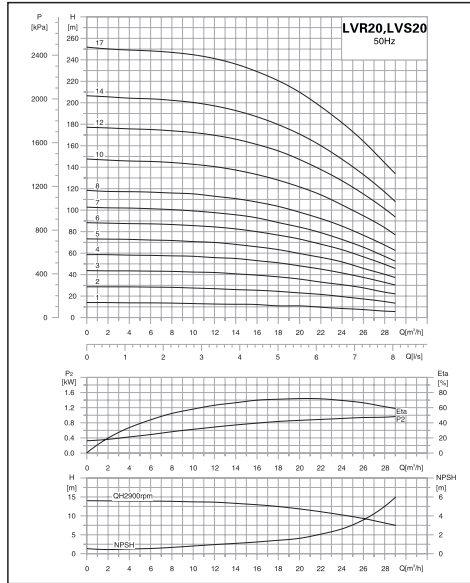
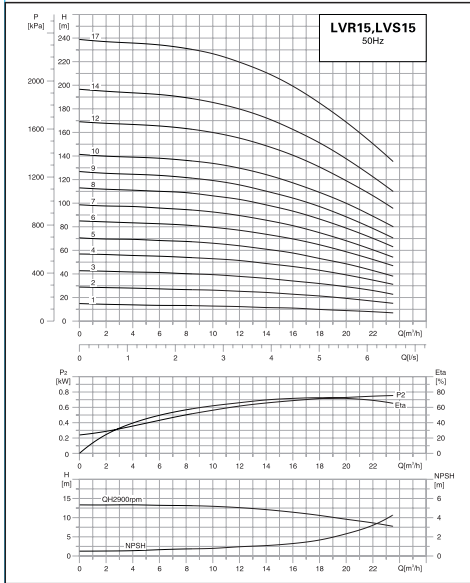
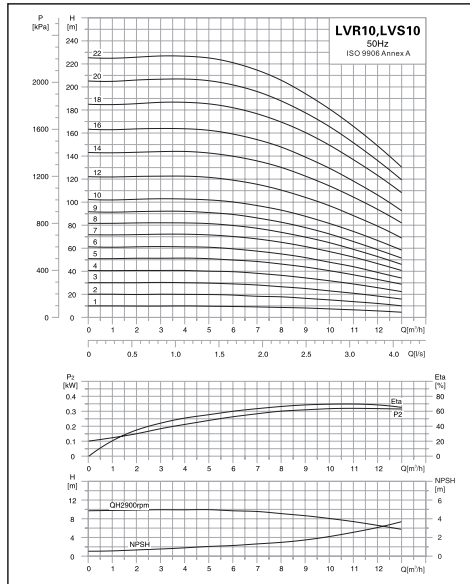
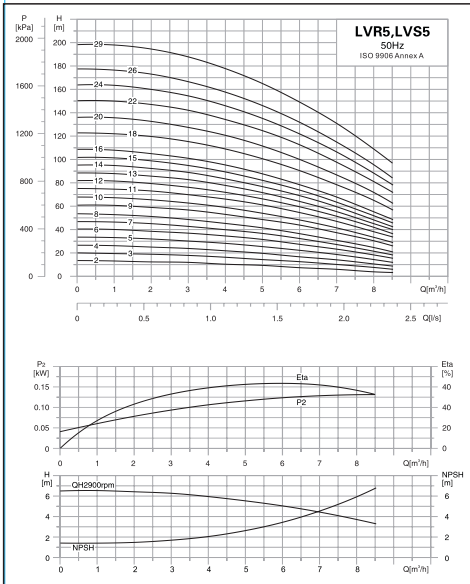
Dimensions for LVR2 and LVS2

Pump Models	Dimensions					
	Oval Flange(LVR)		DIN Flange(LVS)		D1	D2
	B1	B1+B2	B1	B1+B2		
2-2	220	440	245	465	140	110
2-3	238	458	263	483	140	110
2-4	256	476	281	501	140	110
2-5	274	494	299	519	140	110
2-6	297	547	322	572	160	125
2-7	315	565	340	590	160	125
2-8	333	583	358	608	160	125
2-9	351	601	376	626	160	125
2-10	269	619	394	644	160	125
2-11	384	637	412	662	160	125
2-12	422	712	447	737	180	125
2-13	440	730	465	755	180	125
2-14	458	748	483	773	180	125
2-15	476	766	501	791	180	125
2-16	494	784	519	809	180	125
2-17	512	802	537	827	180	125
2-18	530	820	555	845	180	125
2-19	548	838	573	863	180	125
2-20	566	856	591	881	180	125
2-21	584	874	609	899	180	125
2-22	602	892	627	917	180	125
2-23	628	958	653	983	190	140
2-24	646	976	671	1001	190	140
2-25	664	994	689	1019	190	140
2-26	682	1012	707	1037	190	140



9. Curve charts





Annex 1 Max. operating pressure

	Models	LVR Max. operating pressure	LVS Max. operating pressure
50Hz	LVR, LVS1	16bar	25bar
	LVR, LVS2	16bar	25bar
	LVR, LVS3	16bar	25bar
	LVR, LVS4	16bar	25bar
	LVR, LVS5	16bar	25bar
	LVR, LVS10	25bar	25bar
	LVR, LVS15	25bar	25bar
	LVR, LVS20	25bar	25bar
	LVR, LVS32-1-1→32-7	16bar	16bar
	LVR, LVS32-8-2→32-14	30bar	30bar
	LVR, LVS45-1-1→45-5	16bar	16bar
	LVR, LVS45-6-2→45-11	30bar	30bar
	LVR, LVS45-12-2→45-13-2	33bar	33bar
	LVR, LVS64-1-1→64-5	16bar	16bar
LVR, LVS64-6-2→64-8-1	30bar	30bar	
LVR, LVS90-1-1→90-4	16bar	16bar	
LVR, LVS90-5-2→90-6	30bar	30bar	
LVR, LVS120-1→120-7	20bar	20bar	
LVR, LVS150-1-1→150-6	20bar	20bar	
LVR, LVS200-1-D→200-4	20bar	20bar	

Annex 2 Max. inlet pressure for LVR and LVS

		Max. inlet pressure		Max. inlet pressure
50Hz	LVR, LVS 1		LVR, LVS 45	
	LVR, LVS1-2→LVR, LVS1-36	10bar	LVR, LVS45-1-1→LVR, LVS45-2	4bar
	LVR, LVS 2		LVR, LVS45-3-2→LVR, LVS45-5	10bar
	LVR, LVS2-2	6bar	LVR, LVS45-6-2→LVR, LVS45-13-2	15bar
	LVR, LVS2-3→LVR, LVS2-12	10bar	LVR, LVS 64	
	LVR, LVS2-13→LVR, LVS2-26	15bar	LVR, LVS64-1-1→LVR, LVS64-2-2	4bar
	LVR, LVS 3		LVR, LVS64-2-1→LVR, LVS64-4-2	10bar
	LVR, LVS3-2→LVR, LVS3-29	10bar	LVR, LVS64-4-1→LVR, LVS64-8-1	15bar
	LVR, LVS3-31→LVR, LVS3-36	15bar	LVR90, LVS 90	
	LVR, LVS 4		LVR, LVS90-1-1→LVR, LVS90-1	4bar
	LVR, LVS4-2	6bar	LVR, LVS90-2-2→LVR, LVS90-3-2	10bar
	LVR, LVS4-3→LVR, LVS4-11	10bar	LVR, LVS90-3→LVR, LVS90-6	15bar
	LVR, LVS4-12→LVR, LVS4-22	15bar	LVR120, LVS 120	
	LVR, LVS 5		LVR, LVS120-1→LVR, LVS120-2-1	10bar
	LVR, LVS5-2→LVR, LVS5-16	10bar	LVR, LVS120-2→LVR, LVS120-5-1	15bar
	LVR, LVS5-18→LVR, LVS5-29	15bar	LVR, LVS120-5→LVR, LVS120-7	20bar
	LVR, LVS 10		LVR150, LVS 150	
	LVR, LVS10-1→LVR, LVS10-6	8bar	LVR, LVS150-1-1→LVR, LVS150-2-2	10bar
	LVR, LVS10-7→LVR, LVS10-22	10bar	LVR, LVS150-2-1→LVR, LVS150-4-1	15bar
	LVR, LVS 15		LVR, LVS150-4→LVR, LVS150-6	20bar
	LVR, LVS15-1→LVR, LVS15-3	8bar	LVR200, LVS 200	
	LVR, LVS15-4→LVR, LVS15-17	10bar	LVR, LVS200-1-D	10bar
	LVR, LVS 20		LVR, LVS200-1-C→LVR, LVS200-2-2C	15bar
LVR, LVS20-1→LVR, LVS20-3	8bar	LVR, LVS200-2-C→LVR, LVS200-4	20bar	
LVR, LVS20-4→LVR, LVS20-17	10bar			
LVR, LVS 32				
LVR, LVS32-1-1→LVR, LVS32-4	4bar			
LVR, LVS32-5-2→LVR, LVS32-10	10bar			
LVR, LVS32-11→LVR, LVS32-14	15bar			

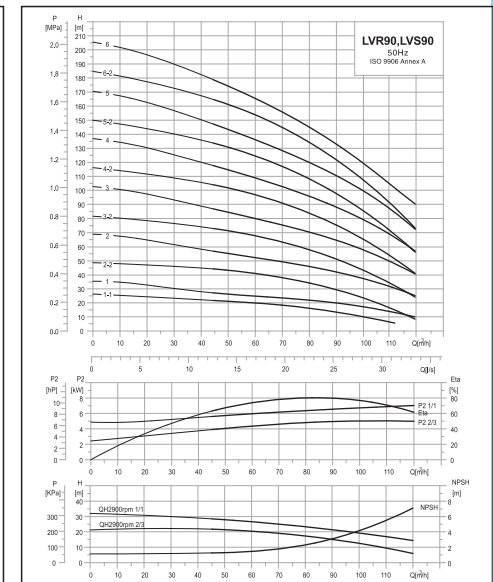
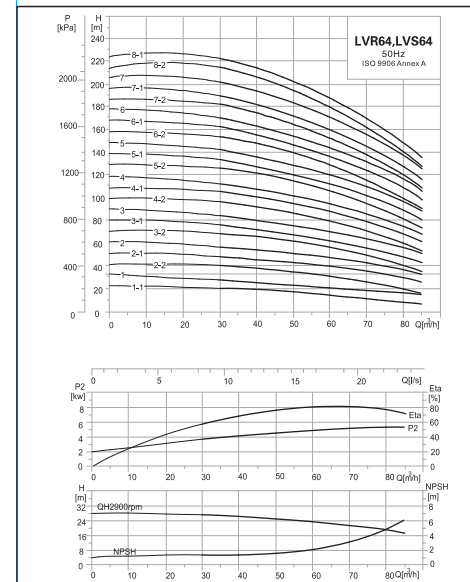
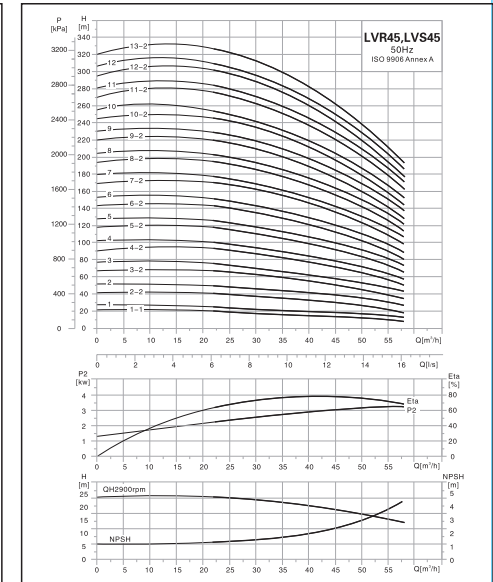
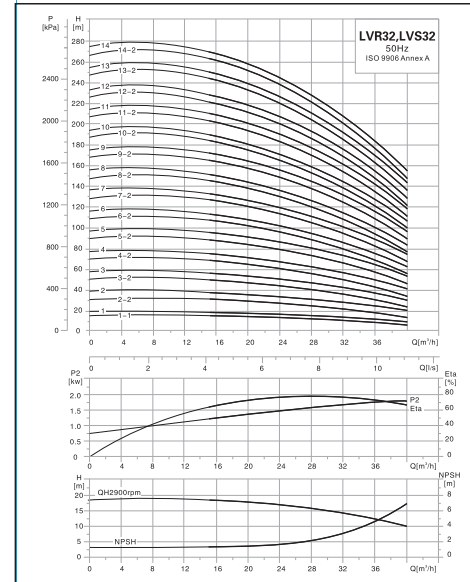
13. Troubleshooting

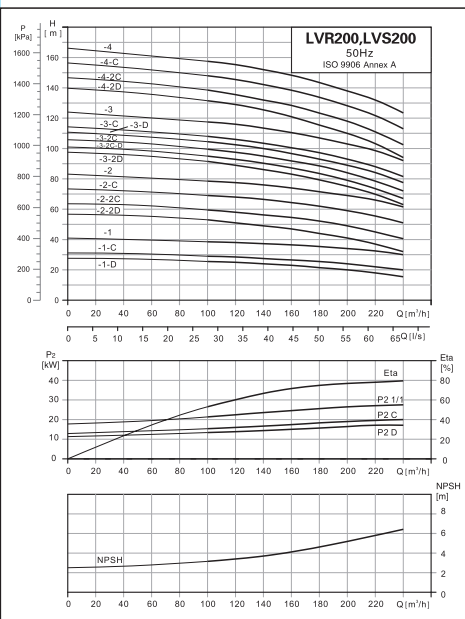
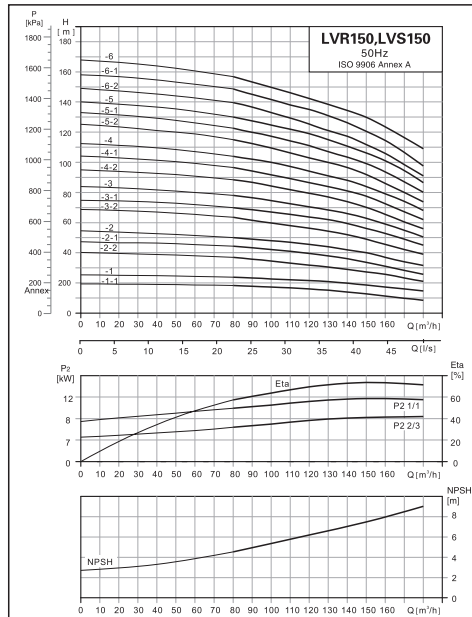
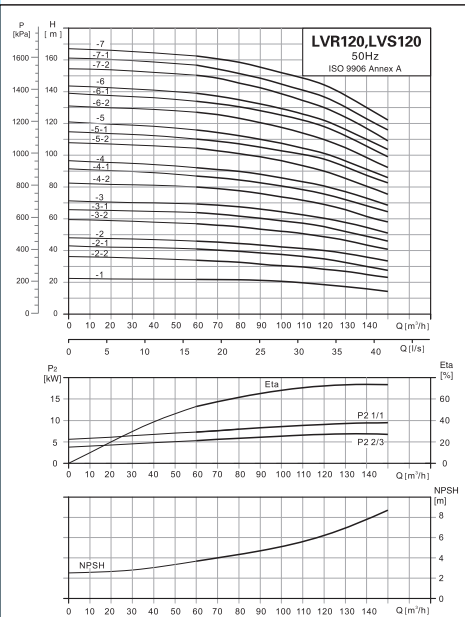


Disconnect all power to the pump before dismantling terminal box and pump. Make sure that power is disconnected and that pump cannot be accidentally started.

Symptoms	Causes	Solutions
Motor does not run when started	Power failure	Power supply
	Fuses down	Replace the fuse
	Motor starter overload has tripped out	Restart
	Thermal protector has tripped out	Restart
	Main contacts are not making contact or the coil is faulty	Repair
	Control circuit are defective	Check
	Motor defective	Repair
Motor starter overload trips out immediately when power supply is turned on	One fuse has blown	Replace the fuse
	Contacts in motor overload device are faulty	Replace
	Cable connections are loose or faulty	Tighten or replace the cable connections
	Motor winding is defective	Repair
	Pump mechanically blocked	Check for adjustment
Motor starter overload trips out occasionally	Overload current setting is too low	Reset
	Low voltage at peak times	Check the power supply
Pump capacity is not steady	Pump inlet pressure is too low	Check the inlet
	(Cavitation damage) Suction pipe blocked	Clean the pipeline
Pump runs but no water been pumped	Inlet pipe is too small	Change to the inlet pipe of larger size
	Suction pipe/pump blocked	Clean pipes
	Foot or nonreturn valve is blocked in closed position	Repair
	Leakage in suction pipe	Repair
Pump runs backwards when switched off	Air in suction pipe or pump	Check the inlet
	Motor rotates in the wrong direction	Change the connections
	Leakage in suction pipe	Repair
Leakage from shaft seal	Foot or nonreturn valve is defective	Repair
	Shaft seal is defective	Replace
Noise	Cavitation is occurring	Check the inlet
	Pump does not rotate freely because of	Adjust the shaft position
	incorrect shaft position Pump head is too low	Improve the system or reselect the model
	Frequency converter does not run	Check the frequency converter

If some defectives still can not be removed as per the above solutions, please call the local distributors .





10. Maintenance



Before doing anything, make sure that the pump is disconnected from the power source and that there is no possibility of accidental connections. Bearing and shaft seal do not need to maintenance.

Motor bearing

Motors without oil filling moth is free of maintenance. Motor with oil filling mouth of higher than 11KW, grease or the similar high temperature lithium grease should be applied. See the indication on the fan cover for reference. For seasonal running (the motor will be out of use for more than 6 months), lubricate the motor before starting.

The mechanical seal is auto adjustment. As long as the instructions in this manual are strictly followed, the pump will work efficiently and do not require any maintenance.

The contact surface between dynamic ring and stationary ring of the automatic adjustment mechanical seal is lubricated and cooled by the liquid transferred.

The sliding bearing of the pump is lubricated by the liquid transferred.

11. Frost Protection



If the pump is installed where it is subject to freezing, antifreeze must be applied to avoid damage caused by icing.

If you do not use your pump during seasons of frost, empty the pump to avoid damage. The pump can be emptied by means of the filling plug on the pump head and drainage plug on the bottom. Be careful of personal safety and property security when draining cold or hot water. Tighten the venting plugs and drainage valves the next time the pump is used. When the drainage valve needs to be replaced, first unscrew the bypass valve, and then screw off the drainage plug (see figure 5). When installing the drainage valve, first tighten the drainage plug, and then tighten the bypass valve.

12. Exploded Views

See exploded views on page 32-35.