

# LD 立式管道泵

## LDvertical pipeline



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# 目录 Catalogue

产品概述 Product Overview .....	1
型号含义 Model meaning .....	1
电机 Electrical machinery .....	2
运行条件 Operational condition .....	2
应用场景 Application scenarios .....	3
最小进口压力 Minimum inlet pressure----NPSH .....	3
最大环境温度、海拔 Maximum ambient temperature, altitude .....	5
产品结构 Product mix .....	5
安装条件 Installation conditions .....	6
产品截面图示例 Product cross-section example .....	8
产品型号范围 Product model range .....	9





## ☀ 产品概述 Product Overview

LD 型单级管道循环泵，配有标准电机和机械密封，此类产品的结构与相近类型产品相比，更不易受到泵送液体中杂质的影响。

The LD-type single-stage pipeline circulation pump, equipped with standard motors and mechanical seals, features a design that is less susceptible to impurities in the pumped liquid compared to similar products.

产品设计为顶部可拉出的拆装形式，其可以在不影响管路系统的情况下对泵进行维修。

The pump is designed with a top pull-out assembly, which allows maintenance without affecting the pipeline system.

其中 LD32-LD150 口径产品为加长轴结构，LD200-LD300 口径产品为便拆式结构，便拆式结构采用集装式机械密封，更换机械密封时无需拆卸电机。

The LD32-LD150 caliber features an extended shaft design, while the LD200-LD300 caliber adopts a detachable structure with a modular mechanical seal, eliminating the need to disassemble the motor for seal replacement.

## ☀ 型号含义 Model meaning

LD50-24G/2

LD.....	管道循环泵	Pipeline circulating pump
50.....	吸排口的公称直径(DN)	The nominal diameter (DN) of the suction and discharge ports
24.....	额定扬程(m)	Rated head (m)
G.....	新一代	A new generation





## ☀ 电机 Electrical machinery

- ▶ 电机为全封闭，风冷式二、四极标准电机

The motor is a fully enclosed, air-cooled standard two-pole or four-pole motor.

- ▶ 防护等级:IP55 Protection rating: IP55

- ▶ 绝缘等级:F Insulation grade :F

- ▶ 标准电压:50Hz:1x220-230/240V 3x200-220/346-380V 3x220-240/380-415V

Standard voltage:50Hz:1x220-230/240V 3x200-220/346-380V

3x220-240/380-415V

## ☀ 运行条件 Operational condition

产品适用于输送稀薄、干净、非侵蚀、非易燃易爆，且不含固体颗粒、纤维或者物理化学性质类似于水的液体。在液体粘稠或密度较大情况下使用时会造成泵特性曲线的下降和能耗的增加。

The product is suitable for conveying thin, clean, non-erosive, non-flammable and non-explosive liquids that do not contain solid particles, fibers, or substances with physicochemical properties similar to water. When used with viscous or high-density liquids, it may result in a decline in pump characteristic curve and increased energy consumption.

- ▶ 最大工作压力:常规型为 12bar ; 特殊型为 16bar

Maximum working pressure: 12 bar for standard type; 16 bar for special type

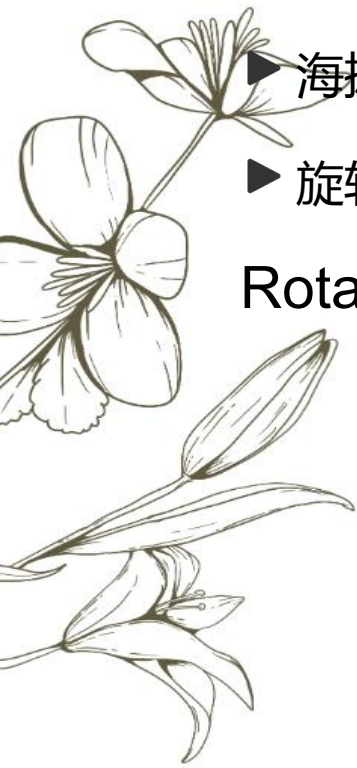
- ▶ 液体温度:-15°C 至 110°C Liquid temperature: -15°C to 110°C

- ▶ 环境温度:最高+40°C Ambient temperature: Maximum +40°C

- ▶ 海拔:最高 1000m Altitude: up to 1000m

- ▶ 旋转方向:顺时针(电机风叶端往下看)

Rotation direction: clockwise (viewed from the motor blade end)



## ☀ 应用场景 Application scenarios

LD 泵是一种多用途产品，可以输送从自来水到工业液体的各种不同介质，主要作为液体的输送、增压和循环设备使用。例如：

The LD pump is a versatile product capable of handling a wide range of media, from tap water to industrial liquids, primarily functioning as a liquid transfer, pressurization, and circulation device. For example:

▶ 区域供热系统(供热系统中的水质应满足该系统公认的水质标准)

District heating system (the water quality in the heating system should meet the recognized water quality standards of the system)

▶ 暖通、空调系统 HVAC (Heating, Ventilation, and Air Conditioning) systems

▶ 冷却系统 Refrigerating system

▶ 生活热水系统 Hot water system

▶ 工业液体输送 Industrial liquid conveyance

▶ 供水系统 Water supply

## ☀ 最小进口压力 Minimum inlet pressure----NPSH

如果泵中的压力低于输送液体的汽化压力，可能发生汽蚀，为避免汽蚀，确保泵进口侧有一最小压力，最大吸程 H(米)可按下式计量：

If the pump pressure falls below the vaporization pressure of the liquid being transported, cavitation may occur. To prevent cavitation and ensure a minimum pressure at the pump inlet, the maximum suction head H (m) can be calculated using the following formula:

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

H-最大吸程(米) Maximum lift (m)

$p_b$ -大气压力(巴) Atmospheric pressure bar

在闭式管路中可以认为是闭式系统的系统压力(巴)。In a closed pipeline, the system pressure (in



bar) can be considered as that of a closed system.

NPSH-净正吸入压头(米) Net positive suction head (m)

可以在性能曲线中 NPSH 曲线上对应于最大流量处读出。It can be read out at the maximum flow rate on the NPSH curve in the performance curve.

Hf-入口处的管路损失(米) Pipeline loss at the entrance (m)

对应于管路可能产生的最大流量时的值。

The value corresponding to the maximum flow rate that the pipeline can produce.

Hv-液体的汽化压力(米) Vaporization pressure of liquid (m)

其值的大小取决于液体的温度的汽化压力值。

The value of the vapor pressure depends on the temperature of the liquid.

Hs-安全余量(米) Safety margin (m)

最小为 0.5 米压头。The minimum head is 0.5 m.

通过计算，如果"H"为正值，说明泵可以在最大吸程"H"的情况下运行;如果"H"为负值，说明泵必须要在进口有一个最小压力为相应"H"米的压头的情况下才可以正常运行。

The calculation shows that if H is positive, the pump can operate at the maximum suction head H, and if H is negative, the pump must have a minimum pressure at the inlet equal to the corresponding H m to operate normally.

注:一般情况下不进行以上计算。只有在下列情况下使用泵时才要对"H"进行计算:

Note: The above calculation is generally not performed. The 'H' value should be calculated only when the pump is used under the following conditions:

1、液体温度较高

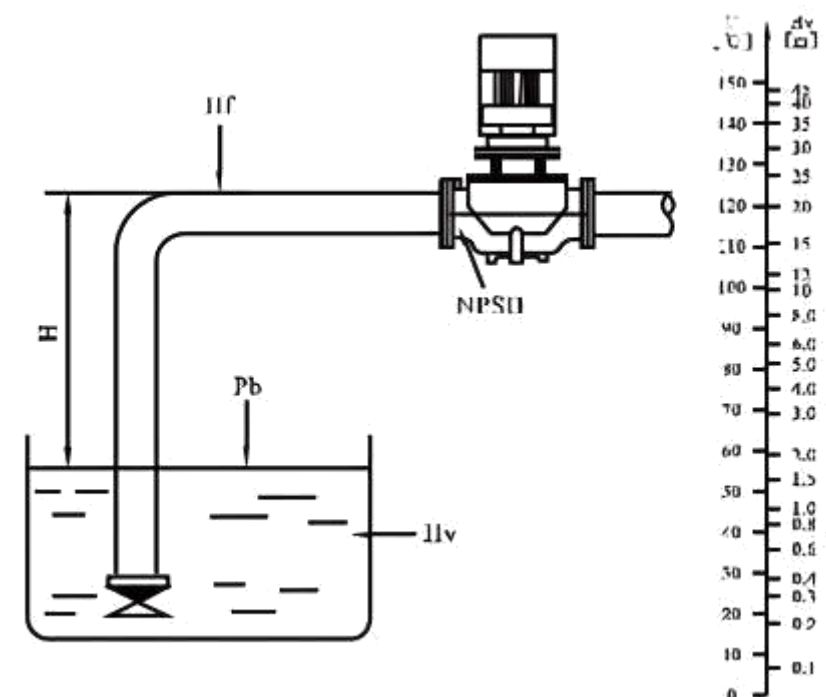
1. The liquid temperature is relatively high

2、液体流速超过了额定值

2. The liquid flow rate exceeds the rated value

3、吸程较大或进口管路较长

3. Large suction head or long inlet pipeline



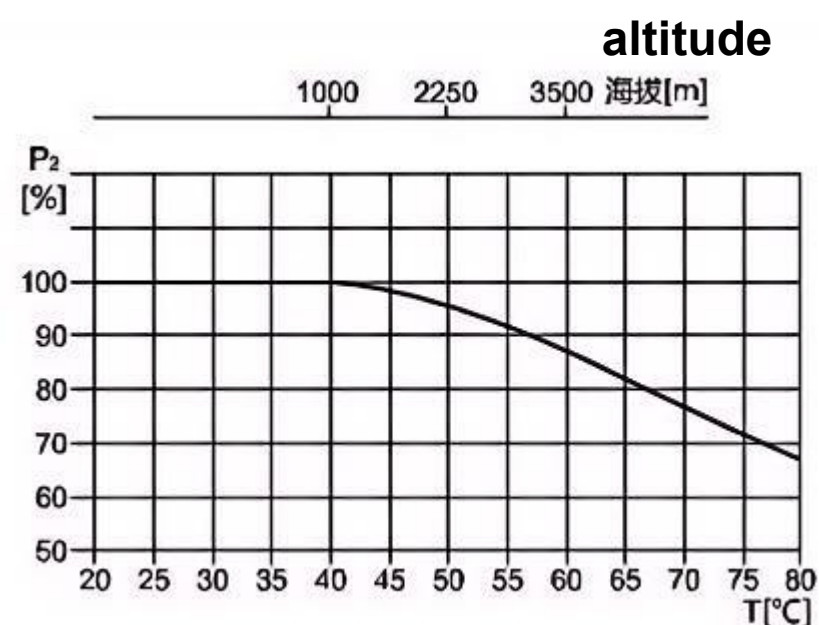


- 4、系统压力太小
- 4. The system pressure is too low
- 5、进口条件较差
- 5. Poor import conditions

## ☀ 最大环境温度、海拔 Maximum ambient temperature, altitude

当泵在环境温度大于 40°C 或海拔大于 1000m 下运行时，由于空气密度低冷却效果差，电机输出功率 P2 会有一定降低。泵在上述情况下运行时电机功率需加大。

When the pump operates at ambient temperatures above 40°C or altitudes exceeding 1000m, the reduced air density and poor cooling efficiency will cause a certain reduction in motor output power (P2). In such conditions, the motor power must be increased.



## ☀ 产品结构 Product mix

- ▶ 产品采用电机与泵可分离式结构，泵部分设计为可拉出形式。

The product adopts a separable structure of motor and pump, and the pump part is designed as a pull-out form.

- ▶ 所有的该类产品都配有标准电机和机械密封。电机为全封闭、风冷式标准电机。

All such products are equipped with standard motors and mechanical seals. The motors are fully enclosed, air-cooled standard motors.

- ▶ 产品泵体相当于一段管路。在泵进行维修时，可以用法兰将泵体封堵，从而不影响系统的正常运行。产品的联接法兰尺寸符合 GB/T17241.6(ISO7005-2)标准，压力等级为 PN16。

The pump body functions as a pipeline segment. During maintenance, the pump





body can be sealed with flanges to ensure uninterrupted system operation. The connection flanges comply with GB/T17241.6 (ISO7005-2) standards and are rated for PN16 pressure.

► 产品的进出口直径符合有关标准尺寸。

**The import and export diameter of the product is in line with the relevant standard size.**

► 产品的泵头是联接电机和泵体的装置。其与泵体之间的密封件采用"O"形圈。

The pump head is the device connecting the motor and the pump body. The seal between the pump head and the pump body is an O-ring.

## ☀ **安装条件 Installation conditions**

产品有不同的安装要求，具体的安装要求如下：

The product has different installation requirements, the specific requirements are as follows:

1、系统管路具有支撑泵的能力，配套 $\leq 2.2\text{kW}$  电机的泵可以直接悬置于管道中。

1. The system piping supports pump installation, allowing pumps with  $\leq 2.2\text{kW}$  motors to be directly suspended within the pipeline.

2、对于配套 $\leq 2.2\text{kW}$  电机的泵，可以在工作管路上水平或垂直安装；对于配套 $> 2.2\text{kW}$  电机的泵，在工作管路中必须垂直于水平面方向上安装。（图 2-A）

2. For water sources equipped with motors  $\leq 2.2\text{kW}$ , installation can be horizontal or vertical in the working pipeline; for pumps equipped with motors  $> 2.2\text{kW}$ , installation must be perpendicular to the horizontal plane in the working pipeline. (Figure 2-A)

3、泵的安装，要保证泵在使用时系统管路的张力不应传递到泵体上。

3. During pump installation, ensure that the system pipeline tension does not transfer to the pump body during operation.

4、为了保证电机的正常运转，泵要安装在保证有足够冷却的环境条件下，且冷却空气的温度不能超过  $40^\circ\text{C}$ 。

4. To ensure proper motor operation, the pump must be installed in a sufficiently





cooled environment, with the cooling air temperature not exceeding 40°C.

5、如果泵安装在户外，必须配置合适的外罩以防止电器元件进水或凝露。

5. If the pump is installed outdoors, a suitable enclosure must be provided to prevent water ingress or condensation on electrical components.

6、为了方便对泵的检查与维修，在泵的上、下方必须留有足够的空间。泵配套电机<5.5kW 时最小留 300mm.泵配套电机≥5.5kW 时最小留 1000mm。(图 2-B)

6. To facilitate pump inspection and maintenance, sufficient clearance must be maintained above and below the pump. For pumps with motor power <5.5kW, a minimum clearance of 300mm is required. For pumps with motor power ≥5.5kW, a minimum clearance of 1000mm is required. (Figure 2-B)

7、为了防止噪音和振动，保证获得最佳运行效果，泵在安装时要采用减振底座。一般采用水泥底座，底座的重量应该是≥1.5x 泵的重量。(图 2-C)

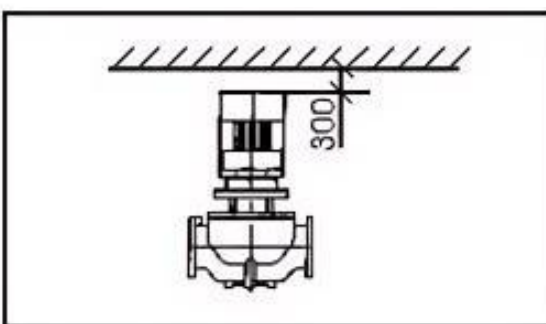
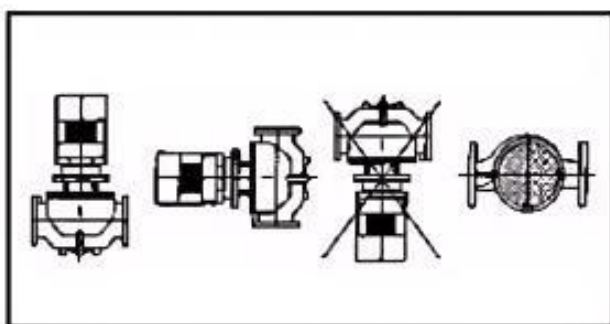
7. To prevent noise and vibration and ensure optimal operational performance, the pump shall be installed with a vibration-damping base. A cement base is generally recommended, with the base weight being ≥1.5x the pump weight. (Figure 2-C)

8、为满足客户的不同需要，TD32-TD150 产品分为带底板和不带底板两种。(底板尺寸见附件一底板)

8. To accommodate diverse customer requirements, the TD32-TD150 series is available in two configurations: with and without a base plate (see Appendix 1 for base plate dimensions).

Installation of pumps with motor power ≤ 2.2kw

Installation of pumps with motor power <5.5kw



Installation of pumps with motor power > 2.2kw

Installation of pumps with motor power ≥ 5.5kw

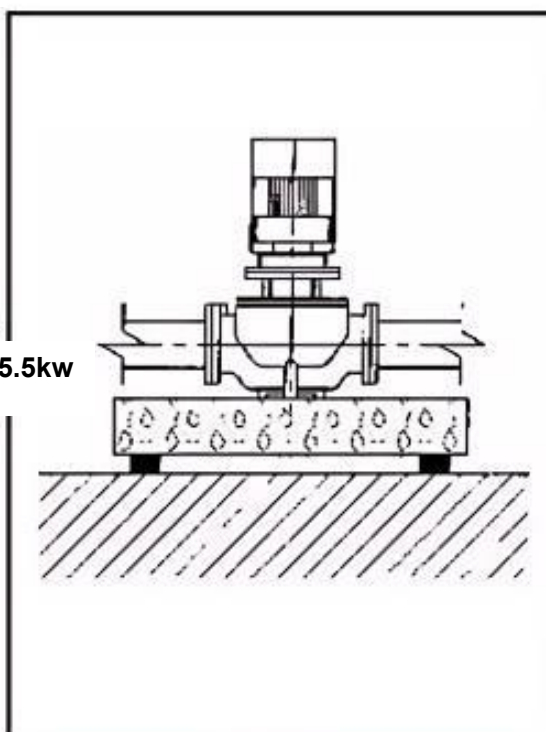
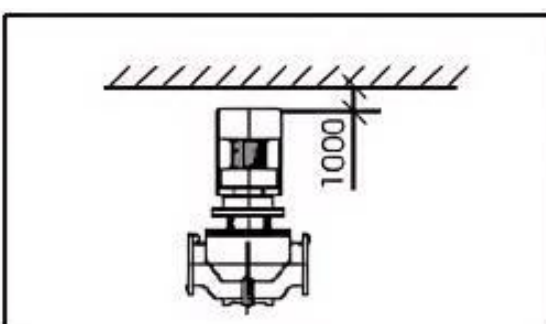
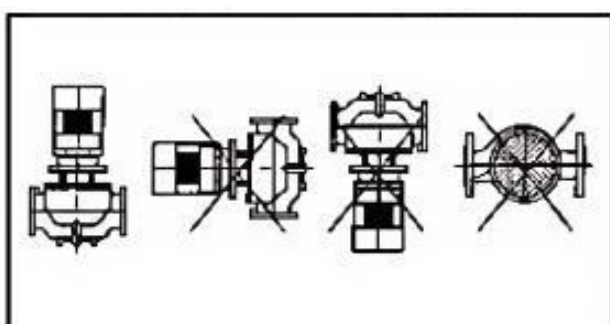


Figure 2-A

Figure 2-B

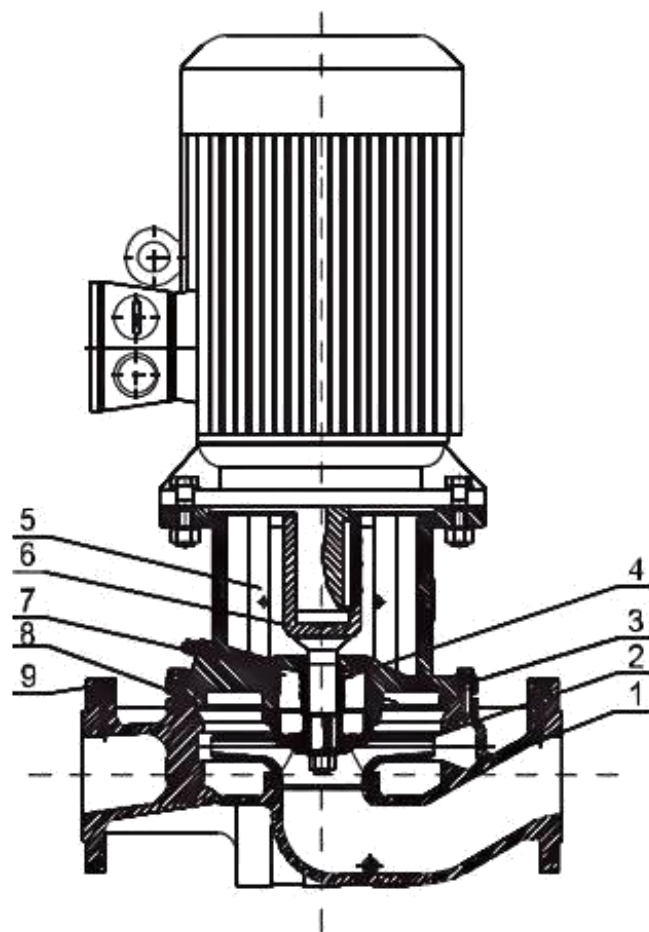
Figure 2-C



# ☀ 产品截面图示例 Product cross-section example

## 截面图LD32-LD150加长轴

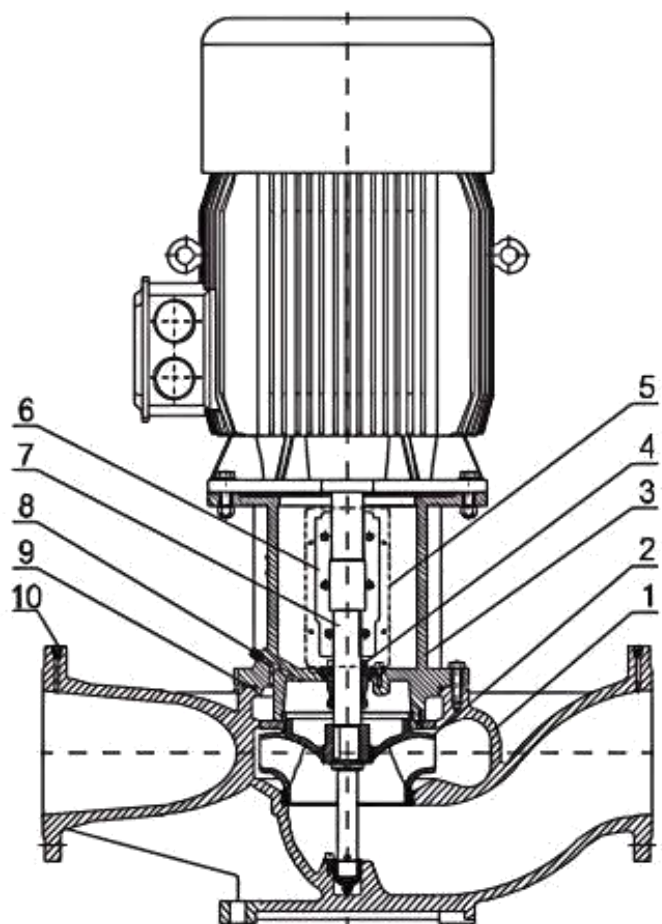
### Sectional drawing LD32-LD150 with long axis



- |        |                             |
|--------|-----------------------------|
| 1..... | 泵体 Pump body                |
| 2..... | 叶轮 Impeller                 |
| 3..... | 泵头 Pump head                |
| 4..... | 机械密封 Mechanical seal        |
| 5..... | 防护板 Safety guard            |
| 6..... | 泵轴 Pump spindle             |
| 7..... | 放气组合件 Deflagration assembly |
| 8..... | "O" 型圈 O molding ring       |
| 9..... | 螺堵 Plug nut                 |

## 截面图LD200-LD250便拆式

### Sectional drawing LD200-LD250



- |         |                             |
|---------|-----------------------------|
| 1.....  | 泵体 Pump body                |
| 2.....  | 叶轮 Impeller                 |
| 3.....  | 泵头 Pump head                |
| 4.....  | 机械密封 Mechanical seal        |
| 5.....  | 防护板 Safety guard            |
| 6.....  | 联轴器 Coupling                |
| 7.....  | 泵轴 Pump spindle             |
| 8.....  | 放气组合件 Deflagration assembly |
| 9.....  | "O" 型圈 O molding ring       |
| 10..... | 螺堵 Plug nut                 |

# ☀ 产品型号范围 Product model range

Standard motor voltage(V)

序号	Pump Model	Q [m <sup>3</sup> /h]	H [m]	n [r/min]	标准电机电压[V]	
					1X220V	3X380V
					P2[kW]	P2[kW]
1	LD32-14G/2	8	14	2900	0.75	0.75
2	LD32-18G/2	8	18		1.1	1.1
3	LD32-21G/2	12.5	21		1.5	1.5
4	LD32-26G/2	12.5	26		2.2	2.2
5	LD32-33G/2	12.5	33			3
6	LD32-40G/2	12.5	40			4
7	LD32-50G/2	12.5	50			5.5
8	LD40-14G/2	8	14		0.75	0.75
9	LD40-18G/2	12.5	18		1.1	1.1
10	LD40-21G/2	12.5	21		1.5	1.5
11	LD40-20G/2	20	20		2.2	2.2
12	LD40-26G/2	20	26			3
13	LD40-30G/2	25	30			4
14	LD40-36G/2	25	36			5.5
15	LD40-48G/2	25	48			7.5
16	LD50-32G/2	12.5	32			3
17	LD50-39G/2	12.5	39			4
18	LD50-49G/2	12.5	49			5.5
19	LD50-59G/2	12.5	59			7.5
20	LD50-80G/2	12.5	80			11
21	LD50-12G/2	18	12		1.1	1.1
22	LD50-15G/2	20	15		1.5	1.5
23	LD50-18G/2	25	18		2.2	2.2
24	LD50-24G/2	25	24			3
25	LD50-28G/2	30	28			4
26	LD50-35G/2	30	35			5.5
27	LD50-40G/2	35	40			7.5
28	LD50-50G/2	40	50			11
29	LD50-60G/2	50	60			15
30	LD50-70G/2	50	70			18.5
31	LD50-81G/2	50	81			22
32	LD65-37G/2	25	37			5.5
33	LD65-48G/2	25	48			7.5
34	LD65-15G/2	30	15		2.2	2.2
35	LD65-20G/2	30	20			3
36	LD65-22G/2	40	22			4
37	LD65-30G/2	40	30			5.5
38	LD65-34G/2	50	34			7.5
39	LD65-41G/2	50	41			11
40	LD65-51G/2	50	51			15
41	LD65-61G/2	50	61			18.5

Standard motor voltage(V)

序号	Pump Model	Q [m <sup>3</sup> /h]	H [m]	n [r/min]	标准电机电压[V]		
					1X220V	3X380V	
					P2[kW]	P2[kW]	
42	LD65-68G/2	50	68	2900		22	
43	LD65-85G/2	50	85			30	
44	LD80-41G/2	50	41			11	
45	LD80-48G/2	50	48			15	
46	LD80-13G/2	50	13			3	
47	LD80-18G/2	50	18			4	
48	LD80-23G/2	50	23			5.5	
49	LD80-29G/2	50	29			7.5	
50	LD80-32G/2	70	32			11	
51	LD80-38G/2	60	38			15	
52	LD80-47G/2	60	47			18.5	
53	LD80-54G/2	60	54			22	
54	LD80-67G/2	60	67			30	
55	LD100-9/2	50	9			2.2	2.2
56	LD100-15/2	60	15				4
57	LD100-17G/2	60	17				5.5
58	LD100-22G/2	60	22				7.5
59	LD100-27/2	100	27				11
60	LD100-33/2	100	33				15
61	LD100-40G/2	100	40				18.5
62	LD100-48G/2	100	48				22
63	LD100-52G/2	130	52				30
64	LD125-11G/4	120	11		1450		5.5
65	LD125-14G/4	120	14				7.5
66	LD125-19G/4	140	19	1480		11	
67	LD125-22G/4	160	22			15	
68	LD125-28G/4	160	28			18.5	
69	LD125-32G/4	160	32			22	
70	LD125-40G/4	160	40			30	
71	LD125-48G/4	160	48			37	
72	LD150-12.5G/4	200	12.5			11	
73	LD150-17G/4	200	17			15	
74	LD150-22G/4	200	22			18.5	
75	LD150-25/4	200	25			22	
76	LD150-33/4	200	33		30		
77	LD150-40/4	200	40		37		
78	LD150-50/4	200	50		45		
79	LD200-16/4	300	16		18.5		
80	LD200-19/4	300	19		22		
81	LD200-24/4	300	24		30		
82	LD200-31/4	300	31		37		

Standard motor voltage(V)

序号	Pump Model	Q [m <sup>3</sup> /h]	H [m]	n [r/min]	标准电机电压[V]	
					1X220V	3X380V
					P2[kW]	P2[kW]
83	LD200-36/4	300	36	1480		45
84	LD200-47/4	300	47			55
85	LD200-53/4	300	53			75
86	LD200-12 5/4	400	12.5			22
87	LD200-20/4	400	20			30
88	LD200-23/4	400	23			37
89	LD200-27/4	400	27			45
90	LD200-32/4	400	32			55
91	LD200-43/4	400	43			75
92	LD200-50/4	400	50			90
93	LD250-16/4	500	16			30
94	LD250-19/4	500	19			37
95	LD250-22/4	500	22			45
96	LD250-29/4	500	29			55
97	LD250-36/4	500	36			75
98	LD250-47/4	500	47			90
99	LD250-56/4	500	56			110
100	LD250-12 5/4	630	12.5			30
101	LD250-14/4	630	14			37
102	LD250-17/4	630	17			45
103	LD250-20/4	630	20			55
104	LD250-26/4	630	26			75
105	LD250-32/4	630	32			90
106	LD250-40/4	630	40			110
107	LD250-50/4	630	50			132
108	LD300-15/4	900	15			55
109	LD300-20/4	900	20			75
110	LD300-25/4	900	25			90
111	LD300-30/4	900	30			110
112	LD300-35/4	900	35			132
113	LD300-44/4	900	44			160
114	LD300-55/4	900	55		200	