



# 转子泵

LOBE PUMP



泊头市华拓泵业有限公司

# Contents 目录

3RP系列凸轮转子泵

01

LC(W) 系列罗茨油泵

03

## 企业简介

## Brief Introduction

泊头市华拓泵业有限公司是研制产销各种工业用泵的专业厂家。公司位于素有“铸造之乡”和“汽车模具之乡”的河北省泊头市，毗邻京沪线，石黄线，104和106国道，交通非常便利。

本公司集科研、生产、销售、服务于一体，生产设备精良，设计水平先进，生产工艺及检测设备完善，已通过了ISO9001-2000国际质量管理体系认证和中国船级社认证。产品投放市场以来，以卓越的品质，优质的服务，诚信的经营风格，铸造了“华拓”品牌产品。

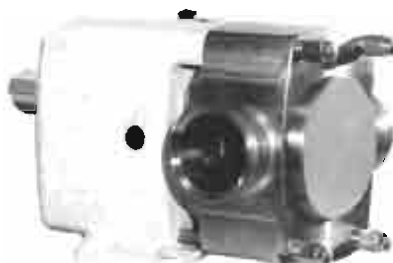
华拓泵业产品规格齐全，性能可靠，质优价廉，赢得了广大客户的信赖；主要产品有齿轮泵系列，螺杆泵系列，离心泵系列，转子泵系列，磁力泵系列等。产品广泛用于石油、化工、船舶、电力、食品、粮油、制药、印染、煤炭、建材、冶金及国防科研等各行业润滑用泵和流体的输送，增压。

华拓泵业面对日趋激烈的市场竞争和全球经济一体化的严峻考验，会始终坚持“质量第一、信誉第一、用户第一、服务第一”的企业宗旨，恪守“以科技创新，以质求存，持续改进，互利双赢”的企业理念，以人才构筑企业基石，以科技推动企业发展，一切围绕客户，创造顾客满意产品价值链。华拓泵业愿与各界朋友真诚合作，共谋发展，为用泵行业提供一流的产品和完美的流体输送解决方案。

华拓人竭诚欢迎各界朋友前来洽谈协作，共创辉煌！

## 3RP型凸輪轉子泵

3RP SERIES ROTARY LOBE PUMP



### 1. 概述:

(1)特点: 该泵属于回转式容积泵, 效率高, 寿命长, 适于输送温度 $-30^{\circ}\text{C} \sim +180^{\circ}\text{C}$ , 粘度 $30 \sim 1.0 \times 10^5 \text{cSt}$ , 含有固体颗粒的悬浮液体及具有腐蚀性和卫生性要求高的介质, 泵体内部与介质接触的零部件均采用不锈钢材质, 并且可以根据介质不同的物理特性, 改变泵的转速。

(2)用途: 用于食品、饮料、酿造、医药、日用化工、石油化工等行业。

### 2. 结构型式 (如图1)

主要由凸輪轉子、軸封、內輪箱三部分组成, 一对同步转动的传动齿轮带动凸輪轉子转动, 来实现对介质的输送。轴封可以根据不同的工况条件设计为填料密封或机械密封。采用高强度铸铁齿轮箱, 螺旋齿轮及重负荷轴承, 保证长的寿命。主要部分为盒式装配, 不用拆卸齿轮箱便能调整转子间隙。

O型密封环材质为硅橡胶, 当介质具有腐蚀性时, 采用聚四氟乙烯。

从电机向泵看, 泵转向为顺时针旋转。

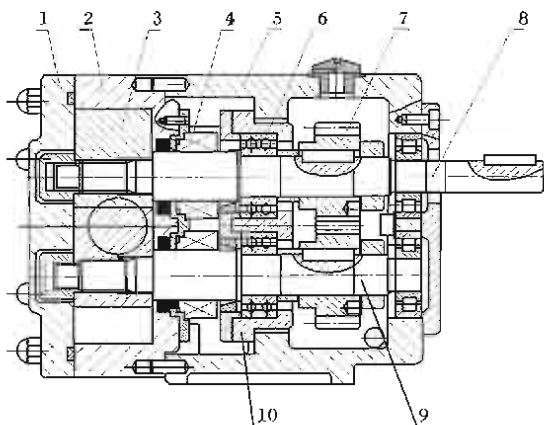


图1 (Digram I)

### 1.BRIEF INTRODUCTION

#### (1)Feature

It belongs to positive displacement pump and has the advantages of outstanding self-priming, high efficiency and long life. It applies to delivering suspension liquid with soft solid particles, corrosive medium and suspension liquid. The delivered medium temperature range from  $-30^{\circ}\text{C}$  to  $+180^{\circ}\text{C}$  and viscosity range from  $30 \text{cSt}$  to  $1.0 \times 10^5 \text{cSt}$ . The parts of contact with medium adopt stainless steel. The rotating speed can be adjusted according to the delivered medium's physical property.

#### (2)Application

It applies to food, drink, brewing, medical industry, daily and chemical industry, petroleum industry etc.

### 2.STRUCTURE FEATURE(SEE DIGRAM I.)

It's mainly composed of rotary lobe, shaft seal, gear box. A pair of synchronous driving gears drive rotary lobe to deliver medium. The shaft seal can be designed with packing seal or mechanical seal according to the specific working conditions. The pump uses high strength cast-iron gearbox, spiral gears and heavy load bearings in order to ensure the pump for long time.

You needn't disassemble gearbox but adjust rotary lobe clearance because of special assembling way.

The material of "O" seal ring is the silicone rubber. To corrosive mediums, PTFE is adopted.

The direction of rotation is clockwise viewed from motor.

- 1、泵盖(Pump cover) 2、泵体(Pump casing) 3、转子(Rotor)
- 4、密封(Seal) 5、齿轮箱(Gear box) 6、轴承(Bearing)
- 7、驱动齿轮(Driving gear) 8、主动轴(Driving shaft)
- 9、被动轴(Driven shaft) 10、轴承座(Bearing stand)

### 3. 型号说明 (MODEL EXPLANATION)

3RP21/0.6

最大差压0.6(MPa) (Max. Differential Pressure)

理论排量21(L/100r) (Displacement)

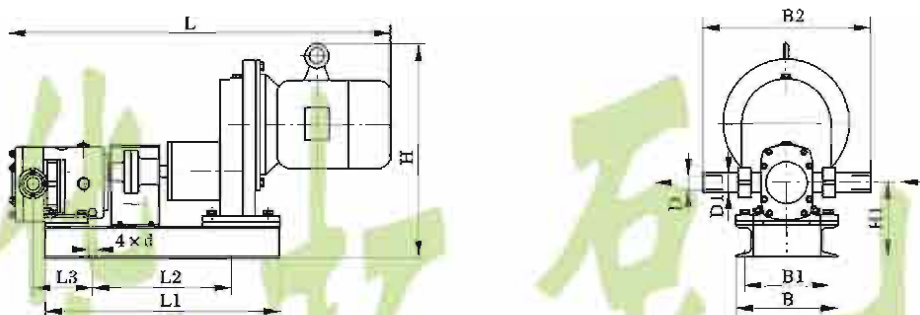
#### 4. 性能参数表 (PERFORMANCE DATA)

| 泵型号<br>Model | 理论排量(L/100r)<br>Displacement | 最大差压 (MPa)<br>Max. Differential Pressure | 口径(mm)<br>Port | 最高转速(r/min)<br>Max. Speed | 电机功率(kW)<br>Motor Power |
|--------------|------------------------------|------------------------------------------|----------------|---------------------------|-------------------------|
| 3RP6/0.6     | 6                            | 0.6                                      | 25             | 960                       | 1.5                     |
| 3RP8/0.4     | 8                            | 0.4                                      | 25             | 960                       | 1.5                     |
| 3RP12/1.0    | 12                           | 1.0                                      | 25             | 960                       | 4                       |
| 3RP21/0.6    | 21                           | 0.6                                      | 40             | 960                       | 5.5                     |
| 3RP28/0.4    | 28                           | 0.4                                      | 50             | 960                       | 4                       |
| 3RP36/1.0    | 36                           | 1.0                                      | 50             | 720                       | 11                      |
| 3RP52/0.6    | 52                           | 0.6                                      | 50             | 720                       | 11                      |
| 3RP66/0.4    | 66                           | 0.4                                      | 80             | 720                       | 7.5                     |
| 3RP78/1.0    | 78                           | 1.0                                      | 80             | 720                       | 22                      |
| 3RP107/0.6   | 107                          | 0.6                                      | 80             | 720                       | 18.5                    |
| 3RP156/0.4   | 156                          | 0.4                                      | 100            | 720                       | 18.5                    |

注: 根据输送介质粘度, 可为用户选择提供相应的转速

Not: We can select proper speed according to the viscosity of medium for the consumers.

#### 5. 外形及安装尺寸 (OUTLINE AND INSTALLATION DIMENSIONS)



| 泵型号<br>Model | L    | L1  | L2  | L3  | B   | B1  | B2  | H      | H1  | D   | D1   | 4×d   | 减速机<br>Decelerator |                  |               |                               |
|--------------|------|-----|-----|-----|-----|-----|-----|--------|-----|-----|------|-------|--------------------|------------------|---------------|-------------------------------|
|              |      |     |     |     |     |     |     |        |     |     |      |       | 型号<br>Model        | 转速r/min<br>Speed | 功率kW<br>Power | 泵理论流量<br>m³/h<br>Displacement |
| 3RP21/0.6    | 990  | 596 | 356 | 155 | 248 | 214 | 420 | 493    | 186 | φ40 | φ48  | 4×φ9  | JD126B             | 630              | 5.5           | 7.0                           |
|              | 1065 |     |     |     |     |     |     |        |     |     |      |       | 411                | 3                | 4.6           |                               |
|              |      |     |     |     |     |     |     |        |     |     |      |       | 480                | 4                | 5.4           |                               |
|              |      |     |     |     |     |     |     |        |     |     |      |       | 313                | 2.2              | 3.5           |                               |
| 3RP28/0.4    | 1005 | 596 | 356 | 160 | 248 | 214 | 420 | 493    | 186 | φ48 | φ63  | 4×φ19 | JD126A             | 630              | 4             | 9.6                           |
|              | 985  |     |     |     |     |     |     |        |     |     |      |       | 410                | 2.2              | 6.3           |                               |
|              |      |     |     |     |     |     |     |        |     |     |      |       | 480                | 3                | 7.2           |                               |
|              |      |     |     |     |     |     |     |        |     |     |      |       | 313                | 1.5              | 4.8           |                               |
| 3RP36/1.0    | 1258 | 715 | 355 | 212 | 340 | 295 | 468 | 525    | 228 | φ48 | φ63  | 4×φ22 | YCJ100             | 228              | 5.5           | 4.9                           |
|              | 1274 |     |     |     |     |     |     |        |     |     |      |       | 303                | 7.5              | 6.5           |                               |
|              | 1380 |     |     |     |     |     |     |        |     |     |      |       | 479                | 11               | 10.3          |                               |
|              |      |     |     |     |     |     |     |        |     |     |      |       | 478                | 15               | 44            |                               |
| 3RP156/0.4   | 1577 | 890 | 640 | 103 | 360 | 320 | 490 | 724    | 265 | φ96 | φ112 | 4×φ22 | JD160A             | 720              | 22            | 67                            |
|              | 1517 |     |     |     |     |     |     | 380    |     |     |      |       | 15                 | 35               |               |                               |
|              |      |     |     |     |     |     |     | 573    |     |     |      |       | 22                 | 53               |               |                               |
|              |      |     |     |     |     |     |     | 327    |     |     |      |       | 11                 | 30               |               |                               |
|              | 1537 |     |     |     |     |     |     | 699    |     |     |      |       | JD160C             | 493              | 18.5          | 46                            |
|              | 276  |     |     |     |     |     |     |        |     |     |      |       | 11                 | 25               |               |                               |
|              | 420  |     |     |     |     |     |     |        |     |     |      |       | 15                 | 39               |               |                               |
|              | 1517 |     |     |     |     |     |     | JD160D |     |     |      |       | 420                | 15               | 39            |                               |

#### 6. 选泵时应考虑的主要事项

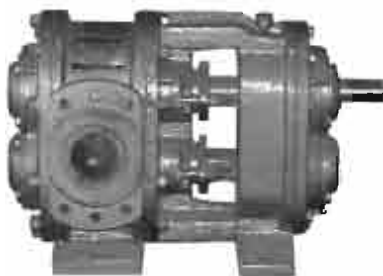
- (1) 输送介质的工作温度、粘度、腐蚀性
- (2) 泵的进出口压力
- (3) 使用场合的防爆要求
- (4) 注明泵型号、设计使用压力、电机防爆级别、介质名称。

#### 6. WHEN YOU PLACE AN ORDER, PLEASE NOTE:

- (1) The working temperature, viscosity and corrosivity of the medium.
- (2) Pump's suction pressure and discharge pressure.
- (3) The explosion-proof requirement of working situation.
- (4) To indicate pump model, working pressure, explosion grade of motor, medium's name.

## LC型 罗茨油泵

LC TYPE LOBE LUBRO-PUMP



### 1. 概述:

我厂生产的LC系列罗茨泵,分皮带传动和齿轮减速机驱动两种形式。此泵具有:低转速、效率高、体积小、流量大、消耗功率小、自吸能力强、不用引油、使用方便等特点。可广泛用于输送石油及石油产品(汽油可换铜泵叶)和工厂输送各种油类和液体,如原油、油漆、润滑油、玻璃胶、油脂酸、牙膏和淡碱性(肥皂加工)液体等;食品加工可输送各种液体,如豆酱、酵母、糖稀等。装卸各种油槽车及油轮等速度快、效率高、使用方便,可以正反转工作。

LCW高粘度罗茨泵,是在LC型泵的基础上,为解决输送沥青及冷凝油改制而成的,在泵壳外表或端盖加保温层,利用蒸汽或导热油循环对泵的工作室进行保温,从而对泵的连接工作和间歇工作提供方便和良好条件。

### 2. 技术参数

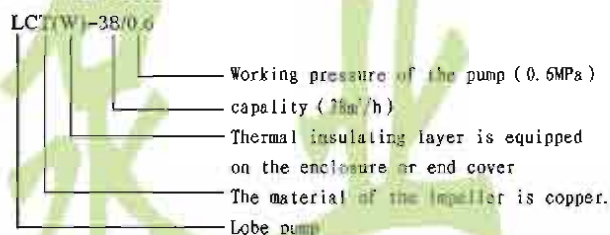


### 1. Brief Introduction

LC lobe pump has two driving styles, one is belt drive, the other is gear reducing drive. It has advantages of low rotation rate, high efficiency, small volume, big flow, low consumed power, it is widely used in carrying the oil and oil products (when deliver the gasoline, the copper pump leaves are needed) and transport various oil and liquid in plant, such as crude oil, paint, lubricant, glass cement, oil-based acid, tooth paste and dilute alkali liquid (soap processing) etc. In food processing fields, delivering different liquid, such as bean sauce, barm, thin malt sugar etc. When load and unload the various tank (truck and oiler), it could run forward and backward. It has characteristics of high speed, high efficiency and easy to operate.

LCW high viscosity lobe pump is modified and made on the basis of LC type pump for delivering bitumen and cle oil. The insulating layer is added on the outside of pump crust or end cover. It keeps the heat of work room of pump by using the steam or the heat-conducting oil circulation, so it could provide convenience and good conditions for the continuous work and intermittent work of pump.

### 2. Performance Data



### 3. 罗茨油泵基本参数 BASIC PARAMETERS OF THE ROUFS OIL PUMP

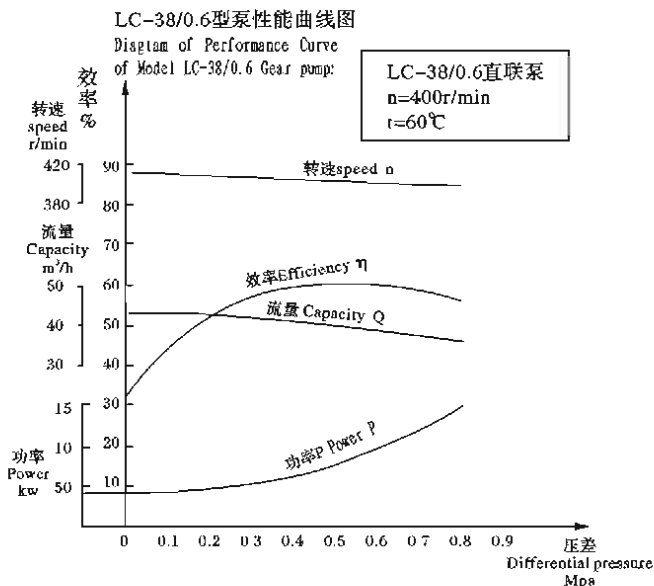
| 型号<br>Model | 流量<br>Capacity<br>Q<br>m³/h | 工作压力<br>Working<br>pressure<br>MPa | 进出口径<br>Aperture of<br>inlet and outlet<br>mm | 允许吸<br>上高度<br>Allowable<br>suction-up<br>height<br>m | 传动形式<br>Drive mode    |                               | 配用功率<br>Equipped power        |            | 泵效率<br>Pump<br>efficiency<br>% | 转数<br>Rotation<br>rate<br>r/min | 介质温度<br>Medium<br>temperature<br>≤℃ | 重量<br>Weight<br>kg | 应用范围<br>Application scope                                                                                                           |
|-------------|-----------------------------|------------------------------------|-----------------------------------------------|------------------------------------------------------|-----------------------|-------------------------------|-------------------------------|------------|--------------------------------|---------------------------------|-------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|             |                             |                                    |                                               |                                                      | 减速机型号<br>Reducer type | 三角带代号<br>Triangle belt symbol | 电动机型号<br>Electric motor model | 功率<br>kW   |                                |                                 |                                     |                    |                                                                                                                                     |
| LC-10/0.6   | 10                          | 0.6                                | 50                                            | 6                                                    | ZD14                  | A1778                         | YB100L <sub>2</sub> -4        | 3.0<br>4.0 | 62                             | 400                             | 200                                 | 167                | 柴油、机油、<br>甘油、石油、<br>牙膏、食用油、<br>稠油等。<br>Diesel oil, engine oil,<br>glycerol, petroleum,<br>toothpaste, edible oil,<br>thick oil etc. |
| LC-18/0.6   | 18                          | 0.6                                | 50                                            | 6                                                    | ZD14                  | A1778                         | YB132S-4                      | 5.5        | 62                             | 400                             | 200                                 | 219                |                                                                                                                                     |
| LC-38/0.6   | 38                          | 0.6                                | 65                                            | 6                                                    | ZD14                  | B2350                         | YB112M-4                      | 4.0        | 65                             | 400                             | 200                                 | 269                |                                                                                                                                     |
| LC-50/0.6   | 50                          | 0.6                                | 80                                            | 6                                                    | ZL200                 | B2388<br>B2413                | YB132M-4<br>YB160M-4          | 7.5<br>11  | 70                             | 445                             | 200                                 | 1160               |                                                                                                                                     |
| LC-80/0.6   | 80                          | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB225M-6                      | 30         | 70                             | 209                             | 200                                 |                    | 汽油、<br>溶剂油、<br>煤油等。<br>Gasoline,<br>solvent naphtha,<br>kerosene etc.                                                               |
| LC-100/0.6  | 100                         | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB250M-6                      | 37         | 73                             | 254                             | 200                                 |                    |                                                                                                                                     |
| LCT-10/0.6  | 10                          | 0.6                                | 40                                            | 6                                                    | ZD14                  | A1778                         | YB100L <sub>2</sub> -4        | 3.0<br>4.0 | 62                             | 400                             | 200                                 | 167                |                                                                                                                                     |
| LCT-18/0.6  | 18                          | 0.6                                | 50                                            | 6                                                    | ZD14                  | A1778                         | YB132S-4                      | 5.5        | 62                             | 400                             | 200                                 | 219                |                                                                                                                                     |
| LCT-38/0.6  | 38                          | 0.6                                | 65                                            | 6                                                    | ZD14                  | B2350                         | YB112M-4                      | 4.0        | 65                             | 400                             | 200                                 | 269                | 沥青、冷凝油、<br>稠油等。<br>Asphalt, cold oil,<br>thick oil etc.                                                                             |
| LCT-50/0.6  | 50                          | 0.6                                | 80                                            | 6                                                    | ZL200                 | B2388<br>B2413                | YB132M-4<br>YB160M-4          | 7.5<br>11  | 70                             | 445                             | 200                                 | 1160               |                                                                                                                                     |
| LCT-80/0.6  | 80                          | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB225M-6                      | 30         | 70                             | 209                             | 200                                 |                    |                                                                                                                                     |
| LCT-100/0.6 | 100                         | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB250M-6                      | 37         | 73                             | 254                             | 200                                 |                    |                                                                                                                                     |
| LCW-10/0.6  | 10                          | 0.6                                | 40                                            | 6                                                    | ZD14                  | A1778                         | YB100L <sub>2</sub> -4        | 3.0<br>4.0 | 62                             | 400                             | 200                                 | 167                | 沥青、冷凝油、<br>稠油等。<br>Asphalt, cold oil,<br>thick oil etc.                                                                             |
| LCW-18/0.6  | 18                          | 0.6                                | 50                                            | 6                                                    | ZD14                  | A1778                         | YB132S-4                      | 5.5        | 62                             | 400                             | 200                                 | 219                |                                                                                                                                     |
| LCW-38/0.6  | 38                          | 0.6                                | 65                                            | 6                                                    | ZD14                  | B2350                         | YB112M-4                      | 4.0        | 65                             | 400                             | 200                                 | 269                |                                                                                                                                     |
| LCW-50/0.6  | 50                          | 0.6                                | 80                                            | 6                                                    | ZL200                 | B2388<br>B2413                | YB132M-4<br>YB160M-4          | 7.5<br>11  | 70                             | 445                             | 200                                 | 1160               |                                                                                                                                     |
| LCW-80/0.6  | 80                          | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB225M-6                      | 30         | 70                             | 209                             | 200                                 |                    |                                                                                                                                     |
| LCW-100/0.6 | 100                         | 0.6                                | 200                                           | 6                                                    | ZL23.1                |                               | YB250M-6                      | 37         | 73                             | 254                             | 200                                 |                    |                                                                                                                                     |

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#### 4. 性能曲线图 DIAGRAM OF PERFORMANCE CURVE:



#### 5. 结构与工作原理

##### 1. 结构

- 1、LC10/0.6-38/0.6泵结构图见附图（一）。
- 2、LC50/0.6-100/0.6泵结构图见附图（二）。

##### 2. 工作原理

该泵为容积式凸轮泵。动力通过轴传动给齿轮。一对同步齿轮带动泵叶做差位同步旋转运动，将泵工作腔分隔为吸入区（低压区）和排出区（高压区）。随着泵叶旋转，不断将介质从低压区吸入，在高压区排出，以达到输送介质之目的。

#### 6. 结构说明

##### 1. 结构图一说明（见附图一）

LC型罗茨油泵是卧式油泵，两个8字型泵叶在工作室内对转。动力通过主动轴、齿轮作用传递给泵叶。

LC型罗茨泵主要件有泵轴（5）、齿轮（8）、泵叶（4）、泵体（3）、轴承座（1）、右泵盖（6）、轴承泵盖（9）等组成（见结构图）。泵体（3）以轴承座（1）、右泵盖（6）为泵体侧盖，构成泵的工作室，两泵叶在工作室内对转，从泵联轴器或皮带轮端看去，顺时针旋转则左面是吸入接管，右面是排出接管。反之，则左面是排出接管，右面是吸入接管。根据场地或工况，可任意安装，不分吸入口和排出口，可正反转使用，且工作效率及性能参数不发生变化。

右泵盖有两个填料函，装有填料密封，中间装有回油环，并有两个回油孔与泵吸入口接通（可泵反转时，回油孔起副作用，建议一般情况下不反转），以保证密封效果。

泵体、轴承座、右泵盖、轴承泵盖用螺栓固定在一起，为保证泵叶两侧面与侧盖之间的间隙，可加纸垫调整。为保证轴孔中心准确，每侧用两个螺钉定位。泵座由泵体与右泵盖用四个螺栓固定。

为了输送粘稠介质如沥青等需要，泵带有保温层，可利用导热油或蒸汽预热。

#### 5. Structure and working principle

##### 1. Structure

(1) The structure diagram of LC10/0.6-38/0.6 pump is shown in the Attached Figure 1.

(2) The structure diagram of LC50/0.6-100/0.6 pump is shown in the Attached Figure 2.

##### 2. Working principle

This pump is a positive displacement type cam pump. And the dynamic force is transmitted to the gears through the shaft. A pair of synchronized gears drives the pump blades in a differential synchronized rotation to divide the working space of the pump into the suction zone (low pressure zone) and extraction zone (high pressure zone). Medium is continuously sucked into the low pressure and extracted out from the high-pressure zone along with the rotation of the pump impeller. Thus the convey of medium is realized.

#### 6. Introduction of the structure

##### 1. Structure diagram 1 Introduction (See Attached Figure 1)

LC lobe pump is a horizontal type oil pump. Two 8-shaped pump blades in counter rotation are located inside the working chamber. Dynamic force is transmitted through the drive shaft and the gears to the pump blades.

LC lobe pump is constituted mainly by the pump shaft (5), the gear (8), the pump blades (4), the pump body (3), the bearing block (1), the right pump cover (6), the bearing pump cover (9) etc. (Refer to the Structure diagram). The pump body (3) adopts the bearing block (1) and the right pump cover (6) as the side covers of the pump body to constitute the working chamber of the pump. The two pump blades rotate oppositely inside the working chamber. Seen from the pump coupling or the belt pulley end, the suction pipe is connected on the left side in clockwise rotation, and the discharging pipe is connected on the right side. Vice versa, in counterclockwise rotation, the suction pipe is connected on the left side, and the suction pipe is connected on the right side. According to the site condition or the working conditions, the pipes can be installed at will without discrimination of the suction port and the discharging port, and the clockwise rotation and the counterclockwise rotation can be adopted at will, without any influence on the working efficiency and performance parameters etc.

There are two packing boxes on the right pump cover, and packing material is contained inside for sealing. An oil return ring is installed in the middle, and two oil return holes are equipped to be communicated with the suction-in port of the pump (When the pump rotates counter clockwise, the oil return holes have side effects. Thus counter clockwise rotation is not recommended normally) to ensure sealing effect of the packing material.

The pump body, the bearing block, the right pump cover and the bearing pump cover are tightened together by bolts. Paper pads can be used for adjustment to ensure the clearance between the two side surfaces of the pump blades and the side cover. In order to ensure the centering precision of the shaft hole, two fixation nails are used on each side for positioning. The pump base is fixed by the pump body and the right pump cover using four bolts.

In order to meet the demand of convey of thick mediums such as asphalt etc., a thermal insulating layer shall be equipped on the pump. Conductive oil or steam can be used for preheating.

## 2. 结构图二说明 (见附图二)

LC50/0.6-LC100/0.6型泵是卧式泵。主要零件有泵体(3)、转子(1)、前盖(2)、箱体(7)、主动轴(4)、从动轴(5)、齿轮(6)轴承等。见结构图(二)。

由泵体(3)、前盖(2)构成泵体的工作室,一对旋向相反的转子在工作室中旋转。

齿轮(6)采用20#-40#机械油润滑,齿轮材料45#或40Cr。

密封是采用迷宫式和机械密封两种形式,以防止液体沿轴向泄漏,密封泄漏程度通过泄漏孔的接头便可观察。

轴承是采用滚动轴承,用润滑油润滑。

前盖(2)、泵体(3)内侧面和转子的侧面形成一定的间隙,装配和检修时注意调整两侧间隙。

主动轴的外伸端用圆柱销联轴器减速器联接。从泵联轴器端看,主动轴为顺时针方向旋转,左面是吸入口,右面是排出口。反之,则左面是排出口,右面是吸入口。

## 2. Structure diagram- Introduction (See Attached Figure 2)

LC50/0.6-LC100/0.6 pump is a horizontal type pump. The main parts and components comprise: the pump body (3), the rotor (1), the front cover (2), the box body (7), the drive shaft (4), the driven shaft (5), gears (6) and bearing etc. Refer to the Structure diagram 2.

The working chamber of the pump body is constituted by the pump body (3) and the front cover (2). A pair of rotors rotates reversely inside the working chamber.

The gears (6) adopts 20#-40# machine oil for lubrication. The material of the gears is 45# or 40Cr steel.

Two types of sealing are adopted: labyrinth type and machinery type. Sealing is adopted to prevent leakage of liquid in axial direction. The leakage can be observed from the connection of the leakage hole.

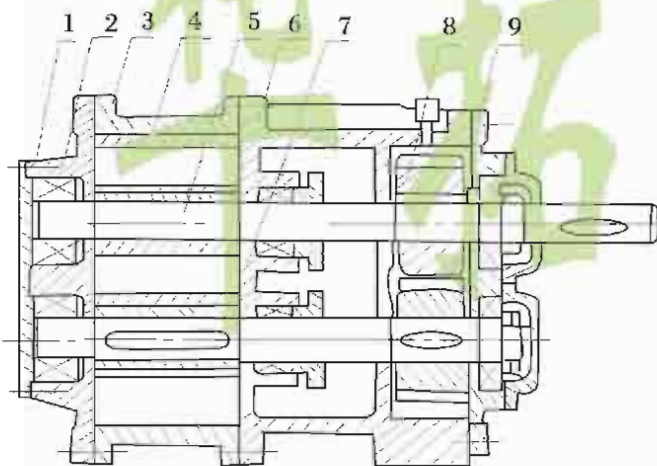
Roller bearings are adopted, which are lubricated by grease.

Certain clearance is formed between the inside surface of the front cover (2), the pump body (3) and the side surface of the rotor. These two side clearances shall be adjusted during assembling and repairing.

The extension end of the drive shaft is connected with the reducer through the cylindrical pin coupling. Seen from the pump coupling end, if the drive shaft rotates clockwise, then the suction port is on the left side, and the discharging port is on the right side. Otherwise, the discharging port is on the left side and the suction port is on the right side.

## 7. 罗茨油泵结构图

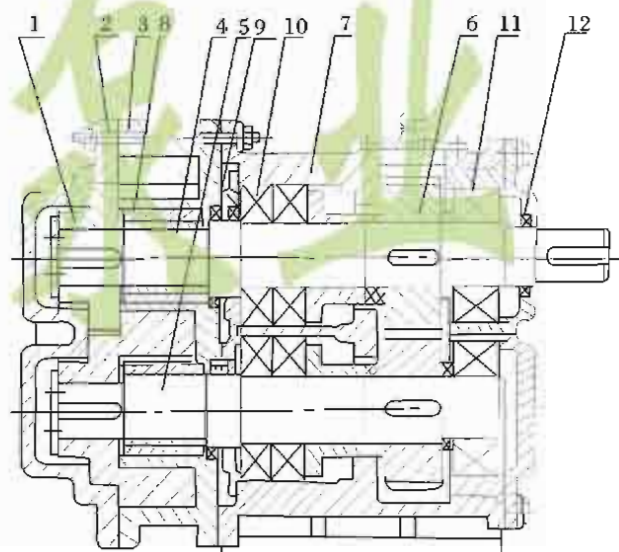
THE STRUCTURE DIAGRAM OF THE ROOTS OIL PUMP



### 罗茨油泵结构图一

THE STRUCTURE DIAGRAM OF THE ROOTS OIL PUMP

- 1、轴承座 Bearing block 2、轴承 Bearing 3、泵体 Pump body  
4、泵叶 Pump blade 5、主动轴 Drive shaft 6、右泵盖 Right pump cover  
7、从动轴 Driven shaft 8、齿轮 Gears 9、轴承泵盖 Bearing pump cover



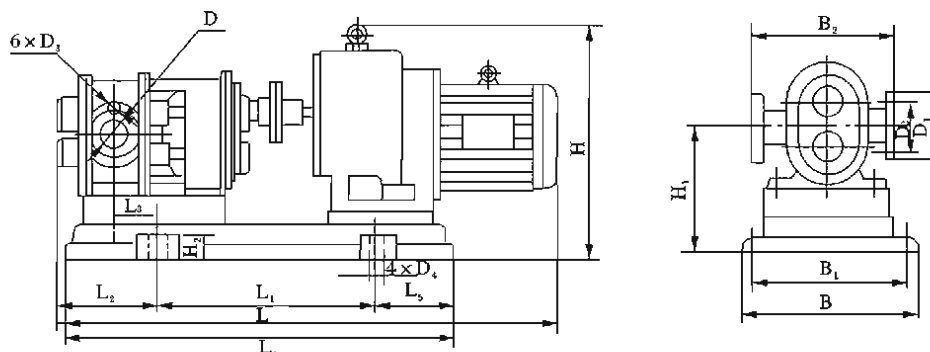
### 罗茨油泵结构图二

THE STRUCTURE DIAGRAM OF THE ROOTS OIL PUMP

- 1、转子 Rotor 2、前盖 Front cover 3、泵体 Pump body 4、主动轴 Drive shaft  
5、从动轴 Driven shaft 6、齿轮 Gear 7、箱体 Box body 8、密封套 Sealing sleeve  
9、油封 Oil seal 10、轴承 Bearing 11、轴承 Bearing 12、油封 Oil seal

## 8. 罗茨油泵安装图及安装尺寸表(一)

INSTALLATION DRAWING AND THE INSTALLATION DIMENSION TABLE OF THE ROOTS OIL PUMP



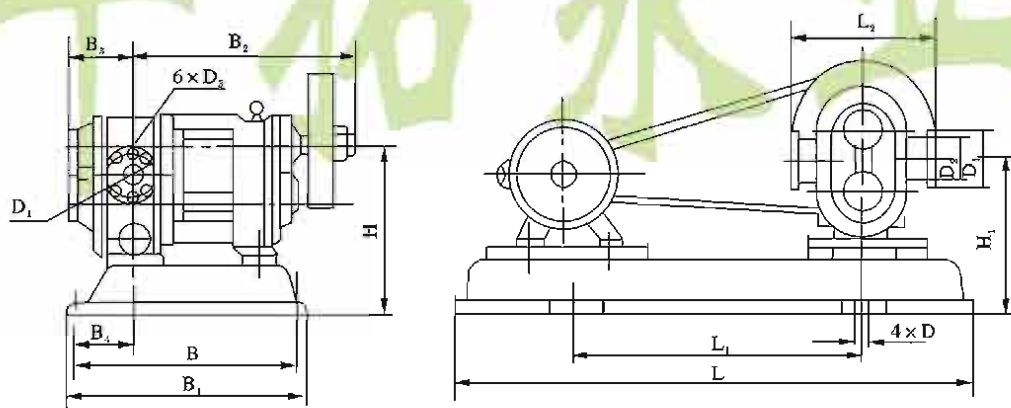
图三

(表一)

| 泵型号 Pump Model | L    | L <sub>1</sub> | L <sub>2</sub> | B   | B <sub>1</sub> | B <sub>2</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | D   | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> |
|----------------|------|----------------|----------------|-----|----------------|----------------|-----|----------------|----------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| LC-10/0.6      | 1070 | 445            | 140            | 400 | 350            | 210            | 460 | 197            | 22             | φ50 | φ150           | φ121           | φ12            | φ18            | 50             | 703            | 129            |
| LC-18/0.6      | 1070 | 440            | 140            | 400 | 350            | 280            | 460 | 197            | 22             | φ50 | φ150           | φ121           | φ12            | φ18            | 50             | 685            | 122.5          |
| LC-38/0.6      | 1270 | 520            | 145            | 395 | 350            | 332            | 550 | 253            | 22             | φ65 | φ190           | φ156           | φ13.7          | φ18            | 40             | 770            | 125            |
| LCW-10/0.6     | 1070 | 445            | 140            | 400 | 350            | 210            | 460 | 197            | 22             | φ50 | φ150           | φ121           | φ12            | φ18            | 50             | 703            | 129            |
| LCW-18/0.6     | 1070 | 440            | 140            | 400 | 350            | 306            | 460 | 197            | 22             | φ50 | φ140           | φ110           | φ14            | φ18            | 50             | 685            | 122.5          |
| LCW-38/0.6     | 1270 | 520            | 145            | 395 | 350            | 360            | 550 | 253            | 22             | φ65 | φ190           | φ130           | φ14            | φ18            | 40             | 770            | 125            |
| LCT-10/0.6     | 1070 | 445            | 140            | 400 | 350            | 210            | 460 | 197            | 22             | φ50 | φ150           | φ121           | φ12            | φ18            | 50             | 703            | 129            |
| LCT-18/0.6     | 1070 | 440            | 140            | 400 | 350            | 280            | 460 | 197            | 22             | φ50 | φ150           | φ121           | φ12            | φ18            | 50             | 685            | 122.5          |
| LCT-38/0.6     | 1270 | 520            | 145            | 395 | 350            | 330            | 550 | 253            | 22             | φ65 | φ190           | φ156           | φ13.7          | φ18            | 40             | 770            | 129            |

## 9. 罗茨油泵皮带传动安装及安装尺寸(二)

INSTALLATION AND THE INSTALLATION DIMENSIONS OF THE BELT TRANSMISSION TYPE ROOTS OIL PUMP



# 10. 罗茨油泵安装图及安装尺寸(三)

INSTALLATION DRAWING AND THE INSTALLATION DIMENSIONS OF THE ROOTS OIL PUMP

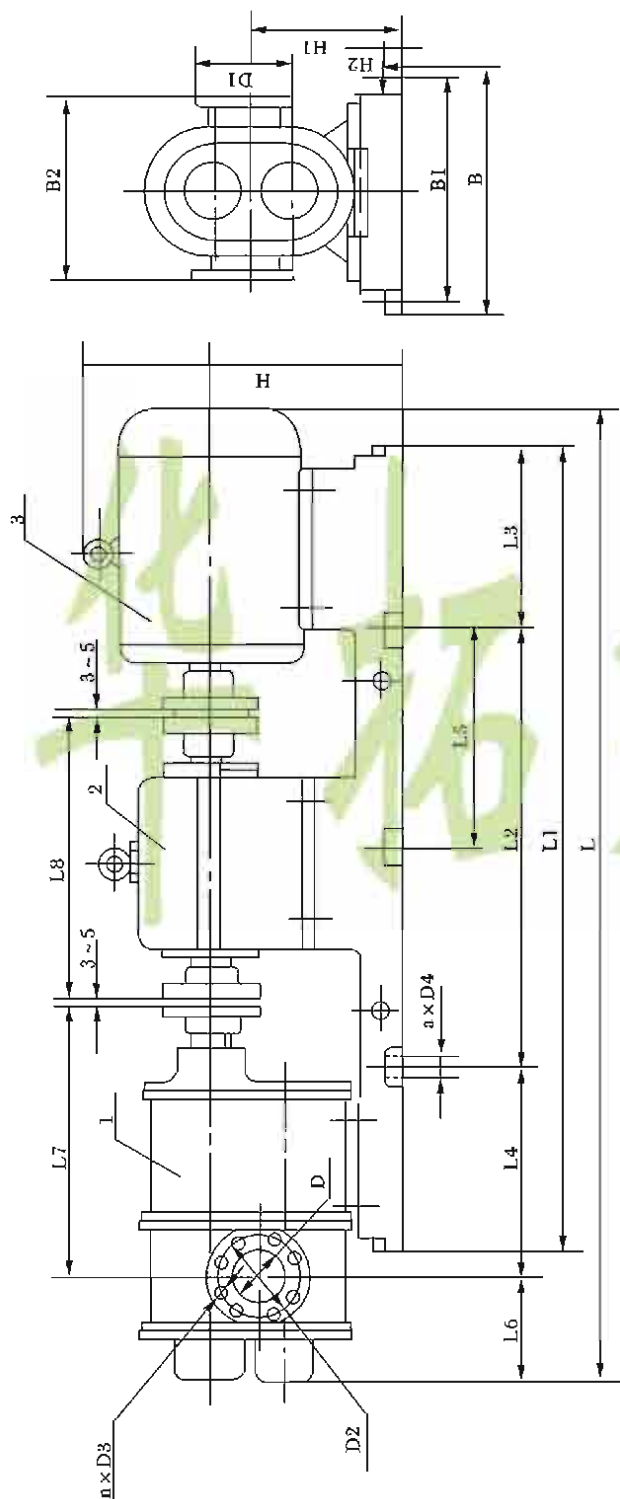


图 11 Diagram

(表3)  
Chart

| 规格型号<br>Type and model | L    | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | L <sub>5</sub> | L <sub>6</sub> | L <sub>7</sub> | L <sub>8</sub> | B   | B <sub>1</sub> | B <sub>2</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | D    | D <sub>1</sub> | D <sub>2</sub> | n × D <sub>3</sub> | a × D <sub>4</sub> |
|------------------------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|----------------|-----|----------------|----------------|------|----------------|----------------|--------------------|--------------------|
| LC                     | 1877 | 1607           | 820            | 400            | 446.5          | 0              | 115            | 526            | 561            | 550 | 470            | 470            | 721 | 385            | 45             | φ80  | φ195           | φ160           | 8 × φ18            | 4 × φ30            |
| LCT -50/0.6            | 2529 | 2112           | 1560           | 276            | 320            | 780            | 230            | 743            | 689            | 847 | 767            | 600            | 854 | 470            | 45             | φ200 | φ360           | φ310           | 12 × φ24           | 6 × φ30            |
| LCW                    | 2614 | 2181           | 1560           | 223            | 441            | 780            | 210            | 743            | 689            | 847 | 767            | 600            | 924 | 470            | 45             | φ200 | φ360           | φ310           | 12 × φ24           | 6 × φ30            |



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