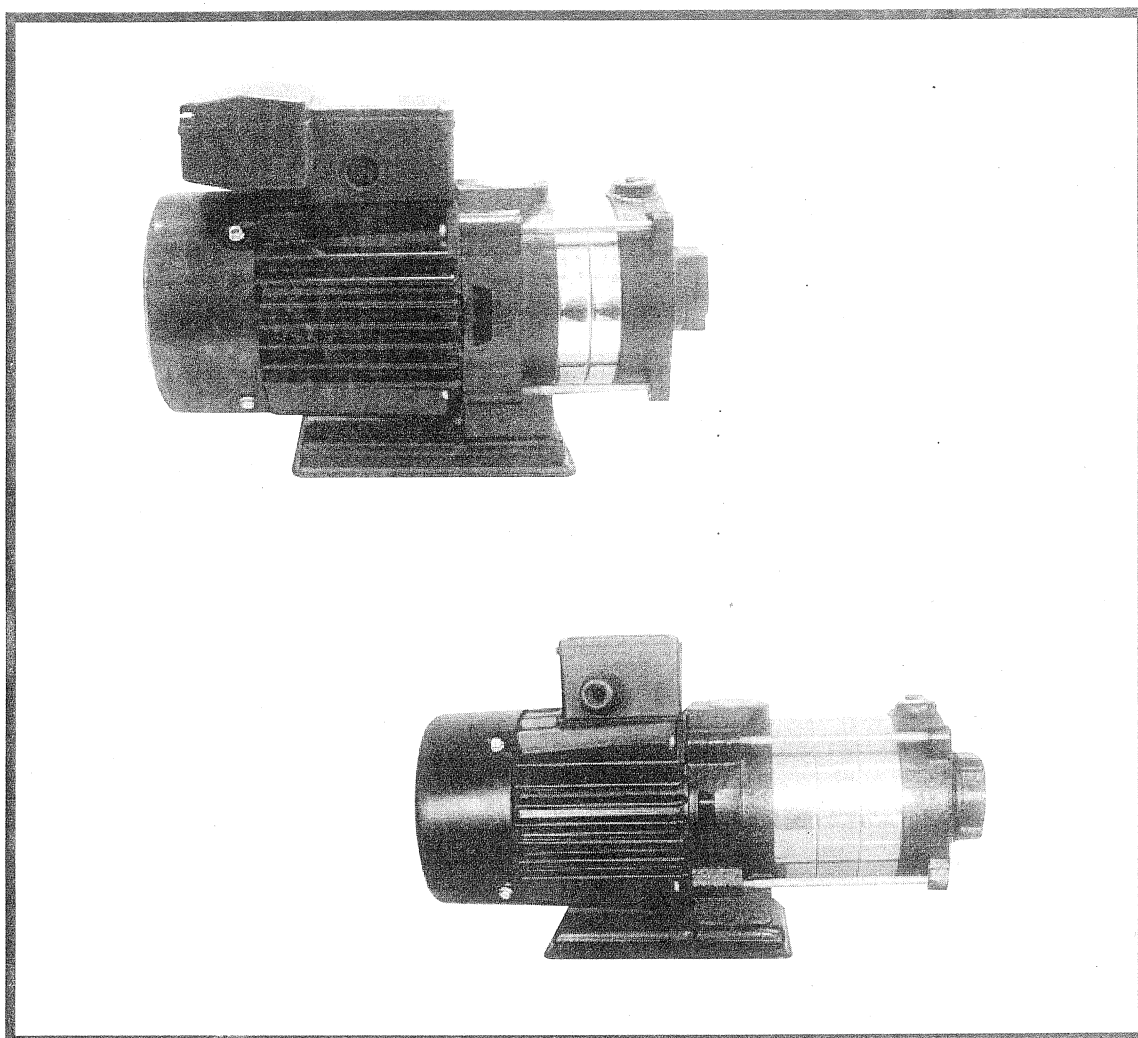


# **Rocoi**<sup>®</sup> SERIES MULTISTAGE CENTRIFUGAL PUMP

## INSTRUCTION MANUAL



ChangZhou Luo Rui Electrical & Appliance Co.,Ltd

△ Before beginning installation procedure, these installing and operating instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

## **1 General Data**

### **1.1 Applications**

The LDPB range of Rocol horizontal multistage centrifugal pumps are designed for the pumping of water and other thin, non-aggressive and non-explosive liquids, containing no solid particles or fibers.

### **1.2 Operating Conditions**

#### **1.2.1 Liquid Temperature**

0°C to +90°C.

#### **1.2.2 Ambient Temperature**

Up to +50°C.

#### **1.2.3 Maximum Operating Pressure**

0°C to +40°C: Up to 10 bar.

+41°C to +90°C: Up to 6 bar.

#### **1.2.4 Maximum Inlet Pressure**

The actual inlet pressure plus the pressure when the pump is operating against a closed valve should always be lower than the "maximum operating pressure".

#### **1.2.5 Minimum Inlet Pressure**

The head loss in the suction pipe should therefore be taken into account.

The maximum suction lift may be limited by the actual head.

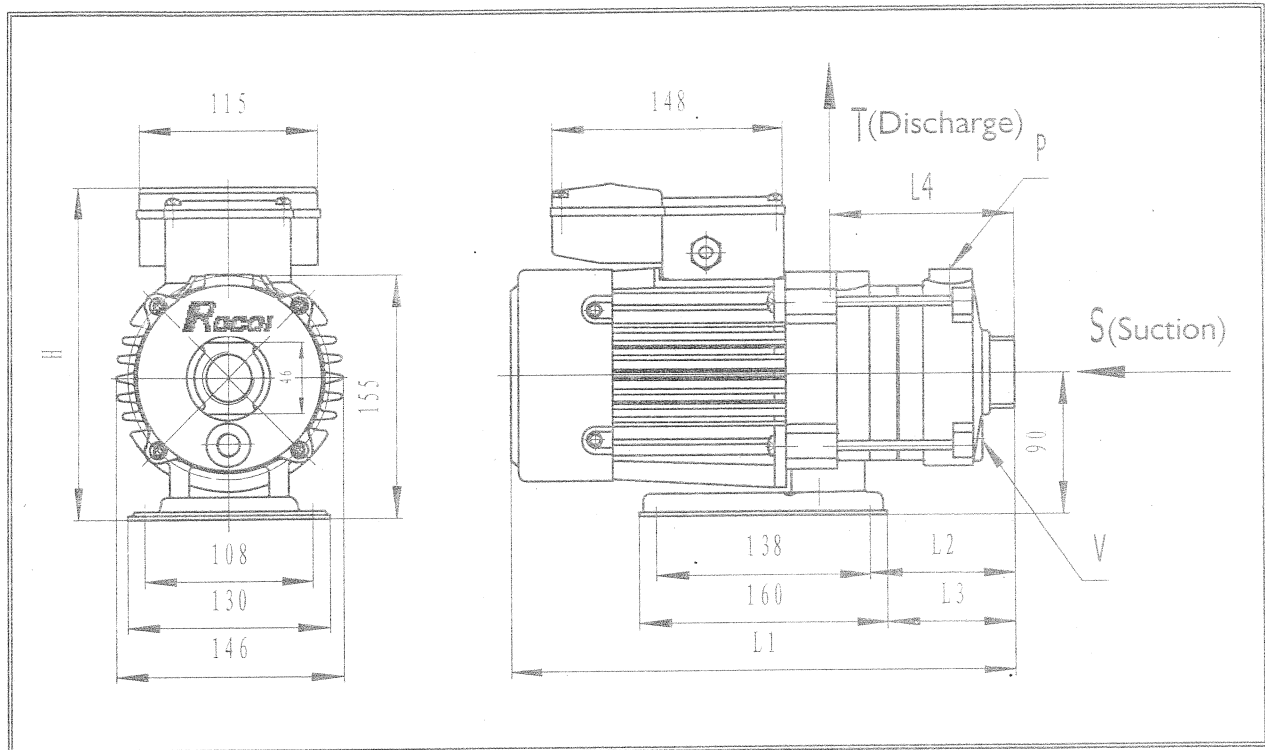
### **1.3 Technical Data**

#### **1.3.1 Electrical Data**

See the pump nameplate.

### 1.3.2 Dimensions

**Fig. 1**



**Table 1.**

Pump Type	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]	S	T	P & V
LDPB2-20	298	74	63	99	212	Rp1	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB2-30	316	92	81	117	212	Rp1	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB2-40	334	110	99	135	212	Rp1	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB2-50	352	128	117	153	212	Rp1	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB4-20	307	83	72	108	205	Rp1/ Rp1 <sup>1</sup> / <sub>4</sub>	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB4-30	334	110	99	135	205	Rp1/ Rp1 <sup>1</sup> / <sub>4</sub>	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB4-40	490	137	126	163	205	Rp1/ Rp1 <sup>1</sup> / <sub>4</sub>	Rp1	Rp <sup>3</sup> / <sub>8</sub>
LDPB8-20	320	90	79	77	240	Rp1 <sup>1</sup> / <sub>2</sub>	Rp1 <sup>1</sup> / <sub>4</sub>	Rp <sup>1</sup> / <sub>2</sub>
LDPB8-30	397	120	109	107	240	Rp1 <sup>1</sup> / <sub>2</sub>	Rp1 <sup>1</sup> / <sub>4</sub>	Rp <sup>1</sup> / <sub>2</sub>
LDPB8-40	397	120	109	107	240	Rp1 <sup>1</sup> / <sub>2</sub>	Rp1 <sup>1</sup> / <sub>4</sub>	Rp <sup>1</sup> / <sub>2</sub>

### 1.4 Sound pressure level

The sound level of the pump should be accordance with the value stated in GB10890-89.

## 2 Installation

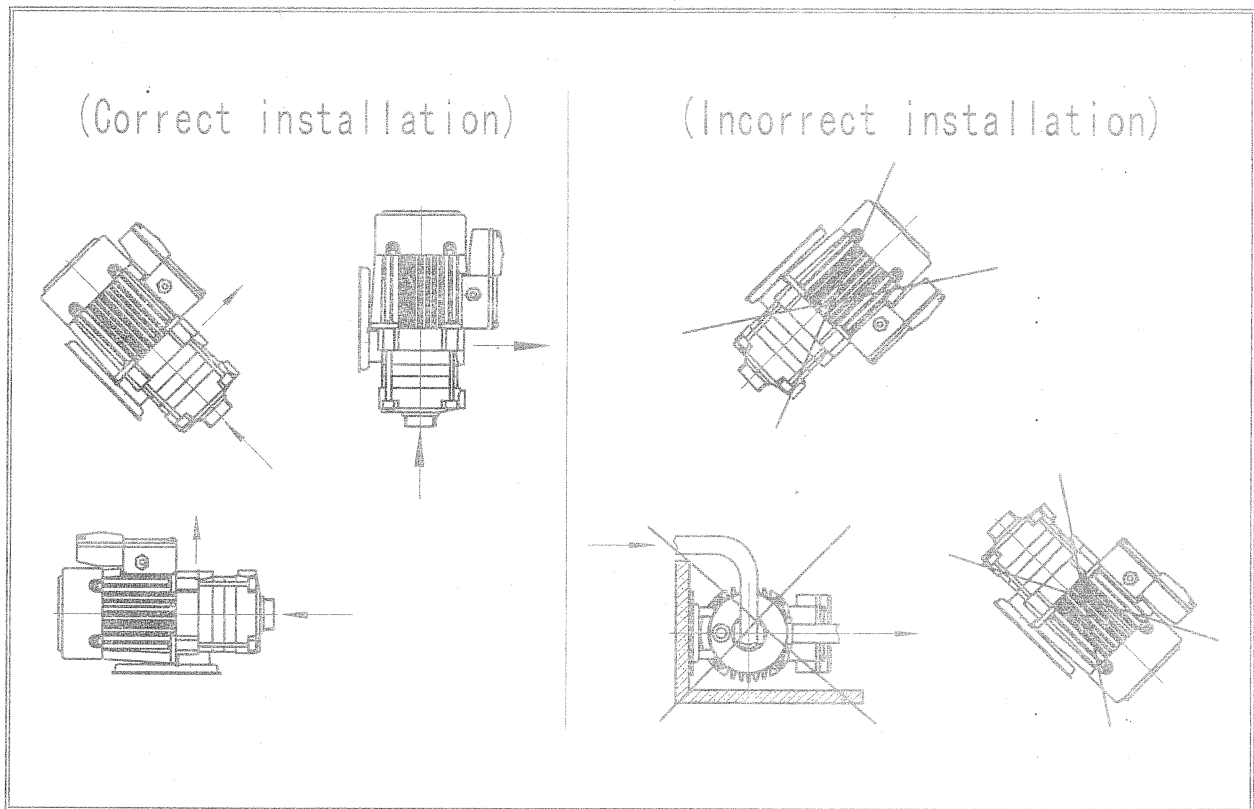
### 2.1 Pump Location

The pump should be installed like that the suction pipe is as short as possible and the suction lift is as low as possible.

The pump should be sited in a well ventilated but frost-free position (see section 5.1 Frost protection). It may be sited outside, but it should be protected by a suitable cover.

The pump may be installed in one of the positions shown in fig.2.

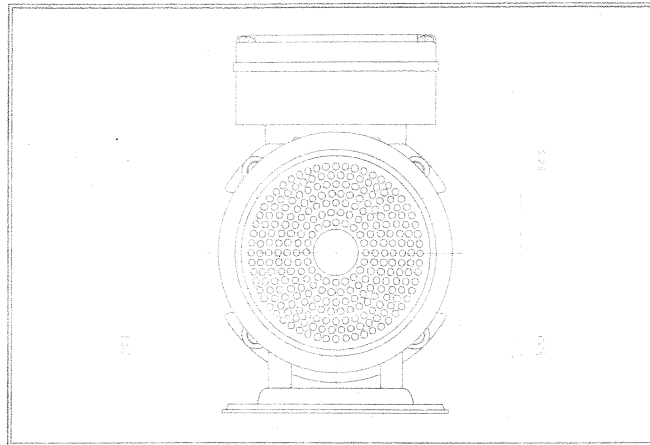
Fig. 2



### 2.2 Position of Terminal Box

The terminal box can be turned to any position shown in fig.3 before the pump is installed.

**Fig.3**



To change the position of the terminal box:

1. Remove the four screws screwing down the discharge chamber from the motor side
2. Turn the stator housing to the required position.
3. Replace the screws and tighten securely.

## **2.3 Pipework**

The pipes should be fitted so that any tension caused by variations in temperature does not affect the pump.

### **2.3.1 Suction Pipe**

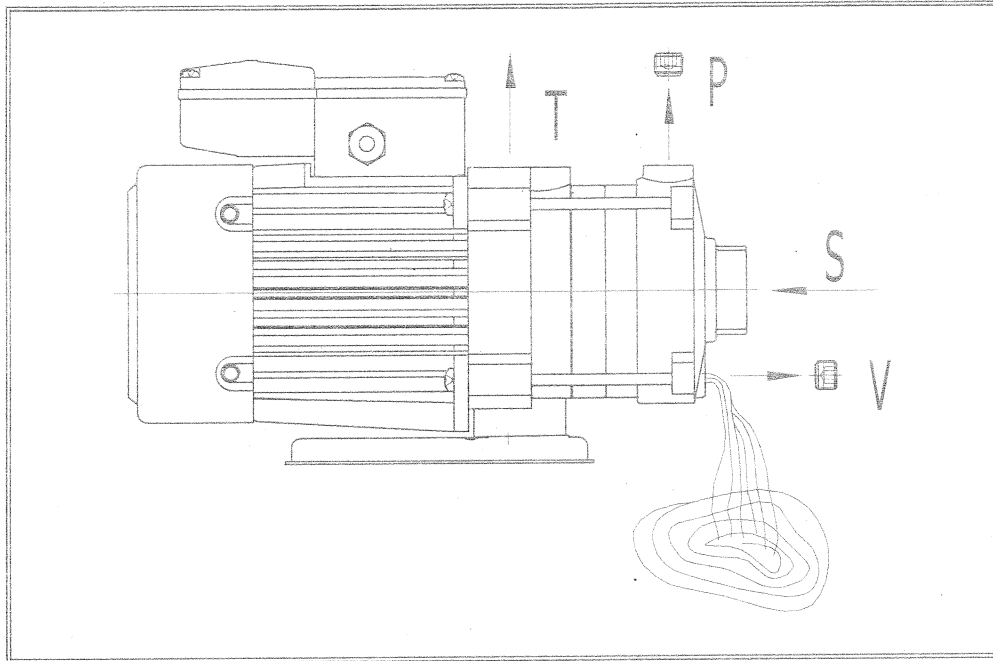
If the pump is to draw liquid from a level lower than the pump suction port, a no-return valve must be fitted into the end of the suction pipe below the lowest liquid level, since the pump is not self-priming.

When the suction pipe is longer than 10 meters or the suction lift is greater than 4 meters, the diameter of the suction pipe must be larger than that of the pump suction port.

Every joint of the suction pipe must be completely tight.

If a hose is used as suction pipe, it must be non-collapsible. A strainer is recommended in case that solid could enter the suction pipe leading to block the pump.

Fig.4



### 2.3.2 Discharge Pipe

The discharge pipe is connected to the discharge port “T” , fig.4.

The discharge pipe should be at least the same diameter as the discharge port of the pump, to minimize pressure drop, high flow velocities and noise.

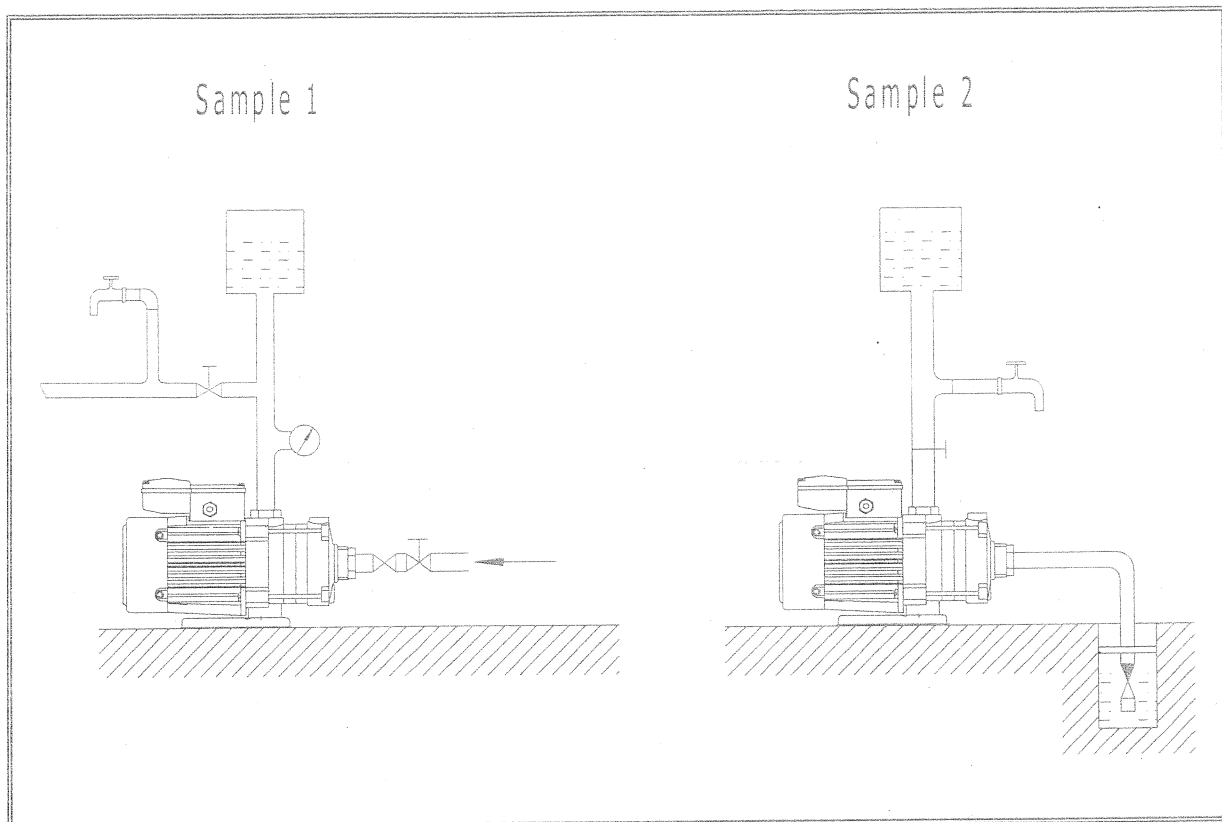
### 2.3.3 Bypass

If there is any danger of the pump running against a closed discharge valve, a minimum liquid flow through the pump should be ensured by connecting a bypass/a drain to the discharge pipe. The drain should be connected to a tank.

A minimum flow rate equal to 10% of the flow rate at maximum efficiency is needed at all times. Flow rate and head at maximum efficiency are stated on the pump nameplate.

## 2.4 Installation Examples

The pump is suitable for a wide range of applications. Some examples are shown on below.



### 3 Electrical Connections

The electrical connections should be carried out in accordance with local regulations.

The operating voltage and frequency are marked on the nameplate. Please make sure that the motor is suitable for the electricity supply on which it will be used.

⚠ Never make any connection in the pump terminal box unless the electricity supply has been switched off.

The pump must be connected to an external main switch.

**Single-phase Motors, 1X110/220V, 60Hz,** do not incorporate motor protection and must be connected to an approved motor starter.

**Other Single-phase Motors** incorporate a thermal overload switch and require no additional motor protection.

**Three-phase motors** must be connected to a motor starter, the set nominal current of which must correspond to the electrical data on the pump nameplate.

Notice:

1. Do not start the pump until it has been filled with liquid.
2. Connections should be made as shown on the inside of the terminal box cover.
3. Choose one of the two cable entries and knock out the pre-CUT disk.

### **3.1 Checking of Direction of Rotation**

(Three-phase motors)

Arrow on the motor fan cover indicates the correct direction of rotation.

The pump should rotate counter-clockwise when viewed from the motor end.

To reverse the direction of rotation, switch off the electricity supply and interchange any two of the incoming supply wires.

## **4 Starting**

### **4.1 Priming**

Do not start the pump until it has been filled with liquid and vented.

- △ In systems with hot liquids, extreme caution should be exercised when venting the pump to eliminate the risk of personal injury caused by escaping water.

**Booster systems and systems where the liquid level on the suction side is above the pump inlet:**

1. Close the isolating valves either side of the pump.
2. Remove the priming plug P, fig.4.
3. Slowly open the suction valve and keep it open until a steady stream of liquid runs out the priming port.
4. Close the valve, replace the priming plug and tighten



securely.

5. Open the suction valve.
6. Start the pump and slowly open the discharge valve until it is fully open.

### **Pumping from tanks and wells where the liquid level on the suction side is below the pump inlet:**

1. Close the discharge isolating valve.
2. Remove the priming plug P, fig.4.
3. Pour water through the priming port. Make sure that the suction pipe and pump are completely filled with liquid and vented.
4. Replace the priming plug and tighten securely.
5. Start the pump and slowly open the discharge valve until it is fully open.

## **4.2 Frequency of starts and stops**

Maximum 100 starts per hour.

## **5 Operation and Maintenance**

Under normal operating conditions, the pump does not require any maintenance.

If the pump has been used for pumping liquids so that leaving impurities in the pump, it should be flushed with clean water immediately after use.

### **5.1 Frost Protection**

Pumps which are not being used during periods of frost should be drained to avoid damaging.

Remove the priming and drain plugs P and V, fig.5.

Do not replace the plugs until the pump is to be used again.

## 6. Fault finding chart

Fault	Cause
1. Pump does not start.	a) Supply failure. b) Control circuit has been cut out or defective. c) Motor is defective. D) Pump is blocked by impurities.
2. Pump runs but gives no water.	a) Pump is not filled with liquid. b) Suction or discharge pipe is blocked by impurities. c) Pump is blocked by impurities. d) Suction lift is too great. e) Leakage in suction pipe. f) Foot or no-return valve is blocked.
3. Pump runs at reduced capacity.	a) Wrong direction of rotation (three-phase). b) Suction lift is too great. c) Suction or discharge pipe is blocked. d) Pump is blocked by impurities. e) Foot or no-return valve is partly blocked.
4. Pump stops during operating.	a) Thermal overload switch in motor or external motor protection cuts out. b) Control circuit has been cut out.

## 7. Disposal

Disposal of this product or parts of it must carry out the following guidelines:

1. Use the local public or private waste collection service.
2. In case such waste collection service does not exist or cannot handle the materials used in the product, please deliver the product or any hazardous materials of it to your nearest Rocol company or service workshop.

## Congratulations

Thanks for your purchasing our products. The pump was carefully inspected and subjected to final performance tests before leaving our factory, but in order to ensure you can safely and rightly use the product, please carefully reading the instructions and follow it.

**Limited warranty:** During a period of **three years** from the date of manufacture, Rocoli warrants that the pump will be free from defects in material and workmanship.

Rocoli company agrees to be free for repairing or furnishing a replacement for pump and its parts, which shall be upon test and examination by prove defective within the above warranty period .

Any claim for adjustment under this Warranty must be made within three years from date of manufacture and the purchaser must notify Rocoli motor factory any such claim within 30 days after a defect is discovered.

The following situation is excluded from warranty:

- a. has been subjected to misuse, negligence, accident or improper installation;
- b. has been used in a manner contrary to written instructions furnished by Rocoli motor factory;
- c. has been repaired or replaced by other motor company;
- d. the serial number, model number or any identification removed, defaced or changed.

Company Address: LuoYang town, WuJin District, ChangZhou city, JiangSu Province, P.R.C.

Company name: ChangZhou Luo Rui Electrical & Appliance Co.,LTD

Tel: (+86)-0519-88794267, 88790850

Fax: (+86)-0519-88798415