



Centrifugal Oil Purifier

LB-10COP

Operational Manual

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1. Introduction

Centrifugal Oil Purifier LB-10COP offers an oil filtration capacity of less than 5000 liters, ensuring superior oil cleanliness. The impurity collection capacity of up to 2 liters enables effective removal of solid contaminants. It is compatible with various oils with viscosities up to 100 cSt, including hydraulic, lubricating, and engine oils. It delivers continuous water separation and impurity removal, extending oil life and enhancing equipment reliability.

2. Features

- Complies with ISO Code 15/13/10
- Water collection tank
- No filter elements
- Easy maintenance
- Supports fixed or mobile use
- Low noise operation
- Durable construction

3. Specifications

Model No	LB-10COP
Oil Filtration Capacity	<5000 L
Impurity Collection Capacity	2 L
Operating Temperature Range	Up to 200°F
Maximum Fluid Temperature	<100°C
Viscosity Level	<100 cSt
Pressure Range	0 to 10 kg/cm ²
Oil Pump Output	20 L/min
Fluid Compatibility	Suitable for oil per MIL-PRF-83282 (1.0 to 30 cSt)
Filtration Capability	≥95% of solid particles sized 2 to 5 μm
Oil Pump Diameter	¾ inch
Power Consumption	1.5 kW
Power Supply	Single Phase, 230V, 50Hz, 10–16 Amps (customizable 100–230V)
Inlet Diameter	20 mm
Outlet Diameter	50 mm
Product Dimension	1050 × 600 × 900 mm
Packaging Dimension	1250 × 800 × 1200 mm
Gross Weight	230 kg
Net Weight	200 kg

4. Applications

Centrifugal Oil Purifier LB-10COP is use to remove impurities and water from various industrial oils, ensuring cleaner oil and longer equipment life. It is widely used in metallurgy, automotive, power plants, manufacturing, and heavy industry applications.

5. Instrument Introduction

5.1 Structure Flowchart

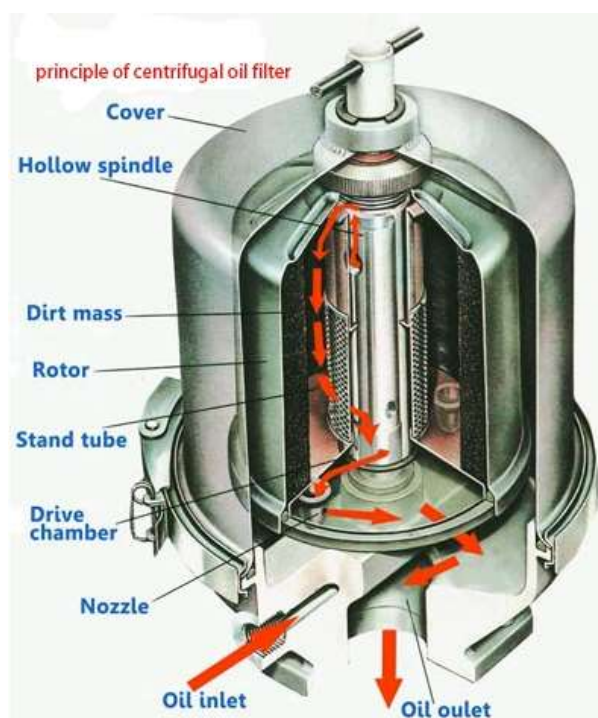


Figure-1

Figure-2

Centrifugal Oil Purifier LB-10COP

No	Part	No	Part
0	User Oil tank	5	Pressure gauge
1	Inlet valve	6	centrifugal
2	Pre filter	7	Oil tank
3	Inlet pump	8	Liquid Leve controller
4	Motor of Inlet pump	9	Outlet pump

6. Working Principle

The oil to be processed passes through the front filter and the oil inlet pump, driven by the oil pump, and enters the centrifugal head. Inside, it spins at high speed under the influence of centrifugal force, separating solids from liquids. Dust and impurities are deposited on the inner wall of the centrifugal rotor, while the purified oil flows into the fuel tank and is discharged by the delivery pump. After undergoing several cycles, the oil is refined to meet customer specifications.

This machine is a portable centrifugal oil purifier. It operates as a standalone unit and is easy to use, requiring no additional auxiliary equipment.

7. Operations

7.1 Oil Pumping System

- Equipped with a high-quality imported gear oil pump, capable of withstanding the high pressure of high-viscosity oils. It is designed to perform efficiently in high-vacuum environments with excellent self-priming capability, stable flow without pulsation, low noise, and a long service life.
- The oil pump is manufactured using high-precision machining processes, ensuring leak-free performance. It operates reliably even under ultimate vacuum conditions. This design overcomes the issue of irregular or absent oil output at high vacuum levels—common unless vacuum is released, which significantly reduces purification efficiency (since, under consistent temperature, the vacuum level directly impacts purification results).

7.2 Filtration System

- **Filtration System Configuration:** The system features a two-stage filtration process. Initially, the oil passes through a pre-filter located before the pump, which removes large particles to protect the oil pump from potential damage. This pre-filter uses a stainless-steel filter element that is washable and reusable.

- The centrifugal head in the oil purifier operates on a simple yet highly effective principle. Inside the head is a rotor equipped with dual oil injection nozzles. The rotor is powered solely by the pressure of the lubricating oil, eliminating the need for an external drive. Once the machine is turned on, the oil pump pressurizes the lubricating oil and delivers it to the rotor. As the oil fills the rotor, it is expelled through the nozzles located at the bottom of the turntable. This action generates rotational force, causing the rotor to spin at extremely high speeds—typically between 4,000 and 6,000 rpm. This high-speed rotation creates a centrifugal force over 2,000 times greater than gravity, effectively separating impurities from the lubricating oil.
- These contaminants can include abrasive metal particles, carbon deposits, and other residue capable of wearing down engine components or degrading the oil. Even particles as fine as 1 micron can be removed. The separated impurities accumulate on the impurity collection cover inside the rotor and only require periodic cleaning. The purified oil then returns to the oil tank by natural gravity flow.
- To extend the service life of both the equipment and the lubricating oil, an efficient oil purification system is essential—one that ensures the oil remains clean for extended use. This not only maintains performance but also reduces maintenance costs. The LXJ centrifugal oil purifier is designed to meet these needs, offering one of the most cost-effective oil purification solutions available worldwide.

7.3 Control System

- The control system uses Schneider Electric components, known for their reliable quality and stable performance, ensuring the machine operates continuously and efficiently.
- The system includes a sequential relay and a phase sequence indicator, enabling fault shutdown protection along with audible and visual alarms.
- It features comprehensive protection and alarm functions, including safeguards against motor overload, over-current, phase loss, and phase faults. Additionally, the electrical cabinet is fitted with a damping device to enhance stability.

8. Accessories

Standard Accessories

- Oil Pumping System (2 oil pumps, 1 oil pump motor)
- Filtration System (1 centrifugal filter, 1 pre-filter)
- Electric Control System (multiple Triune electrical protectors)
- Liquid Level Control System (1 oil tank, 1 automatic oil level controller)
- Gauges & Instruments (1 anti-shock pressure gauge)
- Mechanical Base and Pipelines × 1 set
- Valves × multiple
- Sight Glass × 1 set
- 20 m Stainless Steel Wire Reinforced PVC Hose

Optional Accessories

- Explosion-proof BT4 class
- Explosion-proof CT4 class
- PLC control, Siemens



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