

GEAR OIL PUMP

Installation, Use and Maintenance Manual



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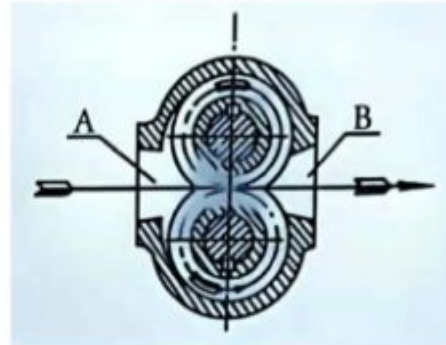


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KCB 2CY Gear oil delivery pump

working principle

This type of pump is equipped with a pair of rotating gears in the pump body, one active and the other passive, which rely on the mutual meshing of the two gears to divide the entire working chamber inside the pump into two independent parts. A is the suction chamber, and B is the discharge chamber. When the pump is running, the driving gear drives the passive gear to rotate, and when the gear is engaged and disengaged, a local vacuum liquid is formed on the suction side (A) to be sucked in. The sucked liquid fills the various tooth valleys of the gear and is brought to the discharge side (B). When the gear engages, the liquid is squeezed out, forming high-pressure liquid and discharged from the pump through the discharge port.



Structure and characteristics

1. structure

1. This type of pump is a horizontal rotary pump, mainly composed of pump body, gears, bearing seats, safety valves, bearings, and sealing devices.
2. The pump body, bearing seat, etc. are made of gray cast iron, and the gears are made of high-quality carbon steel. They can also be made of copper or stainless steel materials according to the special needs of users.
3. There is a packing box on the bearing seat, which serves as an axial seal. The 2CY100/3, 2CY120/3, 2CY150/3 and KCB-300~960 pump adopts a skeleton sealing device. The bearing adopts a single row radial ball bearing. KCB-18.3~83.3 pumps are composed of three oil resistant rubber rings and a retaining ring with an intermediate lining. The sealing degree is adjusted by adjusting the two nuts on the compression cover. The bearings are made of copper based powder oil bearing. In addition, this series of pumps can all use packing seals to use flexible graphite with good elasticity, high and low temperature resistance, stable chemical properties, and self-lubricating performance as the packing.
4. The pump is equipped with a safety valve. When the pump or discharge pipeline malfunctions or the discharge valve is accidentally completely closed, resulting in high pressure and high-pressure impact, the safety valve will automatically open, removing some or all of the high-pressure liquid and returning to the low-pressure chamber, thereby providing safety protection for the pump and pipeline.
5. Connect directly with the drive motor using an elastic coupling and install it on a common cast iron chassis.

2. Characteristics

1. This type of pump has a simple and compact structure, making it easy to use and maintain.
2. This series of pumps have good self-priming performance. No liquid needs to be filled before starting the pump each time.
3. The lubrication of this type of pump is achieved automatically by conveying liquid, so there is no need to add additional lubricant during daily work.
4. The use of elastic couplings to transmit power can compensate for small deviations caused during installation. When subjected to inevitable hydraulic impact during pump operation, it can play a good buffering role.



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Precautions for use

1 Installation

1. Before installation, check whether the pump has been damaged during transportation, such as whether the motor is damp, whether the dust covers at the pump inlet and outlet are damaged, and whether dirt enters the pump chamber

2. Before installing the pipeline, the inner wall of the pipeline should be cleaned with clean water or steam. During installation, the weight of the pipeline should be avoided being borne by the pump to avoid affecting the accuracy of the pump

3. Each connection part of the pipeline must not leak gas or liquid, otherwise it may not be able to absorb liquid

4. To prevent impurities such as test particles from entering the pump, a metal filter screen should be installed at the suction port.

2. Inspection before pump operation

1. Are the fasteners of the pump secure
2. Whether the driving shaft operates flexibly
3. Is the valve in and out of the pipeline open
4. Whether the rotation direction of the pump meets the requirements (if viewed from the pump end to the motor, the rotation direction is counterclockwise).

3. Maintenance during pump operation

1. Note that the pressure of the pump and the reading of the vacuum gauge should meet the technical specifications specified for the pump.

2. Pay attention to the operation of the stuffing box. If there is a leak, tighten the compression cover according to the severity (it is not allowed to tighten too tightly to avoid severe heating of the stuffing box and rapid wear of the sealing ring)

3. When there is abnormal noise or excessive temperature rise during the operation of the pump, the pump should be immediately stopped for disassembly and inspection

4. In general, it is not allowed to adjust the safety valve arbitrarily. If adjustment is necessary, an instrument should be used for calibration. The sealing pressure of the safety valve is 1.7MPa for KCB-18.3 type KCB-33.3 type, and 0.45MPa for KCB-55 type, KCB-83.3 type, KCB-300 type, and KCB-4833 type. KCB200 and the three types of East are 0.45MPa, 0.8MPa, 1.4MPa, 2CY100/3, 2CY120/3, and 2CY150/7, respectively, with 0.45MPa and 0.8MPa.

4. Pump operation stop

1. Cut off the power supply
2. Close the inlet and outlet pipeline valves



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Common faults and troubleshooting methods (representation)

phenomenon	Current causes	Troubleshooting
Do not drain oil or Low oil discharge	<ol style="list-style-type: none"> 1. The suction height exceeds the rated value 2. Air leakage in the suction pipeline 3. Wrong rotation direction 4. Suction pipeline blocked or valve closed 5. Safety valve stuck or scratched 6. Low liquid temperature and increased viscosity 	<ol style="list-style-type: none"> 1. Increase the suction liquid level 2. Check each joint and it is best to add sealing materials such as cotton for sealing. 3. Correct the direction indicated for connecting the pump 4. Check if the pipeline is blocked and if the valve is fully open 5. Disassemble the safety valve and clean it, and grind the valve hole with fine grinding sand to ensure that the safety valve matches the pump 6. Heat the liquid, if not possible, reduce the discharge pressure or flow rate
Sealing oil leakage	<ol style="list-style-type: none"> 1. The shaft seal is not adjusted properly 2. The sealing ring is worn and the gap increases 3. The friction surface of the dynamic and static balls of the mechanical seal is damaged or has defects such as burrs and scratches 4. Spring relaxation 	<ol style="list-style-type: none"> 1. Readjust 2. Tighten the adjusting nut appropriately or replace the sealing ring 3. Replace the dynamic and static rings or regrind them 4. Replace the spring
High noise or vibration	<ol style="list-style-type: none"> 1. The suction pipe or filter screen is blocked 2. The suction pipe extends shallowly into the liquid level 3. Air entering the pipeline 4. The resistance of the discharge pipeline is too high 5. Severe wear and tear on gear bearings or side plates 6. Interference in the rotating part 7. The viscosity of the inhaled liquid is too high 8. The suction height exceeds the rated value 	<ol style="list-style-type: none"> 1. Eliminate dirt on the filter screen 2. The suction pipe should extend around the depth of the liquid pool 3. Check all connections to ensure they are sealed 4. Check if the discharge pipeline and valves are blocked 5. Remove and clean, repair defects or replace 6. Fold down for inspection and troubleshooting 7. Conduct viscosity measurement and handle according to Article 6 of the first phenomenon in Table 2 8. Increase the suction level

List of Vulnerable Parts

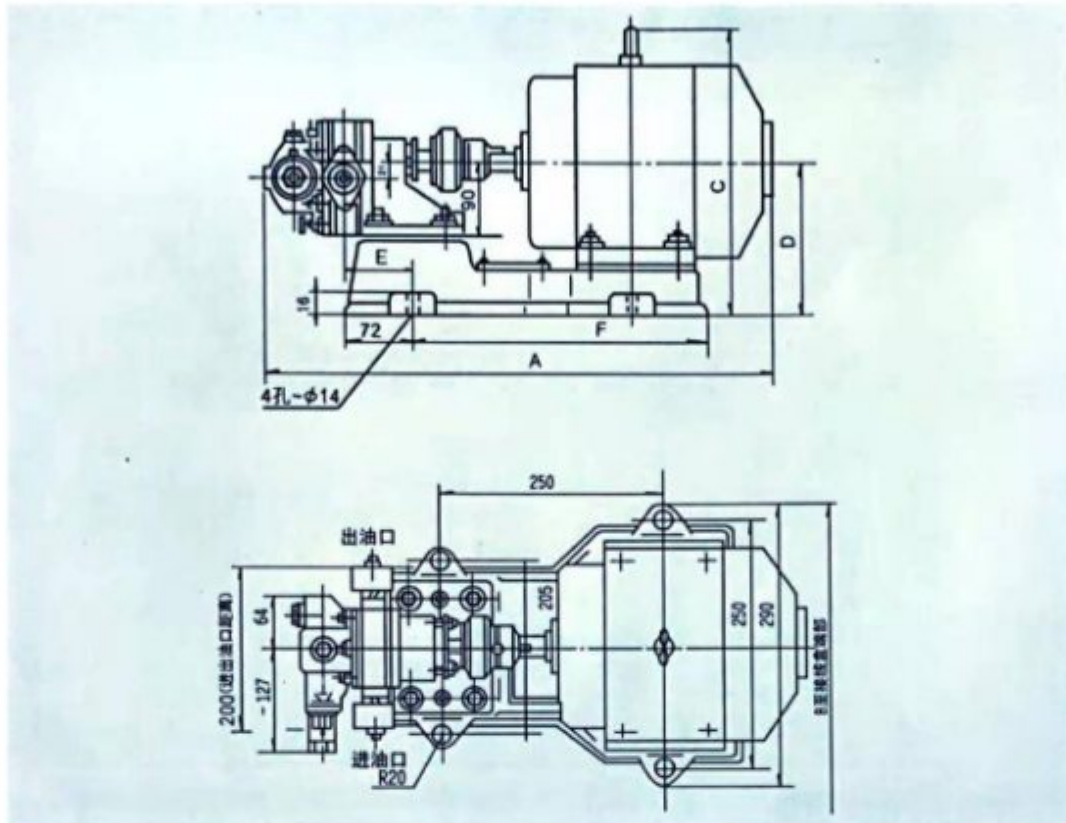
name	Material Science	number	remarks
seal ring	Imported skeleton oil seal	2	Equipped with imported oil seals or flexible graphite for conveying oil temperatures below 300°C
seal ring	Oil resistant skeleton oil seal	2	Specification: below KCB83.3<22X35X6.5>below KCB300<35X56X12>below KCB960<40X62X12>below 2CY150/3<60X90X157>
seal ring	Flexible graphite	2	
Bearing	Rolling bearing 3612	4	Equipped with 2CY100/3-2CY150/7
Bearing	Rolling bearing 308	4	Equipped with KCB633-KCB960
Bearing	SF-1 39X35X32	4	Equipped with KCB200-KCB300
Bearing	SF-1 25X22X30	4	Equipped with KCB18.3~KCB83.3
Safety valve spring	Medium II steel wire	1	

The pump does not come with the above list of easily damaged parts when leaving the factory. If you need spare parts, please specify them in the order form



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Outline and Installation Dimensional Drawing



Outline dimension table of gear oil pump

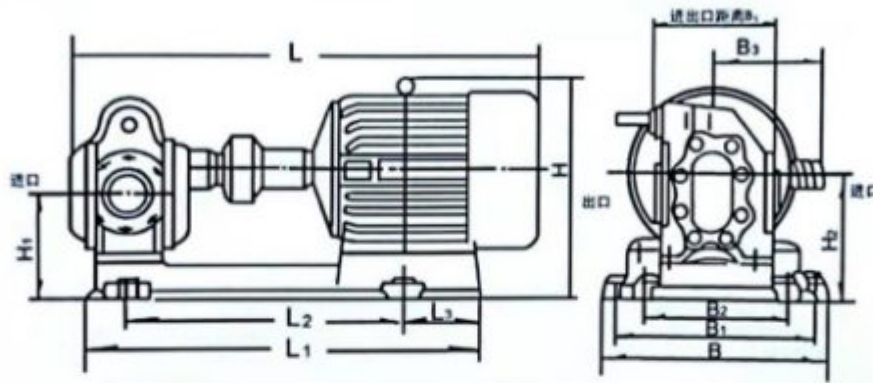
model	Motor		A	B	C	D	E	G "	F
	model	power							
KCB18.3-2 (2CY-1.1/14.5-2)	Y-90L-4	1.5	583	300	230	130	79	3/4 "	335
KCB33.3-2 (2CY-2/14.5-2)	Y-100L1-4	2.2	618	325	285	140	79	3/4 "	365
KCB55-2 (2CY-3.3/3.3-2)	Y-90L-4	1.5	588	300	230	130	86.5	1 "	335
KCB83.3-2 (2CY-5/3.3-2)	Y-100L1-4	2.2	658	325	285	140	99	1 1/2 "	365

The appearance of KCB200, KCB300, KCB483.3, KCB633, KCB960.2CY100/3,2CY120/3,2CY150/3 pumps is shown in the figure



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Drawing



Outline dimension table of gear oil pump

型号	L	L ₁	L ₂	L ₃	H	H ₁	H ₂	B	B ₁	B ₂	B ₃	B ₄
KCB-300 (2CY-18/6-2)	880	770	470	160	423	198	240	430	370	320	210	240
KCB-483.8 (2CY-29/3.6-2)	880	770	470	160	423	198	240	430	370	320	210	240
KCB-200 (2CY-12/10-2)	800	705	450	116	415	187	225	390	340	250	210	240 <small>flange:205 Screw thread 295</small>
KCB-633 (2CY-60/3-2)	1150	995	649	215	540	250	305	505	440	325	247	290
KCB-960 (2CY-60/3-2)	1190	1030	675	220	555	260	315	510	440	325	247	290
2CY100/3-2	1460	1446	931.5	274.5	922	387	475	490	440	370	406	398
2CY120/3-2	1460	1446	931.5	274.5	922	387	475	490	440	370	406	398
2CY150/3-2	1790	1614	1071	303	952	387	475	628	578	370	508	398

