



Chongqing Zhongneng Oil Purifier Manufacture Co., Ltd

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# Double Stage Vacuum Insulating Oil Regeneration Purifier ZYD Series



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## I. Company Introduction

Chongqing Zhongneng Oil Purifier Manufacture Co., Ltd is a leading oil purifier manufacturer in China, which engages in developing, producing, selling a series of oil purifier such as transformer oil purifier, turbine oil purifier, engine oil purifier, lube oil purifier and so on. With advanced technology, we have been practicing in this line since 2004, gaining rich experience and establishing a fine reputation in many foreign countries, such as Malaysia, Russia, Iran, Turkey, Brazil, Canada, USA, Singapore, Azerbaijan, Australia.....

Since the foundation of our company, we have been devoting our efforts to develop better purifiers for energy saving. With strong support from our abundant technical strength, advanced production equipment, reliable quality check methods, and efficient after-sales services, the company has developed into an industrial base for manufacturing oil purification equipments. Zhongneng oil purifiers are famous of their excellence in quality, efficiency in operation, and diversity in models.

With the intellectual support from our first-rate oil purification experts and encouraged by the company's modern management mechanism, we have developed six series of products, including hundreds of oil purifier models with independent intellectual property and advanced filter technology. Our equipments can be applied to many fields, such as the electric power, petroleum chemical, metallurgical industry, mine, aviation, shipping and railway, and so on.

**TENET:** We adhere to the tenet of mutual-benefit and win-win business with partners.

With the sincere and pragmatic work attitude, we would like to open up a new oil purify era by high-tech together with you.

## II. Application & Features

### i. Application

As is well known the Transformer plays an important role in the generation, transmission and distribution of electrical energy. Under load the transformer, dissipates heat and the insulating oil acts as a coolant as well as an effective dielectric.

Due to the highly hygroscopic nature of the transformer oil, it absorbs moisture from windings, which leads to gradual deterioration of dielectric strength. Also there are some waste impurities, gas contents in the transformer oil which destroy the oil's quality

Applied for Purifying the Insulation Oil in all kinds of large Power equipment, which Voltage > 110kv, altitude > 500M.

### ii. Features



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### Different features of our other series Vacuum oil purifier

#### A. Double Stage Vacuum:

In market, there are many Oil Purifier, called Double stage vacuum oil purifier, but most of them are not really Double Stage, which only have the effect as it of single stage.

Our True Double Stage Vacuum is equipped with vacuum pump & Roots Pump in series, which is with high swept volume& high vacuum to make a great improvement on dehydration& degassing.

#### B. Regeneration:

Regeneration System can effectively remove polar materials, such as acid, free carbon& so on.

#### C. Special Functions:

- Vacuum oil filling to Power Equipments such as Transformer.
- Vacuum drying to Transformer or other equipments.
- Oil purifying operates on line (Without power off of Transformer).

### Similar features of our other series Vacuum oil purifier:

#### A. Dehydration & degassing:

Adopting coalescence separation technology, duplex stereo-evaporation and G technology together, this Series can thoroughly remove the liquid water, free water and 80% of dissolved water. With adopting duplex stereo-evaporation, the dehydration speed is twice of normal speed. G technology can remove 80% trace water, which promises no emulsified pollution to purified oil.

#### B. Filtering Impurities:

Adopting double FH trapezoidal network & high-polymer material, this series can purify used oil to not surpass NAS Grade 6 (NAS 1638).

##### ➤ First-stage Filter

Made of Stainless steel material, Double FH trapezoidal network filtering technology, it removes particles and impurities down to 15 microns.

##### ➤ Second-stage Filter

Made of Stainless steel material, Double FH trapezoidal network filtering technology, it removes particles and impurities down to 5 ~ 10 microns.

##### ➤ Fine Filter:

Made by High Polymer Materials and imported from Germany, it not only can remove particles and impurities down to 1~ 5 microns, but also can remove colloid, trace water & mechanical admixtures to make oil clean.

#### C. Running smoothly & Been protected effectively:



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- a) *Double infrared oil level control:*  
With adopting double infrared oil level control, the balance between inlet oil and outlet oil can be automatically controlled by Master Controller to fully realize no person to be guard. (It can work continuously 150hours without person)
- b) *Electrical Apparatus Controlling System:*  
All brands (made in China, in Siemens, etc...) of the main components of the electrical apparatus are available to customers, ensure the safety of the controlling system. Having several protection systems which will avoid oil ejection, overload and over voltage etc...  
German 3UG3 Relay keep the machine safe working efficaciously at any situations such as power off, lack of phase, wrong phase position, etc...
- c) *Trinity of interlocking protection device:*  
Among Vacuum tank, pump, heating tank, one of them has meet problem, it can lock automatically to avoid oil & electricity's leakage to promise purifier's safe operation.
- d) *Cooler& Dielectric Condenser:*  
The system is composed of cooler, condenser, water receiver etc  
After adopting dielectric condenser, generally our vacuum pump oil don't need to be changed for three years, and there is no degenerated phenomenon to our purifier.  
In dielectric condenser the decalescence medium changes water vapor to be liquid water quickly, then water is condensed again in cooler.  
The reductive condensed water is discharged by water receiver. The dry gas, which are condensed and rid of moisture twice, are discharged into air by vacuum pump to protect vacuum pump.
- e) *Carbon Fiber Infrared Heating:*  
Compared with other heating ways, it's the most advanced heating technology, & can effectively save electricity, avoiding oil's deterioration, especially avoiding the harmful gas when heating. It gives out the heat quickly (in 3 seconds after power on) and Efficiency of electricity transforming to heat is very high (more than 98%).  
The material is good at oxidation resistance at high temperature and can be used for more than 10 years.
- D. *Trapezoidal spiral Shape automatic back flushing system:*  
It can be used for long term, just liking hydraulic monitor to clean the filter element thoroughly.
- E. *Noise control:* It have been controlled to be no higher than 80DB(A).
- F. *Structure & Appearance:*  
Our products adopt ship-shape chassis-mount structure to ensure oil leak proof and protect the environment from pollution.





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### IV. Technical Data

Item	Unit	ZYD-50	ZYD-100	ZYD-200	ZYD-300	
Flow	L/min	50	100	200	300	
Working vacuum	MPa	0.08~-0.099				
Working Pressure	MPa	≤0.3				
Breakdown Voltage	KV	≥70				
Water Content	PPM	≤4				
Gas Content	%	≤0.1				
Impurity Size	μm	≤1~5 Without Free Carbon				
Acidity	mgKOH/g	≤0.03				
Dielectric Loss Factors	tgδ(90℃)	≤0.001				
Temperature Range	℃	20~80				
Power		3 Phases 50Hz, 380V				
Working Noise	dB (A)	65	75	80	80	
Heating Power	KW	36	48	72	120	
Total Power	KW	40	55	82	135	
Inlet/Outlet Caliber	mm	DN32	DN40	DN50	DN65	
Weight	Kg	900	1050	1800	2200	
Overall	Length	mm	1000	1200	1600	1900
	Width	mm	900	950	1100	1200
	Height	mm	1400	1500	1800	1900

### V. Operation Introductions

- 1) The environment/ ambient temperature is between -40 ~ 45℃ when the machine is working.
- 2) The altitude height of the working point will influence the vacuum degree of the machine directly. The higher the altitude height is, the lower the vacuum degree is (negative value).
- 3) The used oil is not too dirty (the oil doesn't have too many impurities), otherwise it should use other purification plant to filter sufficiently such as JL Portable Oil Purifying and Oiling Machine. The measure avoids influencing the efficient of degassing and the lifetime of the machine.



## VI. Maintenance

- 1 After a certain period of running, the machine should be checked to see whether:
  - a) The electrical control system is safe and reliable?
  - b) The temperature controller is sensitive, reliable and accurate?
  - c) Oil seals of the pump shaft are broken with leakage?
  - d) There is any blockage with the running system and any abnormal noise with pumps or related motors?
  - e) There is any air or oil leakage with the oil running system and at sealing joints?
2. After each 3000 hours' running, grease shall be replenished to prevent motors from being burnt.
3. Special vacuum pump oil or lubricating oil N46 should be used for the vacuum pump and oil replaced or replenished if necessary at any time.
4. If the machine will not be used over 1 month, Place the machine in a dry environment with the panel door and all valves closed, and the machine proper protected by a covering.

## VII. Warranty Period

Zhongneng Warrants the plant supplied under this specification against defects in material and workmanship under normal use and service for a period of 12months from date of shipment.

Zhongneng's obligation under this warranty is limited to repairing or furnishing, without charge F.O.B. point of manufacture, a similar part to replace any part(except filter), which was proven to defective within warranty period.

Zhongneng will not in any event be held responsible for any indirect or consequential damages.