



Chongqing Zhongneng Oil Purifier Manufacture Co., Ltd

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<http://bit.ly/oilpurifier> / www.zhongnengcq.cn

Double Stage Vacuum Insulation Oil Regeneration Purifier ZYD Series

P-Type



E-Type



S-Type



D-Type



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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 for more than ten years, 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



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.



Portable type, enclosed type, and Trailer types with single-axle or double-axle can be chose.

Color: Color of the oil purifier accepts customized.

PLC controller: PLC controller is available to be chose for making machine operated complete automatically

Explosion Proof Materials: Equipped with Explosion Proof Materials when the machine is used in hazardous areas is optional

III. Working Principle

i. Working Principle

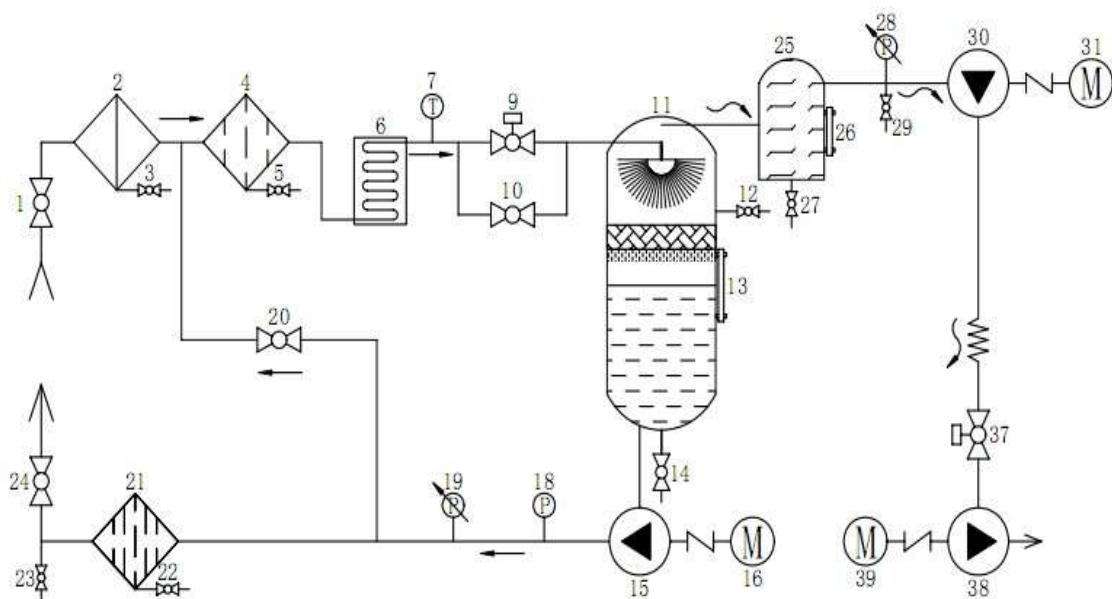
When this machine start working, the used oil will be injected into the primary filter under the pressure, the primary filter will remove the big impurities, then the oil which just contains the particles is heated by the heater. Then the treated oil enter into the vacuum separator, the vapor is separated from the oil and refrigerate to water under the process of the lowest-vacuum pressure and the degassing equipments. The last procedure is that the fine filter removes the particles completely.

If need to regenerate, the regeneration would be the last procedure after fine filter.

ii. Flow Chart

ZYD Flow Chart

Note: Oil Direction →; Gas Direction ↶.



1. Oil Inlet Valve 2. Primary Filter 3. Primary Filter Blowoff Valve 4. Secondary Filter 5. Secondary Blowoff Valve 6. Heater 7. Temperature Control 8. Heater Blowoff Valve 9. Vacuum Separator Solenoid Valve 10. Vacuum Separator Bypass Valve 11. Vacuum Separator 12. Vacuum Separator Gas Ballast Valve 13. Vacuum Separator Liquid Indicator 14. Vacuum Separator Blowoff Valve 15. Oil Outlet Pump 16. Oil Outlet Pump Motor 18. Pressure Gauge 19. Pressure Controller 20. Recycle Valve 21. Fine Filter 22. Fine Filter Blowoff Valve 23. Oil Sample Valve 24. Oil Outlet Valve 25. Chiller 26. Chiller Liquid Indicator 27. Chiller Blowoff Valve 28. Vacuum Controller 29. Single Vacuum Valve 30. Roots Pump 31. Roots Pump Motor 37. Differential Pressure Valve 38. Vacuum Pump 39. Vacuum Pump Motor



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IV. Technical Data

Item	Unit	ZYD-30	ZYD-50	ZYD-100	ZYD-150	ZYD-200	ZYD-250	ZYD-300	
Flow	L/min	30	50	100	150	200	250	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(as required)							
Working Noise	dB (A)	≤65	≤65	≤75	≤80	≤80	≤80	≤80	
Heating Power	KW	30	36	48	60	72	90	120	
Total Power	KW	35.5	40	55	72	82	105	135	
Inlet/Outlet Caliber	mm	DN25	DN32	DN42	DN50	DN50	DN60	DN60	
Weight	Kg	800	900	1050	1200	1450	1800	2200	
Overall	Length	mm	1250	1400	1750	1850	1950	2050	2200
	Width	mm	900	1050	1350	1400	1500	1600	1750
	Height	mm	1700	1850	2150	2200	2300	2400	2550

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?



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- 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.

Machine Color Available:



Other color you need, just let us know. Without designation, the color would be same as it of First Picture.