



重庆中能滤油机制造有限公司
Chongqing Zhongneng Oil Purifier Manufacture CO., LTD

Single Stage Vacuum Transformer Oil Purifier ZY Series



ZY-P Type



ZY-E Type



ZY-S Type



ZY-D Type

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I Company Profile

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, Feature & Advantages

Application:

This oil purifier is applied by the power station and mine to treat various of unqualified or used insulation oils including aging transformer oil specially for the power below 110kV, mutual inductor oil, switch oil, and so on.

This type of machine can degas, dewater, removing the impurities of insulating oil quickly and effectively.

Feature:

1. Highly effective dewatering, degassing by High-Technology-----Duplex 3D stereo-evaporation
2. Highly remove particles ability by using the high-Technology-----High-molecule absorbing together with Double FH trapezoidal filter element.
3. Liquid level is controlled by infrared
4. Can work independently, also can work with regeneration System.
5. Three Functions: Vacuum Oil filter for transformer, Vacuum Oil drying for transformer, Vacuum Oil filling for transformer. Or three functions for other power equipments.
6. Automatic Test for the Oil Dielectric Strength & printing the result out
7. Trinity inter locked preventive device to ensure the Security.
8. Can work on site.

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Advantages:

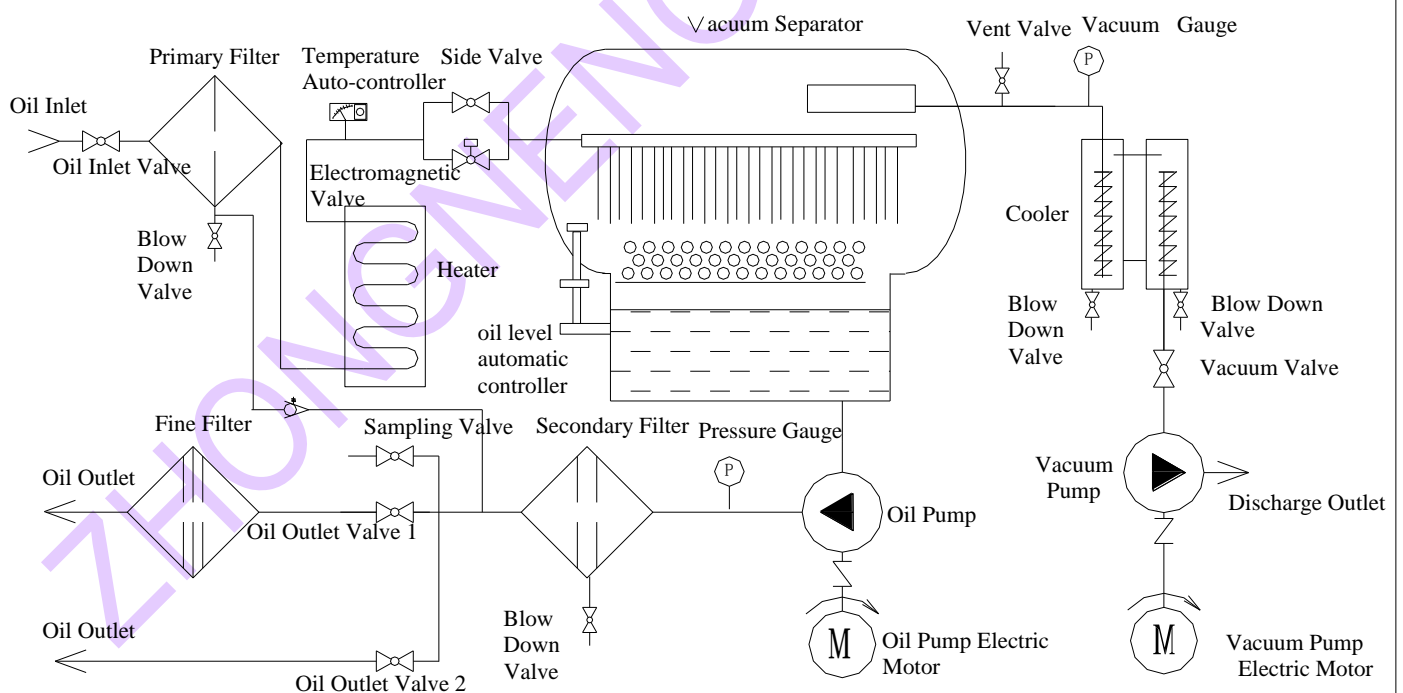
This machine adopts a high effective vacuum and the internationally advanced stereo-evaporation technology, which enable a highly effective removal of water, gas and impurities without switch off of power, shutdown of machine or change of oil which allows transformers running as energized.

III Work Principle & Flow Chart

1: Work Principle

Work principle & Flow chart: The oil is injected in the primary filter through oil inlet valve, when the oil purifier starts working. The big impurities are purified, and the oil including particles released into vacuum tank after heating. Under the low vacuum pressure and deaeration element, the vapor is separated from oil and vaporized quickly then condensate into water by cooler or drained away by vacuum system. The oil without any water is transferred into secondary filter and precision filter through oil pump then is eliminated all impurities. At last, we get the purified oil.

2: Flow Chart



Picture 1

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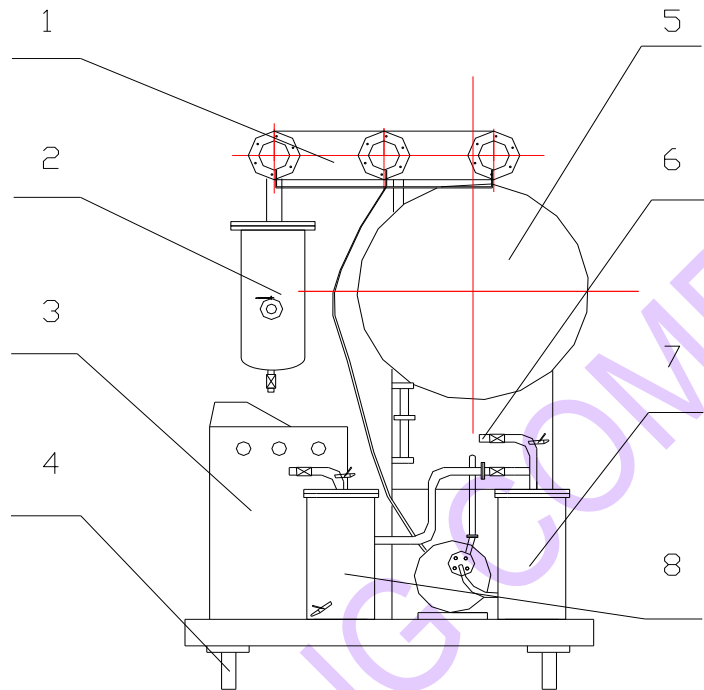
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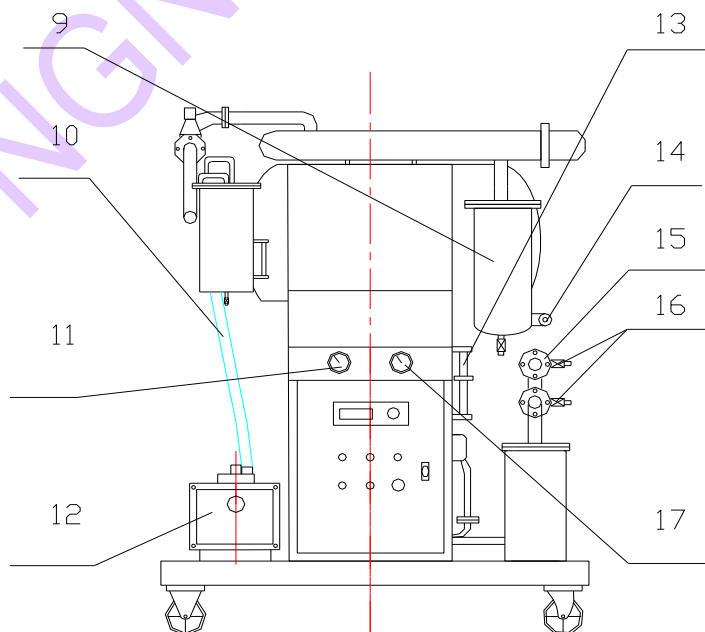


3: Machine Structure for series ZYA

right view



front view



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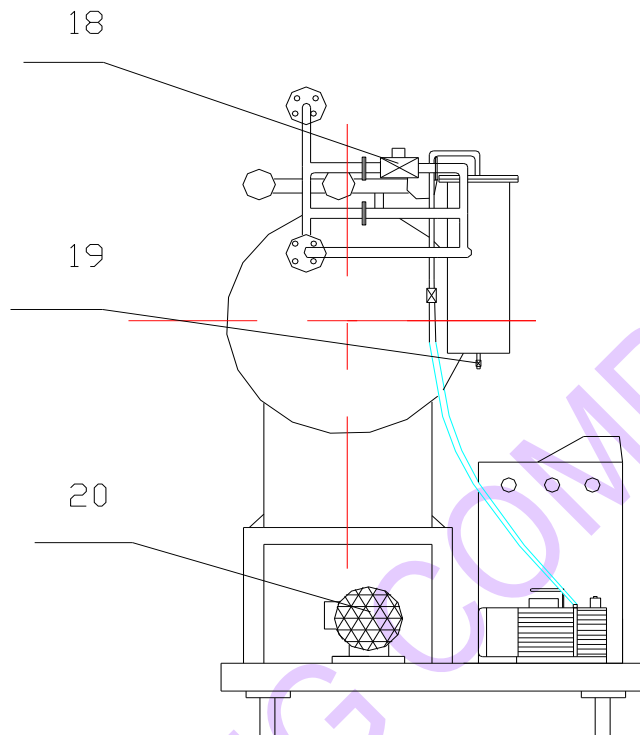
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left view



- | | | | | | |
|--------------------|----------------------------|-----------------------|-----------------|------------------|---------------|
| 1. heater | 2. cooler | 3. electrical cabinet | 4. castor | 5. vacuum tank | 6. oil outlet |
| 7. primary filter | 8. secondary filter | 9. primary filter | 10. gas exhaust | 11. vacuum gauge | |
| 12. vacuum pump | 13. temperature controller | 14. oil inlet | 15. flange | 16. sample valve | |
| 17. pressure gauge | 18. Electromagnetic valve | 19. drain valve | 20. oil pump | | |

IV Models & Technical Parameters

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Parameters	Unit	ZYIZYA -10	ZYIZYA -20	ZYIZYA -30	ZYIZYA -50	ZYIZYA -100	ZYIZYA -150	ZYIZYA -200	ZYIZYA -300	
Flow rate	L/min	10	20	30	50	100	150	200	300	
Vacuum Degree	MPa	-0.06 ~ -0.098								
Working pressure	MPa	≤0.4	≤0.4	≤0.4	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5	
Breakdown voltage	KV	≥65	≥65	≥65	≥65	≥70	≥70	≥70	≥70	
Water Content	PPM	≤4								
Gas content	%	≤0.1								
Impurity Size	μm	≤5								
Working without Trouble	H	≥4000								
Temperature range	°C	20 ~ 80								
Continuous Working	H	≥150								
Power supply		3 Phases 50HZ. 380V(or as needed)								
Working noise	dB (A)	≤65	≤65	≤65	≤70	≤70	≤75	≤75	≤75	
Heating power	KW	15	15	15	30	48	60	72	90	
Total power	KW	16.5	16.5	16.5	33.5	53	65	76	98	
Inlet/outlet caliber	mm	DN25	DN25	DN25	DN32	DN42	DN50	DN65	DN65	
Weight	Kg	230	250	270	300	550	700	950	1200	
Size	L	mm	1050	1100	1150	1200	1600	1600	1800	1900
	W	mm	750	850	900	950	1000	1100	1200	1200
	H	mm	1350	1400	1450	1500	1800	1800	1900	1900

V. Machine's Main Advanced Technologies

● Unique Dehydration (Degas) System

We adopt Duplex 3D stereo-evaporation technology whose the evaporation area is three times more than that of normal evaporation technology. This innovation can dehydrate and degas effectively and efficiently.

Meanwhile, we bring in UK G technology from Japan which eliminates the kinds of trace water content and dissolved water thoroughly so as to increase the breakdown voltage and withstand pressure value enormously, ensure the transformer oil can be used in high level transformer normally.

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- **Distinctive Filtering System**

The filtering system, which is combined double FH trapezoidal network with **H.P.M high molecule polymer material absorbing**, distinctively remove various impurities and particles. The filtering system owns **back flush function** to clean the filters and clear impurities from the filter automatically. It improves the effectiveness of filtering and extends the lifetime of filter awfully.

- A: First-stage Filter**

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

- B: Second-stage Filter**

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

- C: Fine Filter:**

- Made by High Polymer Materials and imported from Germany, thorough demulsification and separate water from the waste oil, it removes particles and impurities down to 1~ 5 microns, making oil clean.

- **Electrical Apparatus controlling System & German 3UG3 Relay**

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...

- **Carbon Fiber Infrared Oil Heating System**

Heating by Carbon fiber infrared heating system which is the most advanced heating technology, the unique heater structure heats the oil uniformly and easily controlled, 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%).

Oil Heater System assures less than 1.0 w/cm². During the heating process, the deterioration of the oil caused by overheating is avoided. The oil temperature can be adjusted between 0 ~ 100°C. The heater is controlled manually or automatically. The heater will stop automatically when the oil temperature reaches a certain degree. Being installed with safety protection devices, the heating system is secure and reliable. The heater will stop operation automatically when the oil volume of inlet is too low to avoid the damages of the heater.

The material is good at oxidation resistance at high temperature and can be used for more than 10 years.

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- **Double-infrared fluid level auto-control system instead of oil-level controlled by manually and float valve**

Double-infrared fluid level auto-control system is installed in the vacuum vessel to control the oil level automatically so as to avoid the oil leaking in the operation. It can help machine working continuously for 150 hours even online without worker monitor. The new innovation of eliminating froth can avoid the oil ejecting and gushing during the process.

- **High Quality components**

The main component parts of our products such as vacuum pump, oil pump and electric apparatus are from SIEMENS, ABB, SCHNEIDER, Zhongneng and AMICO etc. Kinds of brands are optional according to customer's specific requirement. It ensures our products high quality and reliability.

- **Structure and Appearance of Oil purifier**

Our products adopt ship-shape chassis-mount structure to ensure oil leak proof and protect the environment from pollution. The whole equipment is characterized by small size, light weight and convenient to move around.

Available in mobile option, immovable option and trailer, etc...

Oil purifier can be made in hermetical, canopy-covering, open and frame style, etc...

Color of the oil purifier can follow customer's favor.

Available in installing PLC controller for making machine operation Fully-automatically

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

- **Cooler, Dielectric Condensation System**

The system is composed of cooler, condenser, water receiver etc

The vapor and other gas, which is evaporated from vacuum separator, first drop in temperature and are rid of moisture in dielectric condenser whose decalescence medium changes water vapour changes to liquid water quickly, then are 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 to air by vacuum pump so that it protects vacuum pump.

VI. Operation Introductions

- 1) The environment/ ambient temperature is between $-25 \sim 45^{\circ}\text{C}$ 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 cannot be 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.

VII. 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;

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- 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 fro 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.**

VIII. 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 12 months since the delivery date.

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.