



重庆诺庆机电有限公司

CHONGQING NAKIN ELECTROMECHANICAL CO. LTD

ZYD Online Double stages Vacuum Transformer Oil Filtration Machine





◆ Application

Series ZYD Double-stage transformer oil purifier can quickly remove water, trace water, gas, particles as well as acetylene, hydrogen, methane and other harmful ingredients from oil effectively to improve oil's dielectric strength, effectively making sure electric equipments working safely and normally. Series ZYD oil purifier is particularly suitable for treating high-grade transformer oil, super-voltage transformer oil and new transformer oil. It can be used for filtration of more than 110V substation live line work onsite. Meanwhile, Series ZYD oil purifier can be used as independent vacuum source with functions of vacuum drying and vacuum oiling.

◆ Features

1. Double-stage vacuum system, strong power of vacuum evacuating, ultimate vacuum value $\leq 5\text{Pa}$
2. Two vacuum separating chambers, efficient oil film sprayer, increasing separating size and separating time to ensure the dry-level and dielectric strength improving greatly.
3. Double-horizontal film evaporation technology, combined with unique and advanced dewatering, degassing components, can rapidly and effectively separate water, gas from oil.
4. Multi-stage precision filtration system, mesh filtration combined with molecular adsorption technologies
5. Efficient electric heating system, heating uniformity, less power consumption, safe, and reliable.
6. Double-infrared liquid level sensor, pressure protective system to ensure machine operation easy and safely.
7. Adopt interlocked protective system, which connect oil pump, heater and liquid level sensor, avoiding blank heating, blank pumping, oil leak and electricity leak. If there is any fault, machine will be power off automatically.
8. Functions of live line work onsite, vacuum drying and vacuum oiling.

◆ Advantages

Comparing with single stage transformer oil purifier, Series ZYD oil purifier can increase the effectiveness more than three times, more quickly and completely dewater, degas, remove particles to get higher dielectric strength. This equipment can be used as independent vacuum source with the functions of vacuum drying and vacuum oiling for the electric plants.

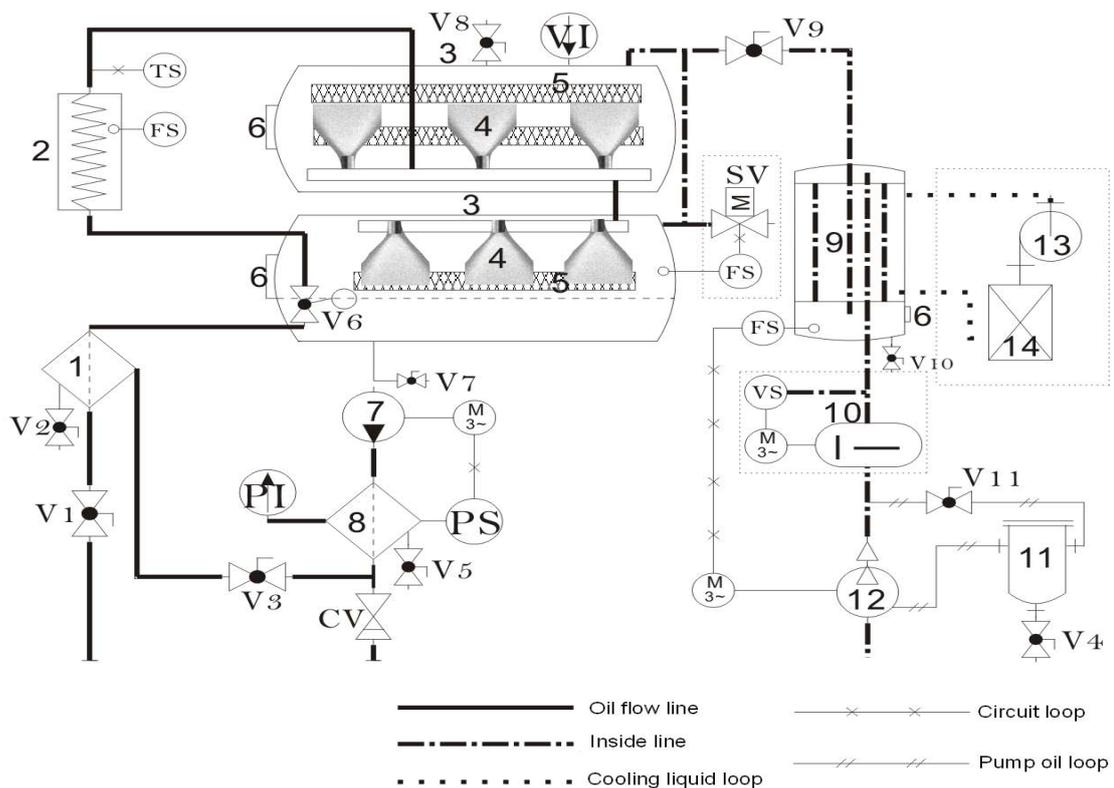
◆ Technical Parameters

Index name	unit	ZYD-50
Flow rate	L/H	3000
Working vaccum	MPa	-0.08~-0.099
Working pressure	MPa	≤ 0.4
Temperature range	$^{\circ}\text{C}$	20 ~80
Dielectric strength	KV	≥ 70
Water content	ppm	≤ 3



Gas content	%	≤ 0.1	
Particles size	μ	≤ 1	
Power supply		380V 50HZ 3Ph (As per user's option)	
Working noise	dB(A)	≤65~85	
Heating power	Kw	30	
Total power	Kw	35.5	
Inlet(Outlet)	mm	Φ32	
Weight	kg	750	
Dimension	L	mm	1750
	W	mm	1600
	H	mm	1900

◆ **FLOW CHART**



- 1.Primary filter 2. Heater 3.Vacuum separator 4.Oil film sprayer 5.Degass plate 6.Glass viewer 7.Oil pump 8.fine filter
9.gas and water separator 10.booster pump 11.Oil water separator 12.vacuum pump 13.circulation pump 14.cooling system
V1. inlet valve V2,V5,V7.discharge valve V3. Circulation valve V4,V10. water discharge valve V6. Oil level controlling valve
V8. vent valve V9. vacuum source valve V11. vacuum pump oil circulation valve CV. Unilateralism valve
SV. Electromagnetism valve PS. Pressure gauge VI. Vacuum gauge VS. Vacuum switch FS. Oil level switch M. Motor

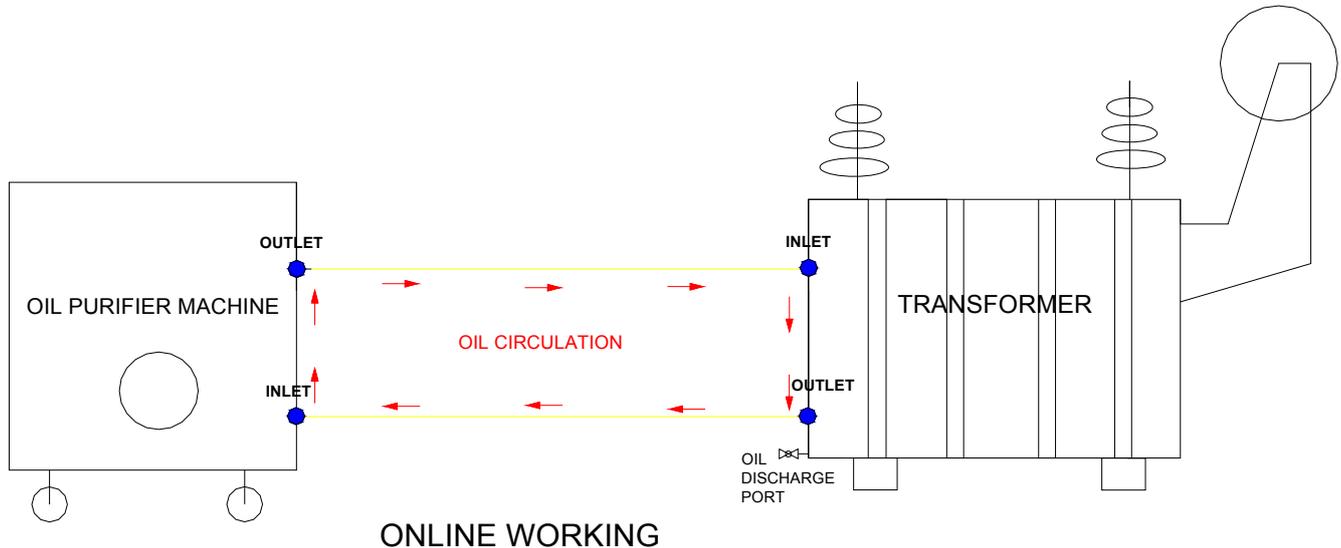


◆ ZYD Main parts list

No.	Parts Name	Model	Brand/Maker
1	Vacuum pump	SV/2X	China Nanguang
2	Booster pump	ZJY	Shanghai-Sunny (China and America Joint venture)
3	Oil pump	LYB	China Huangzou
4	Primary filter	(50 micron)	NAKIN
	Secondary filter	(10 micron)	NAKIN
	Fine filter	(1 micron)	Italy FILTREC/ China Apuda
5	Double-infrared oil level sensor	—	NAKIN(Japan technology)
6	Interlock protecting system	—	NAKIN
7	Electric parts	—	France SCHNEIDER/ China Delixi
8	Motor	—	Shanghai Lishuai
9	Carbon-fiber infrared Heater	CY-380	Chongqing Yuanjian
8	Electromagnetic Valve	DN	Ningbo Klod
10	First stage Vacuum separator	—	NAKIN
11	Second stage vacuum separator	—	NAKIN
12	Cooling system	HNK-76	NAKIN
13	Vacuum reactor device	YK-1 (Stainless steel)	NAKIN
14	Oil film sprayer device	YH-32 (Stainless steel)	NAKIN
15	Pressure protector	YWK-1	HR Precision Instrument
17	Temperature controller	Digital type	Yuzhao Instrument
18	Compound Vacuum gauge	Y-100	Leierda Instrument
19	Pressure gauge	Y-100	Leierda Instrument
20	Oil foam sensor	VP02	Switzerland

21	Vacuum Compensator	DDG	Ningbo
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ZYD Online working indication



First: Connect oil tank and oil purifier's inlet port by oil hose. Start up oil purifier's vacuum pump, and open the inlet valve, so the oil purifier will pump enough new oil into oil purifier machine, when the oil quantity reaches to the top level sensor of the glass-tube (there is a glass-tube at the vacuum separator), then close inlet valve and stop vacuum pump. (This step to make sure enough oil quantity in transformer when online working, because the oil in the oil purifier machine can supplement the transformer's oil when machine purification)

Second: Transformer working some time, there is some water and partilces deposite at the transformer oil tank bottom, so before filtration work, please open the transformer oil discharge port (which usually locate at the bottom), discharge the most free water and partilces.

Third: Connect the transformer'outlet to oil purifier's inlet by oil hose, and connect transformer'inlet to oil purifier's outlet by oil hose. So make sure oil purifier and transformer is a circulation system.

Fourth: So you can do operating according to the noramlly way.

The most import for online working is that to make sure the oil quantity between oil purifier machine and transformer oil is enough. Also, you should understand and operate the machine smoothly.



ZYD Technologies and Parts introduction

★ Dehydration (Degas) system

The Double-horizontal vacuum evaporation vessels can enlarge evaporation area efficiently. The heater, being placed in the vacuum vessels, becomes an evaporator. Thus the evaporation areas of Double-horizontal vacuum vessels are three times more than of the common vacuum vessel. This innovation can dehydrate and degas effectively and separately. This optimal structure of the dehydration (degas) system enlarges the surface area of oil exposed to the vacuum system and extends the flowing distance of the oil in the vacuum system. Thus there has sufficient time to remove the moisture and gas from the oil by vaporization.

★ Filtering system

The filtering materials with variable apertures are made of specialized glass fiber. The sizes of the filtering fiber and aperture dwindle gradually in the different filtering stages. The impurities with different particulate sizes are filtered step by step. The capability of removing particulate matters is improved greatly by this method.

The filtering system has stable and perfect filter fineness. The filter fineness has several grades. Including 1.2.3.4.5.6.10. Micron etc.

The filtering system is equipped with reverse rinse and filter device. It improves the effectiveness of filtering and extends the lifetime of the filter awfully.

★ Electrical apparatus controlling system

The main components of the electrical apparatus made by Siemens, Schneider company ensure the safety of the controlling system. Having interlocked protective system, pressure protective device which will avoid overload, over voltage, blank pumping, blank heating, oil leak and electricity leak etc.

★ Oil heating system

The unique effective electric heater structure heats the oil uniformly.

Oil heater system assures less than 1.0w/cm². During the heating process, the deterioration of the oil caused by overheating is avoided.

The oil temperature can be adjusted between 0°C to 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 much to avoid the damages of the heater.

★ Oil-level controlling system

The oil-level floating ball and double-infrared liquid level automatic controller system are installed in the



vacuum vessel to control the oil level so as to avoid the oil leaking in the operation.

The new innovation of eliminating forth 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, motor and electric apparatus are from SIEMENS, ABB, SCHNEIDER, LEYBOLD and AMICO etc. They ensure our products high quality and reliability.

★ **Structure and apparatus of oil purifier**

Our products adopt ship-shape chasis-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.various sizes and configurations (alloy shield) available

Available in mobile or stationary options

Automatic vacuum oil purifier or anti-explosion vacuum oil purifier is both available according to customers' need.

★ **Cooler, medium condenser 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 condenser, then are condensed again in cooler which has retarded exchange media .the reductive condensed water are 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.

The plant is characterized by small size, light weight, rich color, and our company can produce trail car type and closed type (alloy shield) according to the customer's requirement.

In order to make sure that the stable of oil purifier plant which can work long time and extend the life of the machine, the oil purifier's main parts such as electric control parts, electric motor, vacuum pump, oil pump are imported from SIEMENS,LEYBOLD,ABB etc.

ZYD Double stages vacuum oil purifier photos (Luxury type) NEXT PAGES:



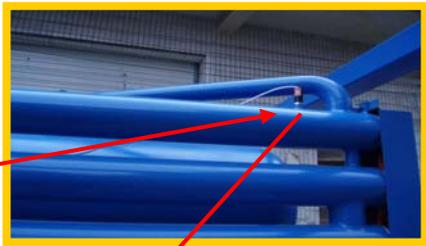
First stage vacuum separator

Secondary stage vacuum separator



Control panel

Oil pump



“Z” shape Heater, heater sensor and protector

Three stages filter system
(20 micron, 5 micron, 1 micron)



Vacuum booster pump
(Secondary stage)

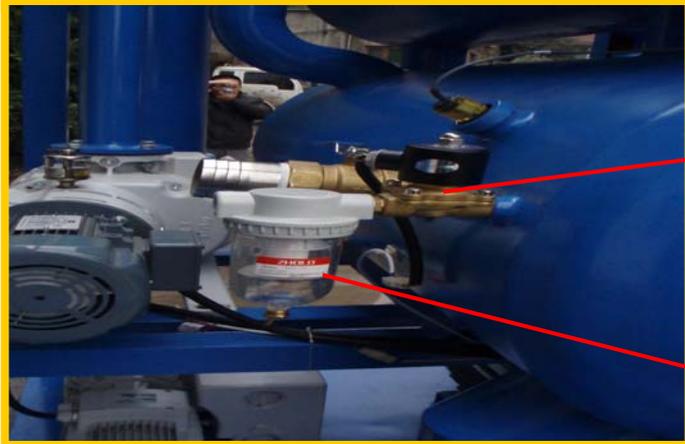
Vacuum pump (Previous stage)



Italy oil foam sensor

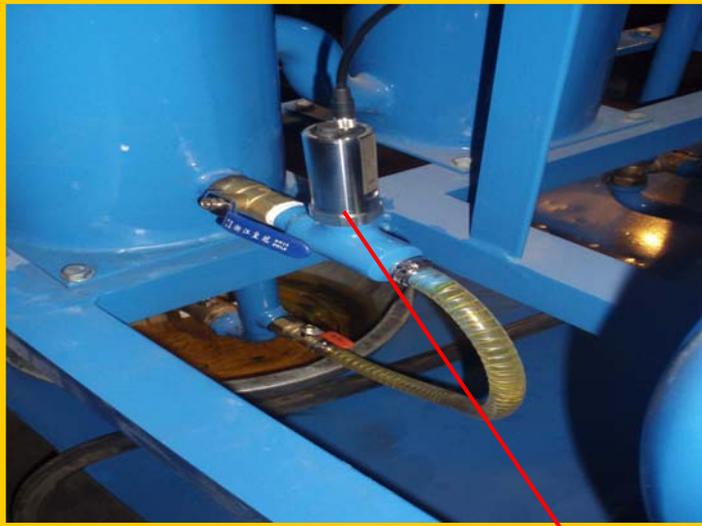
Oil foam adjust switch (Luxury
type machine)

Air filter



Oil foam adjust switch

Air filter



Water / moisture sensor
(Optional part)

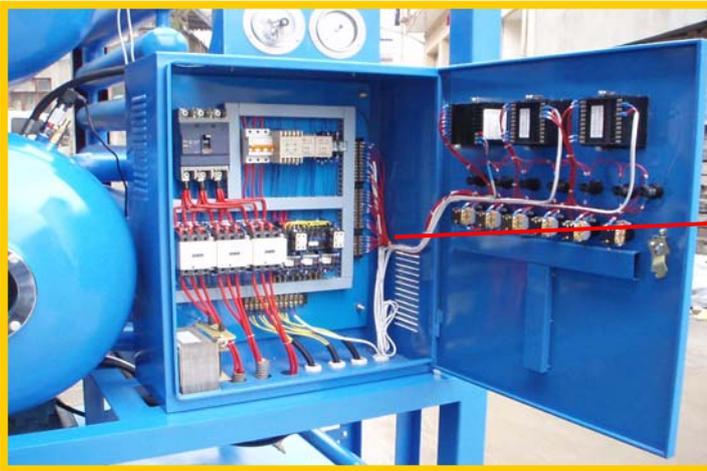


Water / moisture "ppm" displayer
(Optional part)

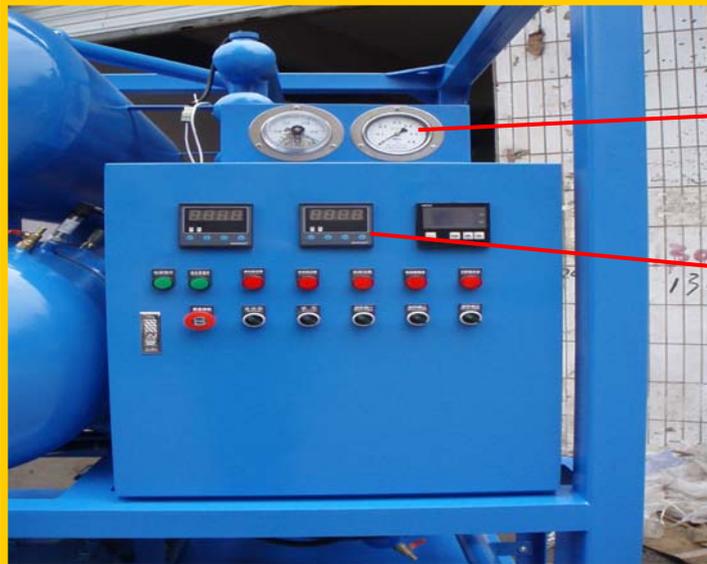


Fine filter is "1 micron"
Italy "FILTREC" brand





Inside of control panel

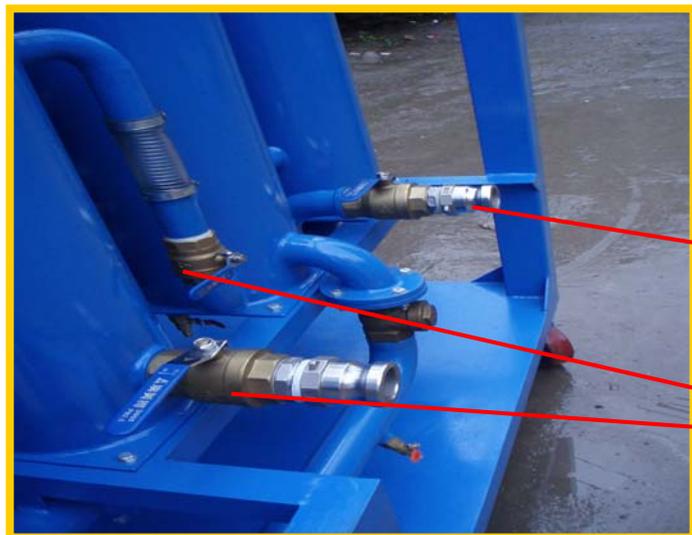


Mechanical Finger type gauge

Digital type temperature gauge,
temperature controller and pressure
gage (Only Luxury type machine)



Oil hose Quick-connector



High quality Brass-type unilateral valve