

ZYD Series Double-stage Vacuum Transformer Oil Filtration System

The main difference between ZYD series Double-stage Vacuum Transformer Oil Filtration System and other transformer oil filtration plants, it has the special T-shape Horizontal Vacuum Chamber which separates the evaporation tank and the oil tank, improving evaporation efficiency, prolong the machine lifetime.



ZYD Series Double-stage Vacuum

Transformer Oil Filtration System can remove trace water, free water, soluble water, dissolved gas, impurities and tiny particles as well as acetylene, hydrogen, methane and other harmful ingredients effectively and rapidly from used or new transformer oil, so as to improve the flash point, acidity, interfacial tension and dielectric strength value of insulating oil. It suits for purifying all kinds of insulation oils, especially suits for purifying transformer oil from 110KV and above UHV power transmission and distribution projects; also suits for purifying of capacitor oil, mutual inductor oil, switch oil, cable oil.



Main Functions

- 1). Removing Moisture/ dehydration : the final treated oil can achieve less than 5ppm;
- 2). Degassing: the final treated oil can achieve less than $\leq 0.05\%$;
- 3). Removing Particles: the final treated oil can achieve 1 micron;
- 4). Vacuum oil filling/transferring;
- 5). Vacuum drying equipment for transformers;
- 6). Vacuum purification online work, unattended operation (at certain working condition).



Product features

1. Special “T” shape double vacuum separation technology, double stages thin film drying degassing technology, double evaporation area and degassing time.
2. Patented degassing tank: anti-foam structure & dual electronic foam monitoring system (key components are from Switzerland), completely eradicating oil entering into vacuum pump.
3. Reliable Control System: Optimized design of control interlock protection device, overpressure alarm and protection, phase sequence protection, to ensure whole machine working stably for a long time. Automatic pressure alarm system, automatic overload protection system, automatic constant temperature system, automatic foam elimination system, automatic protection of oil blowout prevention and other advanced technologies, ensures the safe and stable operation of unattended operation.
4. Oil atomized particles size is less than 50μm, largely increasing efficiency for water molecules and gas molecules escaping from oil molecules.
5. High density electrical heaters with surface efficiency below 1.5 W/cm², with indirect heating to prevent local overheating and oil cracking & aging.
6. Install liquid level and temperature protector on the heater system to prevent instantaneous high temperature of heater and blank heating without oil.
7. Vacuum pump cooler preposition, to reduce water or vapor entering into vacuum pump, reduce the frequency to change vacuum pump oil and extend vacuum pump lifetime.
8. High precision filter elements, filter rated up to 1 (0.5 is optional) micron prevents particles from entering back into the transformer.
9. Automatic oil discharge pressure protector, to monitor pressure of oil filters all the time, effectively protecting machine and operators.
10. Adopt the high pressure screw type oil pump, keeping oil delivery stable, low noise, long life.

11. Automatic float ball valve & electronic oil level automatic controlling system, to realize automatic foam elimination, automatic oil level control, unattended operation.
12. Easy to operate, trouble reminder and trouble shooting tips.



Working Principle

When this Double-stage Vacuum Transformer Oil Filtration System start working and vacuum degree is upto the set value, the used oil will be sucked into the pre-filter under the pressure difference, the pre-filter will remove the big size impurities/particles, then the oil which just contains the tiny particles is heated by the heaters. Then the heated oil enter into the vacuum separator chamber, through the function of vacuum pressure and degassing system, the moisture content in the oil, which is vapoured & Separated from the oil quickly, is either discharged under the process of the vacuum system or refrigerated to liquid water into water receiver, meanwhile degasification work is completed, then oil is pumped into fine filter 2 to remove more particles, and fine filter 1 removes the tiny impurities completely. Finally, clean oil goes out through the oil outlet.



Product specifications and technical parameters

Parameters	Model Unit	ZYD-30	ZYD-50	ZYD-100	ZYD-150	ZYD-200	ZYD-250	ZYD-300
Flow Rate	Liter/hour	1,800	3,000	6,000	10,000	12,000	15,000	18,000
Recommended Max. oil volume in one storage tank	Tons	6	12	24	40	60	90	110
Relative Working Vacuum Degree	MPa	-0.08 ~ -0.099 MPa						
Absolute Operating Vacuum Level	Pa	≤ 8 Pa						
Working Discharge Pressure	MPa	≤ 0.5						
Vacuum Pump Capacity	M3/hr	For preliminary rotary vane vacuum pump: 200 m3/hr For booster roots vacuum pump: 1000 m3/hr						
Temperature Control	°C	0 ~ 100						
Operation Oil Temperature in Treatment	°C	30 ~ 80 (65°C is best)						
Power Supply		AC 3~, 380 V, 50Hz, 4 Wire (or as per your requirements)						

Operation Mode			Continuous Operation						
Working hours without Trouble		Hour	4000						
Continuous Working Hours		Hour	150						
Ambient Temperature			-25 ~ 55℃						
Working Noise		dB (A)	65 ~ 85						
Cooling Method			Air Cooling						
Heating Power (adjusted available)		KW	30	72	90	120	135	150	180
Total Power		KW	36	78	105	136	150	170	206
Inlet/Outlet		mm	φ25	Φ32	φ50	φ50	φ50	φ60	φ60
Weight		Kg	500	900	1200	1400	1650	1800	1950
Dimension	Length	mm	1380	1710	1800	2010	2060	2100	2200
	Width	mm	1020	1510	1560	2030	2100	2150	2250
	Height	mm	1760	1860	2080	2080	2200	2450	2550
After Treatment									
Dielectric Strength		kV	≥ 70 ~ 80						
Water Content		PPM	≤ 5						
Gas Content		%	≤ 0.1						
Particle Size		μm	≤ 3						
Cleanliness			≤NAS 1638 Grade 5						

Note: 1. The dimension and weight will be changed with changing of technical specs.
2. All the specs can be customized according to client's requirements.



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