



ZYD-T SERIES

Double-stage Vacuum Transformer Oil Filtration Machine

Application

ZYD-T Double-stage Vacuum Transformer Oil Filtration Machine, developed by FUOOTECH® in 2007, is specially designed for the completely filtration, dehydration, degassing, particles removal of insulating oils in energized or de-energized transformers. It not only provides regular oil purification works including degassing, drying and particulate removal but also reduces acidity, sludge, other soluble oil decay products, and increase the oil's dielectric strength value (BDV value) so as to improve the physical & chemical properties comparable to new transformer oil. For special application at outside field, the system also can be mounted on a leak proof base or be installed and operated on a trailer as optional.

FUOOTECH Series ZYD-T High Effective Transformer Oil Purifier Machine is applied to process transformer oil and insulating oil from power plant, power station, electric power company, power transmission equipment, transformers, industrial and mining enterprises, especially suitable for on-site installation, maintenance and purifying high level new oil, or running oil from big power transmission and distribution equipment and transformers on national main power transformation grid, which is above 110-750KV. It can shorten the oil treatment period for transformer installation and maintenance.

Why Transformer Oil Need Be Purified?

The increasing rating requirements of modern transformers and electrical apparatus results in greater electrical stress in insulating material and fluids. In order to handle these greater stresses, oils are required to have better dielectric strength, and lower residual water content must be maintained. The timely and proper treatment of these insulating fluids will result in the improvement of the properties of the entire insulating system of power transformers.



The principal functions of the insulating fluid are to serve as a dielectric material and an effective coolant. To perform these functions, the insulating fluid must have specific necessary qualities at the time of initial impregnation and filling at the factory, which must be maintained at the same quality level in field operation if optimum performance is to be assured.

Dissolved gasses in transformer oil can cause arcing, and overheating -- reducing the electrical efficiency and lifetime of the transformer. Likewise, water contamination above 50 ppm (parts per million) can adversely affect the insulating strength of the oil. With ever-increasing standards for energy efficiency of power distribution transformers, the need to effectively degas will become even more important in the future. particles contamination will also affect the function of insulating oil. So we need to purify the used transformer oil.

Thanks to absorbing the advanced technology of similar products at home and abroad, our **ZYD-T Series Double-stage Vacuum Transformer Oil Filtration Machine** has excellent performance in design, production and cost. The oil purification process and overall performance are winning more and more orders from the world with its advantages of high working vacuum, fast oil filtration speed, oil quality protection and low maintenance. **ZYD-T Transformer Oil Filtration Machine** provides an extremely cost-effective and environmentally acceptable method of extending transformer oil lifetime to over 20 years!

Features

1. Double-stage high vacuum pumping system, strong power of vacuum evacuating, ultimate vacuum value $\leq 5\text{Pa}$.
2. Big capacity of moisture and gas separating chamber, efficient oil film evaporation, increasing separating size and separating time to ensure the dry-level and dielectric strength of oil improving greatly.
3. UK G technology by which the trace water that is show chain, such as dissolved water, can be removed effectively.



4. Multi-stage precision filtration system, progressive filtration combined with molecular adsorption technologies, maximum remove the particles and impurities
5. Advanced liquid-level automatic control system to accomplish fully automatic control of oil level.
6. Efficient electric heating system, heating uniformity, less power consumption, safe, and reliable.
7. Can be applied for vacuum oiling and drying power transmission equipment.
8. Adopt interlocked protective system, connecting oil discharge pump, heater and liquid level sensor, avoids blank heating, blank pumping, oil leak and electricity leak. If there is any fault, machine will be power off automatically.
9. Filter rated up to 1 microns prevents particles from entering back into the transformer.
10. Human oriented design, making the whole operation easily.

Working Principle

When this machine 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 enters 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.

Expectations and Benefits on ZYD-T Plant



- Elimination of residual gas from the insulation.
- Drying of transformer insulation.
- Easy and failsafe operation.
- On-line measuring and recording of process parameters.
- Flexibility in application (various oil types and oil volumes)
- Regenerate your transformer oil high efficiently
- Maintain your transformer oil always in good status, extend the oil's lifespan
- Reduce and save oil costs in terms of consumption, replacement and inventory
- Solve your waste transformer oil disposal problem
- Ensure your transformers working normally with qualified oil properly
- Protect your transformers and power equipment from oil pollution problems
- Reduce your maintenance time, energy and cost on transformers and power plant
- Create a safety and cleaning oil-using environment for your transformers of power station



Oil Performance Before and After Purification

Moisture (Water Content)	$\leq 3 \sim 5$ PPM
Gas Content	$\leq 0.1\%$ (Vol)
Impurities Degree (Filtration precision)	≤ 1 micron (no free carbon)
Breakdown Voltage (Dielectric)	$\geq 68 \sim 80$ KV
Flash Point	$\geq 135^{\circ}\text{C}$
Cleanliness	$\leq$ NAS 1638 Grade 6

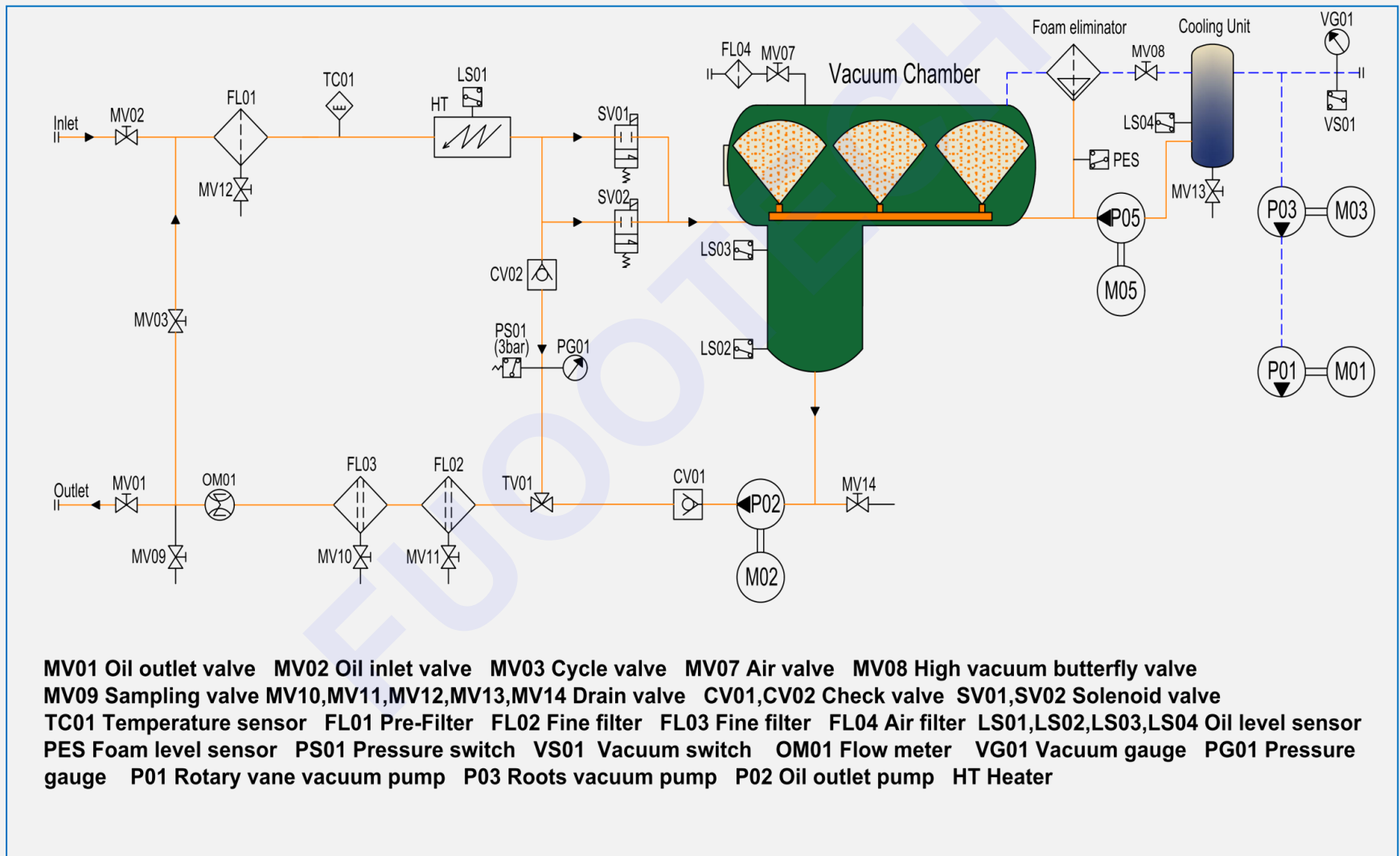


Technical Parameter

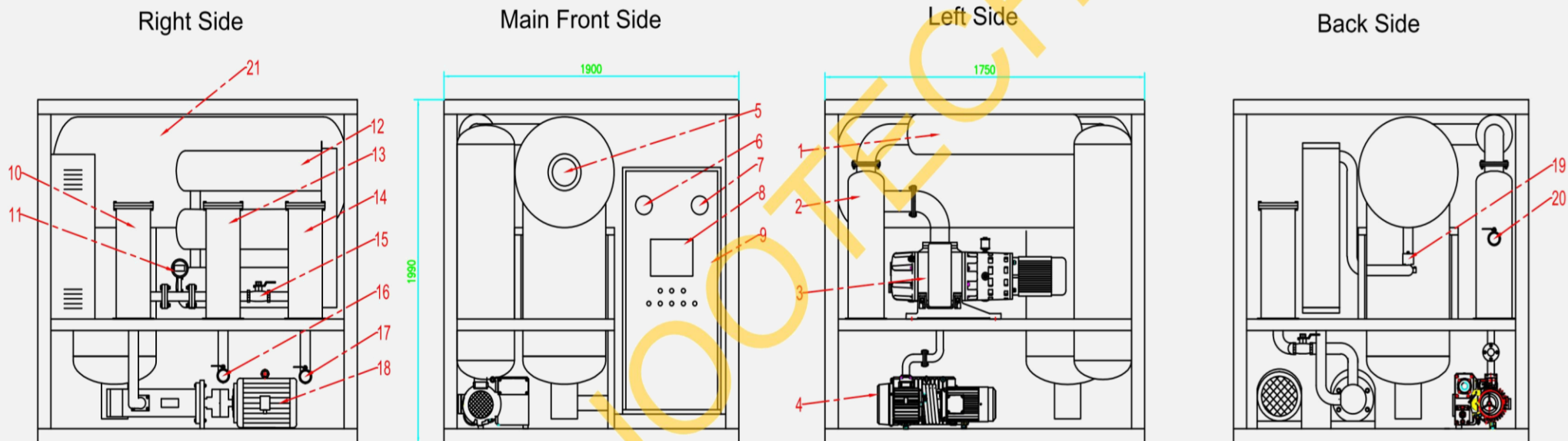
PARAMETERS		MODEL UNIT	ZYD-T-30	ZYD-T-50	ZYD-T-100	ZYD-T-150	ZYD-T-200	ZYD-T-250	ZYD-T-300
Flow Rate		L/H	1800	4000	6000	9000	12000	15000	18000
Working Vacuum Degree		MPa	-0.08 ~ -0.099						
Working Discharge Pressure		MPa	≤ 0.4						
Temperature Control Range		℃	20 ~ 80						
Operation Temperature		℃	40 ~ 70 (65℃ is best)						
Power Supply			380V, 50Hz, 3 phases (or as per your requirements)						
Working hours without Trouble		Hour	4000						
Continuous Working Hours		Hour	150						
Ambient Temperature			-25 ~ 55℃						
Working Noise		dB (A)	65 ~ 90						
Heating Power (adjusted available)		KW	30	36	60	72	90	120	150
Total Power		KW	35.5	42	68	82	103	135	168
Inlet/Outlet		mm	φ25	φ32	φ42	φ50	φ50	φ60	φ60
Weight		Kg	600	700	1050	1150	1450	1600	1950
Dimension	Length	mm	1380	1610	1750	1850	1950	2050	2200
	Width	mm	1020	1250	1350	1400	1500	1600	1750
	Height	mm	1760	1950	2150	2200	2300	2400	2550



Flow Diagram



Structure Diagram



- 1.Foam eliminator 2.Condenser 3.Roots pump 4.Vacuum pump 5.Vacuum chamber observation hole 6.Vacuum gauge 7.Pressure gauge
8. PLC Touch screen 9.Electrical control cabinet 10. Fine filter 01 11.Flow meter 12.Heater 13.Fine filter 02 14. Pre-filter 15.Cycle valve
16.Oil outlet valve 17.Oil inlet valve 18.Oil outlet pump 19.Electromagnetic valve 20.Vacuum pumping connection valve 21. Horizontal Vacuum Tank

Overseas Projects



South Africa



Pakistan



Saudi Arabia



Tanzania



Bangladesh



Malaysia



Cambodia



Dubai, UAE



Zambia



Nigeria



Laos



Zimbabwe

More projects are not listed here

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Recommended Testers for Transformer and Transformer Oil

Part I: Oil Testers

Transformer Oil BDV Tester

Transformer Oil Trace Moisture Content Tester

Transformer Oil Acidity Tester

Transformer Oil Interfacial Tension Tester

Transformer Oil Flash Point Tester (Open/Closed Cup)

Transformer Oil Tan Delta Tester

Transformer Oil DGA (Dissolved Gas Analyzer) Tester

Transformer Oil Kinematic Viscosity Tester

Transformer Oil Density Meter

Transformer Oil Particle Counter

Sf6 Gas purity and Decomposition Tester

Portable Dew Point Meter

Part II: Transformer & HV Testers

Transformer Load and No Load Loss Tester

TTR Transformer Turns Ratio Tester (Portable/Handheld Type)

Transformer DC Resistance Tester 1 ~ 100A

Transformer Tan Delta and Capacitance Tester 0 ~ 12kV

CT PT Analyzer

SFRA Transformer Sweep Frequency Response Analyzer

VLF Hipot Test Set 30 ~ 120kV

Insulation Resistance Tester 0.25 ~ 30kV

AC Hipot Tester

DC Hipot Tester

Circuit Breaker Contact Resistance Tester

Grounding Earth Resistance Tester