



ZY SERIES Single-stage Vacuum Transformer Oil Purifier

❖ Suitable for power distribution & transmission below 110kV

● Application

ZY Single-stage Vacuum Transformer Oil Filtration Machine, developed by FUOTECH® in 2007, is specially designed for the complete filtration, dehydration, degassing, and 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 increases 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 the outside field, the system also can be mounted on a leak-proof base or be installed and operated on a trailer as optional.

FUOTECH Series ZY High Effective Vacuum Transformer Oil Purifier Machine is applied to process transformer oil and insulating oil from power plants, power stations, electric power companies, power transmission equipment, transformers, circuit breakers, mutual inductors, voltage regulators, capacitors, high-voltage switches, switch-gear, etc. in industrial and mining enterprises, which is below 110KV (e.g. 3kV, 6kV, 11kV, 13.8kV, 20kV, 22kV, 24kV, 33kV, 36kV, 66kV, etc.). It can shorten the oil treatment period for transformer installation and maintenance.

● Why Transformer Oil Needs to Be Purified?

The increasing rating requirements of modern transformers and electrical apparatus result 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 **ZY Series Single-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. **ZY Transformer Oil Filtration Machine** provides an extremely cost-effective and environmentally acceptable method of extending transformer oil lifetime to over 20 years!

➤ Features

1. Duplex-Stereo 3D film evaporation technology, combined with unique & advanced dehydration and degassing elements, can rapidly and effectively separate water, gas from oil.



2. Multi-stage precision filtration system, stainless steel filters' filtration combined with molecular adsorption technologies, remove different sizes of impurities and particles thoroughly.
3. Efficient High density electrical heating system adopts special indirect heating method, heating uniformity, less power consumption, safe, and reliable.
4. Double-safety liquid level controlling system and pressure protective system ensure the machine operation easy and safely.
5. Can be applied for vacuum oiling and drying power transmission equipment.
6. 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.
7. Filter rated up to 1 microns prevents particles from entering back into the transformer.
8. Human oriented design, making the whole operation easily.
9. Compact structure, Small volume, light weight, easy to move.
10. low maintenance cost and time.

➤ Working Principle

The oil is injected in the primary filter through oil inlet valve, when the oil purifier starts working. The big impurities are eliminated, 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.

Finally, clean oil goes out through the oil outlet.

➤ Expectations and Benefits on ZY 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)
- Purify 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)	≤ 8 PPM
Gas Content	≤0.1% (Vol)
Impurities Degree (Filtration precision)	≤ 5 micron (no free carbon)
Breakdown Voltage (Dielectric)	≥ 60 ~ 70 KV
Flash Point	≥130°C
Cleanliness	≤NAS 1638 Grade 6

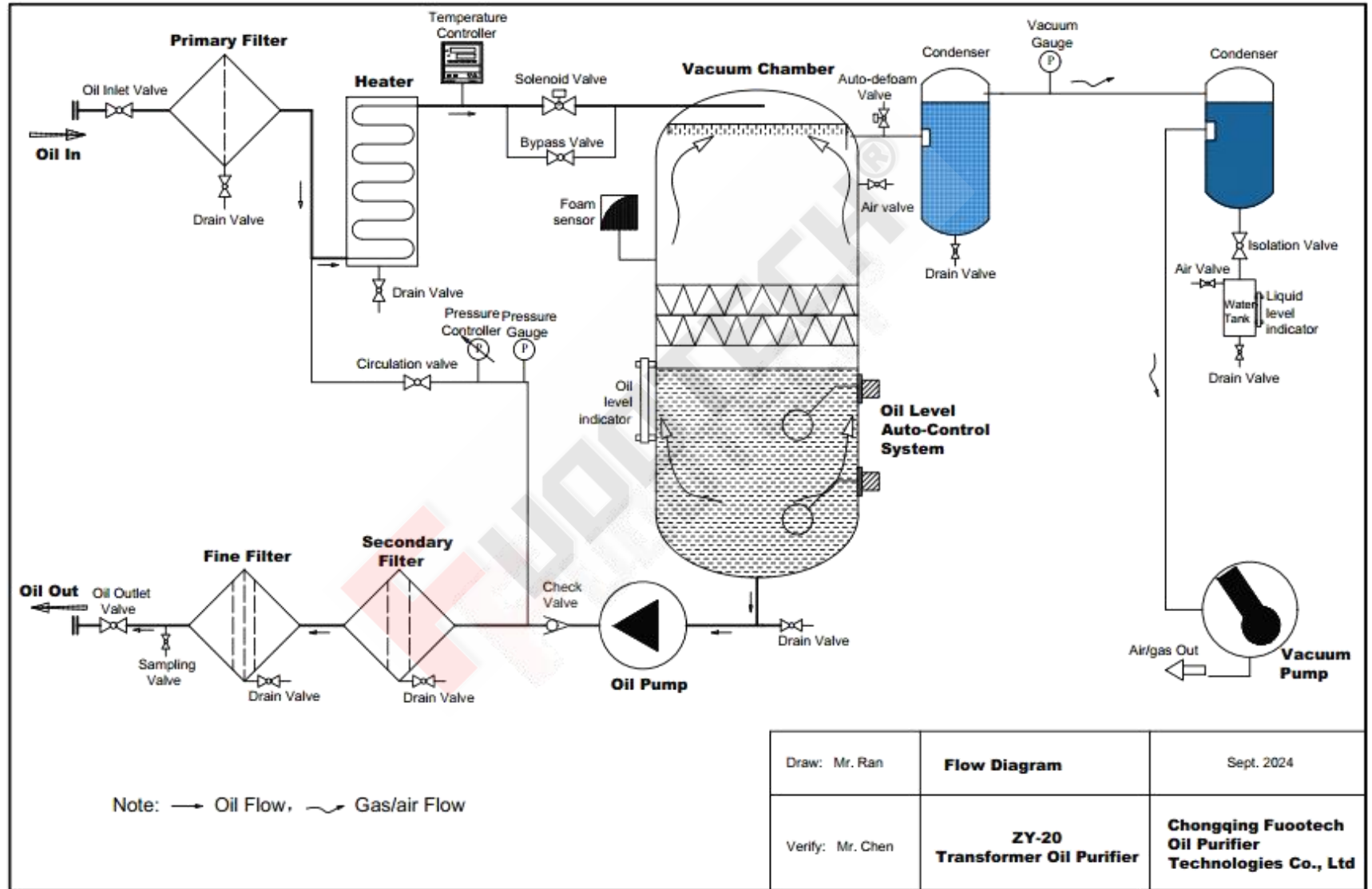


➤ Technical Parameter

Parameters	Unit	ZY-10	ZY-20	ZY-30	ZY-50	ZY-100	ZY-150	ZY-200	ZY-300	
Flow rate	LPH	600	1200	2000	3000	6000	9000	12000	18000	
Working vacuum	MPa	-0.06 ~ -0.095								
Working pressure	MPa	≤0.4				≤0.5				
Working without Trouble	Hour	≥4000								
Continuous Working	Hour	≥150								
Temperature range	°C	20 ~ 80								
Power supply		380V AC, 3 phase, 50 Hz (or as per your requirements)								
Working noise	dB(A)	≤ 70								
Heating power (adjustable)	KW	12	15	18	30	48	60	72	90	
Total power	KW	14	17	20	33.5	53	65	76	98	
Inlet/outlet caliber	mm	Φ25	φ25	φ25	φ32	φ42	φ50	Φ60	φ65	
Weight	Kg	260	280	300	380	550	700	950	1200	
Size	mm	950× 650× 1350	1100× 700× 1550	1350× 850× 1700	1400× 950× 1780	1600× 1000× 1800	1650× 1100× 1850	1800× 1200× 1900	1900× 1200× 2000	



➤ Flow Diagram



➤ Overseas Projects



South Africa



Pakistan



Saudi Arabia



Tanzania



Bangladesh



Malaysia



Cambodia



Dubai, UAE



Zambia



Nigeria



Laos



Zimbabwe

More projects are not listed here

If your transformers above 110kV or you have much higher requirements on the oil purification, please choose our:

ZYD Series Double-stage Vacuum Transformer Oil Filtration Machine



Project cases



■ DAG Series Dry Air Generator for Transformer Maintenance



➤ 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
- ✧ S_f6 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 ~ 90kV
- ✧ Insulation Resistance Tester 0.25 ~ 30kV
- ✧ AC Hipot Tester
- ✧ DC Hipot Tester
- ✧ Circuit Breaker Contact Resistance Tester
- ✧ Grounding Earth Resistance Tester