



Tongrui ZJA Double-stage High-efficiency Vacuum Transformer Oil Purifier



Model: ZJA-150
Capacity: 9000Liters per hour



Model: ZJA-70
Capacity: 4500Liters per hour

Application

This high vacuum oil purifier performs the function of upgrading and reconditioning of insulating transformer oil by means of removing impurities such as dust, gas, sludge, water etc. The major operation is heating, filtering, degassing and dehydration. After recycling, it can boost performance of transformers, circuit breakers, mutual inductors, cable and capacitors which have insulation system. ZJA series specialize in purifying transformer oil, insulating oil of high voltage and super high voltage transformer. Additionally, it is also suitable for treating low viscosity lubrication oil.



Edges of ZJA

- ◆ To remove free, soluble water, carbon, free and dissolved gases and particulate matters, dust from insulating oil effectively and rapidly.
- ◆ **With Vacuum pump and Roots pump.**
- ◆ Enhance the value of breakdown voltage greatly.
- ◆ Easy handling and maintenance.
- ◆ Inject oil into the transformers.
- ◆ Lower maintenance and replacement expenses.

- ◆ Automatic reverse-washing system will extend the lifetime of filters and improve the performance of the filters.
- ◆ High performance security system including pressure protection device and automatic temperature controller makes purifier operate safely.
- ◆ Utilizes coacervation technology, coalescing technology, separating technology and refined purification technology. To remove free, soluble water, carbon, free and dissolved gases and particulate matters from insulating oil effectively and rapidly.

Structure

◆ Dehydration (Degas) System

- 1, The vacuum chamber has flash tower, which can evaporate the water efficiently. Also it has the spraying nozzle with degassing elements design. The heater, being placed on the vacuum vessel, becomes an evaporator. Thus the flash tower of vacuum vessel is three times more than that of the general vacuum vessel. This innovation can dehydrate and degas effectively and efficiently.
- 2, The 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 (particulate matter removal)

- 1, 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 and impurities is improved greatly by this method.
- 2, The filtering system has stable and perfect filtering fineness. The filtering fineness has several grades, including 0.5, 1, 2, 3, 5, 6, 10 Micron etc. Oil $\beta \geq 1000$ after filter.
- 3, The filtering system is equipped with reverse rinse and filth device. It improves the effectiveness of filtering and extends the lifetime of filter awfully.

◆ Oil heating System

- 1, The unique heater structure heats the oil uniformly.
- 2, Oil Heater System assures less than 1.0 w/cm². During the heating process, the deterioration of the oil caused by overheating is avoided.
- 3, The oil temperature can be adjusted between 20C to 80C. The heater is controlled manually or automatically. The heater will stop automatically when the oil temperature reaches a certain degree.
- 4, 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.

◆ Electrical Apparatus Controlling System

- 1, The main components of the electrical apparatus made by Schneider, Siemens and so on ensure the safety of the controlling system.
- 2, Having several protection systems which will avoid oil ejection, overload and over voltage etc.

◆ Oil-level Controlling System

- 1, The oil-level floating ball or infrared liquid level automatic controller system are installed in the vacuum vessel to control the oil level so as to avoid the oil being suctioned into vacuum pump in the operation.
- 2, The new innovation of eliminating froth can avoid the oil being suctioned into vacuum pump.

◆ High quality components

The main components parts of Tongrui products such as vacuum pump, Roots pump, oil pump and electric apparatus are from SIEMENS, LEYBOLD, OMRON, SCHNEIDER, HYDAC, TONGRUI, AMICO etc. It ensures TONGRUI products high quality and reliability.

◆ Vacuum Pump

Rotary Vane Vacuum Pumps, is a basic equipment used for pumping air from sealed vessels to attain vacuum condition.

The vacuum pumps may be applied singly, or as the backing pump of the other kinds of pumps, such as booster pump, diffusion pump, molecular pump and titanium pump etc. it may be used for vacuum film-plating, vacuum heat treatment, vacuum casting and also air-extraction of electric tubes, bulbs and thermos flasks. The pump may also be equipped in medical institutions and laboratory.

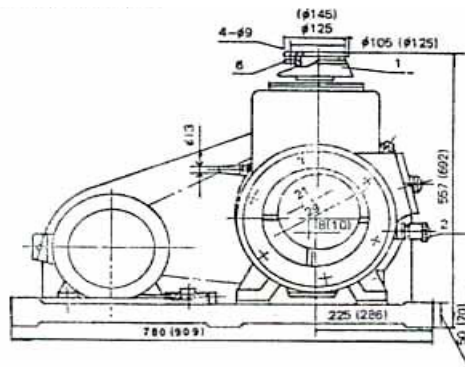
Capacity:3740L/Min

Ultimate pressure:less than
6*10⁻²Pa

Rotary speed of pump:450
R/Min

Motor Power: 3Kw

Cooling mode: water
cooling, >1L/min



◆ Roots Pump

Roots pumps can be used as boosters combined with backing pump. Of a rotary vane vacuum pump, or a liquid ring vacuum pump. But they can not be used to exhaust No Water-cooling silent running due to specially selected gears Overflow valve which permits the pump to be switched on at atmospheric pressure and gives shorter evacuation times Standardized ISO connections Smooth running due to dynamically balanced rotor Low operating costs with high pumping speed in the medium-high vacuum range No friction of moving parts in the compression chamber due to even gaps between rotors and housing walls.

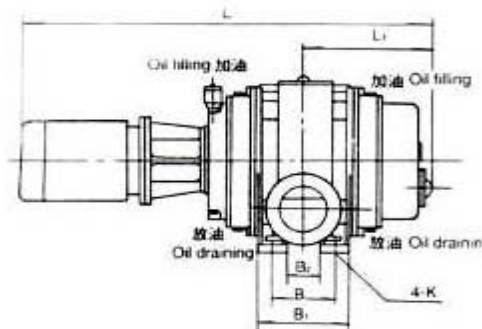
Capacity:1250m³/h

Ultimate pressure:
5*10⁻²Pa

Rotary speed of pump:
2890r/min

Motor Power: 4Kw

Cooling mode: water
cooling, >2L/min



◆ Breakdown Voltage Tester

Computer controlled and fully automatic, which via proper digital programming, it could desired number of tests and time of stirring standstill. Printed out of test result is available; it is an ideal device to test insulator withstand voltages.

Printer output

Input voltage: AC 220v

Output voltage: AC 0—80kv

Voltage rising rate: 2kv/s \pm 10%

Test precision: 1.0grade

Test times: 1---9, stirring time: 0---99seconds, stewing time: 0---9 minutes 59 seconds



Guarantees & documentation

TONGRUI warrants the plant supplied under this specification against defects in material and workmanship under normal use and service for a period of sixteen (16) months from date of shipment or twelve (12) months after the start up of the system. TONGRUI's obligation under this warranty is limited to repairing or furnishing, without change F.O.B. point of manufacture, a similar part to replace any part, which was proven to be defective within warranty period. TONGRUI shall not in any event be held responsible for any indirect or consequential damages. The performance guarantee will be within limitations as detailed in duty & performance paragraph of this specification.

Technical Specification:

Item	Unit	ZJA-30	ZJA-50	ZJA-70	ZJA-100	ZJA-150	ZJA-200	ZJA-300
Flow Rate	L/H	1800	3000	4500	6000	10000	12000	18000
Vacuum Range	MPa	-0.092----0.099						
Max Vacuum Range	Pa	\leq 50						
Working Pressure	MPa	\leq 0.4						
Temperature Range	°C	45-65						
Water Content	PPm	\leq 3~5						
Gas Content	%	\leq 0.1						

Breakdown Voltage	Kv	75							
Dielectric Loss	tgδ	≤0.005							
Flash point	°C	240							
Pour point	°C	≤-80							
Power Supply	V	380Volt/3phase/50HZ							
Acid content	mgKOH/g	<0.03							
Working Noise	dB	≤72				≤75			
Heating Power	Kw	30	30	45	60	75	90	120	
Total power	Kw	30	33	50	71.4	86.5	102.5	135	
Inlet(Outlet)Diameter	Mm	DN25	DN25	DN32	DN40	DN60	DN65	DN65	
Net Weight	Kg	650	850	1050	1300	1600	1800	1950	
Dimension	Length	Mm	1450	1600	1700	1900	2000	2400	2600
	Width	Mm	1000	1100	1250	1400	1400	1600	1800
	Height	Mm	1800	1800	1900	1950	2100	2100	2200

Chongqing Tongrui Filtration Equipment

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Machine Picture(Capacity:9000Liter per hour)

