

TRANSFORMER OIL FILTRATION PLANT



Global demand for electricity continues to soar, the transformer oil market is poised for remarkable growth. Transformer oil demand is anticipated to rise at an 8.8% CAGR (Compound annual growth rate) Reports. Transformer oil is an indispensable component within the transformer, Transformer oil, also known as insulating oil, acts as a coolant and insulator in transformers, ensuring their smooth operation and preventing electrical breakdowns. With the rising need for reliable power supply, the demand for transformers has surged, consequently propelling the growth of the transformer oil market.



Linus Projects (India) The Transformer Oil Filtration & Degasification Plant will be suitable for processing of Base Oil H70 to achieve the specifications as per BIS 335, 1993 Standards.

Transformer oil is highly vulnerable to degradation over time due to its exposure to acid, metal dust, and moisture. Proper filtration and maintenance of transformer oil plays a vital role in optimizing the performance of transformers. By providing insulation, stability, and heat reduction, this oil not only protects the core and winding but also ensures the safety and efficiency of the maintenance team. Moisture & Dust in transformer oil significantly diminishes the dielectric strength of the oil and adversely impacts its insulation resistance. This can have dire consequences for the overall performance and reliability of the transformer. Therefore, ensuring a moisture and dust free transformer oil is of utmost importance, as it directly affects the efficiency and longevity of the entire system. The transformer oil filtration machine is categorized into two types based on the number of vacuum stages: Single and Double Stage Vacuum filtration machine.

Transformer oil filtration Plant mainly consists of the following:

1. Filtration & vacuum degasification unit
2. Absorbent Columns
3. Storage Tank for Base Stock H 70
4. Homogenization tank

The transformer oil requiring purification is subjected to vacuum treatment oil is drawn into the coarse filter with pressure. As it passes through the coarse filter, it effectively removes large particles of dust and dirt impurities, gases, and metal chips. The transformer oil undergoes a scintillating transformation as it is heated by the electrical heater to reach a specific temperature. This temperature is carefully chosen to magically decrease the oil's viscosity, thereby enhancing its remarkable capacity for dehydration and degassing. This mind-boggling procedure ensures that the oil won't suffer from premature aging caused by overheating.



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The Base Oil H 70 mixed with additive, at 65°C, will be used as the input and passed through fine cartridge filter where the particles up to one micron will be filtered.

Then the oil will be passed through Absorbent Column where the Resistivity & Tan Delta values will be improved.

Then the oil will be subjected to vacuum treatment, which dehydrates and degasifies the oil to the desired parameters.

The plant will generally conform to IS 6034 – 1989 and its latest revision.

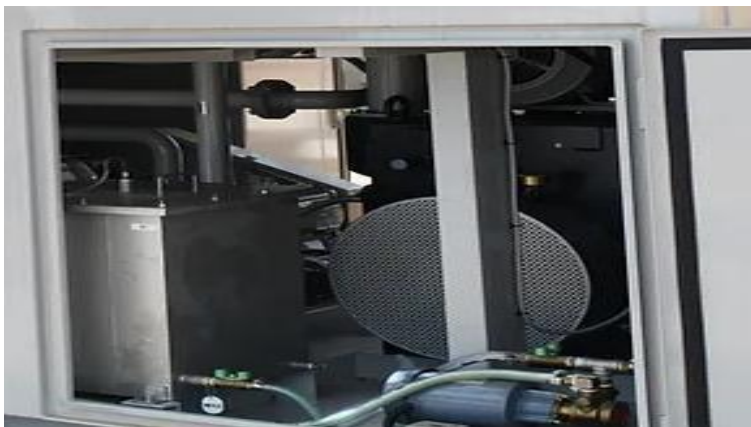
The plant will be designed for high vacuum & low temperature of oil for achieving the required results.

The plant will be stationary, mounted on a skid.

The plant will be supplied with weatherproofing.

All components will have adequate strength & rigidity to withstand normal conditions of handling & transport.

HEAT EXCHANGER



We offer optional electrical heating as a standby provision for our systems, particularly when the input oil temperature falls below 65°C. Our heating solution includes Nicrome or Kanthal wire heater elements encased in

refractory formers, housed within protection tubes. This design minimizes the risk of localized overheating, prevents hot spot formation, and mitigates the risk of oil breakage. Our heaters are proficient in heating oil

from 20°C to 60°C, in accordance with the recommendations outlined in IS 6034 – 1989.

Each Heater Power : 3.3 kw.
No. of heaters : 24 NOS.
Total power : 100 kw.
No. of group : Three
Operating temp : 60 to 70 oC
Heater Insulation : 50 mm. with Rockwool insulation.

FILTRATION SYSTEM

The following type of filters shall be provided: -

1. Magnetic strainer: this helps to remove the finest magnetic particles.
2. Bag filters: This helps to remove sludge and large-size particles so as to avoid frequent replacement of the fine filter.

Cartridge filter: This type of fine filter is for removal of solid particles above one micron's size.

The filtering system shall consist of a number of highly efficient non-hygroscopic filter cartridges having sufficient surface area to handle the required volume of oil.

INLET PUMP



The inlet pump of our transformer oil plant serves as a critical component in the oil filtration process. Designed for optimal performance and reliability, our inlet pump efficiently draws the transformer oil into the filtration system, initiating the purification process. With robust construction and precision engineering, our

pumps are capable of handling varying flow rates and pressures, ensuring smooth and consistent operation. Additionally, our pumps are

equipped with safety features to safeguard against potential malfunctions or system failures, contributing to the overall efficiency and longevity of our transformer oil plant.

OUTLET PUMP



The outlet pump within our transformer oil plant plays a pivotal role in the filtration process, facilitating the smooth discharge of purified oil from the system. Engineered for optimal

performance and reliability, our outlet pump efficiently moves the filtered oil out of the plant, ensuring a steady flow and consistent output. With robust construction and precise design, our pumps are capable of handling various flow rates and pressures, maintaining the integrity of the purified oil. Furthermore, our outlet pumps are equipped with safety features to prevent potential system malfunctions, contributing to the overall efficiency and reliability of our transformer oil plant.

2-STAGE DEGREASING CHAMBER



The chamber is designed for 4 Kg/Cm² pressure & -760 mm. Vacuum. A cone shower arrangement and Rasching rings tray will be equipped inside the chamber adequately for effective degassing & thin film formation to oil so that oil is exposed to maximum surface area from which vacuum pump will be easily suck dissolved gas & moisture in vapour form. A float switch is fitted at a level for automatic level control in the chamber. It is interlocked with inlet pump. For vision & indication of oil flow in the degassing chamber a toughened sight glasses will be fitted adequately. A vacuum gauge is mounted on degassing chamber for vacuum measurement.

VACUUM FILTRATION SYSTEM



For the evacuation of the degassing chamber, our system utilizes a combination of roots and rotary vacuum pumps. This setup ensures efficient extraction of air and gases from the chamber, maintaining optimal conditions for the degassing process. Our vacuum pumping system comes complete with all necessary accessories, including a vapor trap, condenser, valves, and

gauges, among others. These components work in tandem to enhance the performance and reliability of the vacuum system.

The specifications of our vacuum pumps are as follows:

- Rotary Oil Sealed Pump
- Mechanical Booster (Roots) Pump – 1 Unit

CONTROL PANEL

A centralized control panel will be provided for operating the plant. It will be fabricated out of CRCA sheet with a floor mounting arrangement & sturdy design. The panel will be equipped with all necessary electrical switchgears of L&T / Siemens or reputed make, like Drives, MCBs, relays, isolator switch, push buttons, voltmeter, ammeter, safety controllers, signal indicating lamps, temperature indicator & controller, vacuum Indicator etc. The system will be suitable for operation on 415 V, 3 PH, 50 Hz. A.C. supply.

Benefits of Transformer Oil Filtration Plant:

By recycling used transformer oil, we are reducing the amount of oil that ends up in landfills or gets burned, which can cause pollution and harm the environment. Instead, the used oil is being repurposed and reused its environmentally-friendly business model.

1. By removing contaminants, moisture and impurities, the filtration process enhances the oil's ability to withstand high voltages and maintain its insulating properties over time.
2. Prolonged Transformer Lifespan: Regular oil filtration plays a vital role in extending the lifespan of transformers.
3. Reduced Risk of Breakdowns: Transformer breakdowns can lead to significant disruptions, downtime, and financial losses. However, by implementing a comprehensive oil filtration strategy, the risk of such breakdowns can be significantly reduced.
4. Excellent Returns on Investment: Investing in a quality transformer oil filtration machine offers substantial returns on investment.

Linus Projects (India) provides complete solution for transformer oil filtration Plant. The plant will be designed for high vacuum & low temperature of oil for achieving the required results. The plant will be stationary, mounted on a skid and will be supplied with weatherproofing.



SCAN ME

LINUS PROJECTS (INDIA)

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VALUED CLIENTS



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