ESI
TRANSFORMER OIL SPECIALISTS

# VACUUM DRYER DEGASSER UNIT

The ESI TVD incorporates all the necessary features to allow a transformer to remain in service while moisture from its insulation is effectively removed. The system is safe with several alarm features that shut the system off isolating if from the transformer, in the event of ant abnormal signal. The ESI TVD provides a non intrusive, cost effective and convenient method of maintaining transformers in a dry condition. The TVD uses vacuum dehydration to remove moisture and gases from the oil allowing the economical removal of large volumes of water.

## Applications

- Drying wet transformers and insulation
- Drying transformers not braced for vacuum
- Drying transformers that cannot be taken out of service
- Purifying oil on bulk storage tanks
- In-site filling on transformers, cables, etc

## Benefits

- The transformer remains in service during process
- Reduced transformer dryout costs
- Removes combustible gases and oxygen
- Improves oil dielectric values
- Improves transformer power factor
- Operate continuously unattended
- Extends oil service life
- Extends transformer service life

## System Overview

The ESI TVD oil processing system is designed to allow a transformer under load to dry itself out. The filtering system removes dissolved water from oil to <5ppm, and includes 0.3 micron nominal particulate removal capabilities. The process removes dissolved gas in oil but does not remove oil oxidation inhibitors.

The system is complete with all components necessary to monitor the mechanical and electrical operating conditions of the unit. The unit has variable flow adjustment from 100 to 6000 litres/hr. The oil is filtered and heated via a positive displacement gear pump. The warm oil is then sprayed into the vertical degasser chamber under very high vacuum. The clean dry oil is then returned via a centrifugal pump, to the transformer. A number of level switches and integrated controls prevent oil discharge from the vacuum pump. Over pressure and leakage protection of the plans and hoses ensure the transformer is isolated from the filter unto should any malfunction occur. An alarm light and relay is provided for indication purposes.

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## Specifications

**Power Requirements:**
415V, 3 Phase, 50Hz, 15 amps (max).

**Control Box:**
Stainless steel cover, NEMA 4 enclosure with motor starter, motor overload protection, latching relay start/stop/reset switch, run light indicator, high pressure cutoff switch with indicating light, and elapsed hour meter.

**Inlet Pump:**
500 Litres.he Tuthill positive displacement gear pump with mechanical seal and internal pressure bypass, Leroy Somer 0.55kw, 415V motor, 960rpm

**Outlet Pump:**
100 litres/he Capea centrifugal pump with mechanical seal. 0.55kw, 415V motor, 2900rpm

**Vacuum Pump:**
Busch RA0063E 63m3/hr, 0.5mbar utlimate vacuum, VEG 1.5kw, 415V.

**Oil Heater:**
3KW, 415V band heater controlled by Carel RI32W temperature controller/display module.

**Indication:**
Filter inlet and outlet pressure, vacuum and temperature, oil flow sight glass.

**Coaxial Hoses with Oil Level Alarm:**
Two 5m lengths of suction and discharge 3/4" hoses are provided with a N.O. solenoid wired to the main control panel. If a leak should develop on the hose connections to the transformer, oil will collect in the bottom of the enclosure and the system will shut off automatically. Extra contacts are provided for remote alarm detection.

**Oil Sample Ports:**
Dry break hydraulic type sample ports are supplied with this unit for inlet and outlet oil sampling.

**Dimensions:**
Depth: 760mm; Width: 1150mm; Height: 1500mm

**Optional - Online Moisture Meter:**
Online direct reading moisture sensor which continuously displays oil temperature and ppm f total water in oil (or percentage of saturation of the oil) can be supplied with these units. The piping layout of the TVD system allows easy checking of both the in-fluent and effluent moisture contents with a single sensor.


### Factory (NZ)

t. +64 (0)6 764 8662
e. bill@esigroup.co.nz

### ESI New Zealand

t. +64 (0)27 252 2211
e. bill.young@esigroup.co.nz

### ESI Malaysia

t. +60 (0)1 2255 9560
e. peter@esigroup.co.nz

### ESI Philippines

t. +63 (0)9 2915 93073
e. peter@esigroup.co.nz