



**FILTERALL Limited**

**INDUSTRIAL FILTRATION AND ALLIED SERVICES**

Technical Specification Number S122 for Industrial Oil Purifier , Type “T” rev Q 2013  
[www.filterall.com](http://www.filterall.com)

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## 1. GENERAL

Without proper maintenance and with continuous use, any petroleum based oil will gradually deteriorate. Unless deterioration is prevented, the oil quickly becomes unfit for further service, and must be replaced. Contamination which causes deterioration of oil consists of solid particles, water, products of oil decomposition and entrained air and other gases.

**Filterall Oil Purifier Type I** has been designed to remove solid and liquid contamination by filtration and vacuum dehydration. It is a self-contained unit mounted on a common base, ready for operation after connecting the oil inlet, discharge and electrical input. The purifier is fully automatic and operates safely without supervision. Maintenance of the purifier is simple since the purifier has only one moving component, i.e. a pump equipped with a mechanical seal.

## 2. DESCRIPTION of OPERATION

Oil from the storage tank or oil system is drawn into the processing chamber via an electric heater by the suction power of the vacuum. Oil heated to the optimum processing temperature passes through a fibreglass cartridge where the separation of water, gases and gross solids contamination takes place. The clean oil falls to the bottom of the processing chamber and is extracted by the discharge oil pump. The fine filter removes the remaining solids. The water vapours and air, enter the water cooled condenser, where the water vapours are condensed, and the air and other non-condensable gases are extracted by the oil pump.

## 3. WHY, WHERE and HOW to PURIFY OIL

Performance in a single pass through the purifier at a full flow rate shall be as follows:

**Why Purify Oil ?** The obvious reason is to reduce oil costs, oil handling and wear of various replacement parts of your production machinery. Why purify and not merely filter oil to remove solids? Simply because the water in the oil is as dangerous an enemy of your system as solids (if not more so.) That is why for complete oil cleaning (solids, water, and gases), you need purification.

**Where to Purify ?** The easiest place is your factory and in fact within your oil system, it being lubricating, hydraulic, cutting, etc...

By connecting the purifier to an oil tank on a by-pass and therefore not interfering with any of your production equipment. If the volume of oil in the system is recycled 4 to 6 times, the purity of oil is the same or better than if you drain and refill your system.

**How to Purify ?** A purifier on a by-pass line cleans not only oil but the oil system also.. In some cases, purification from a dirty oil tank to a clean one is practised at the discretion of the operator.

**How frequently to purify** This depends on the ingress of water and solids into the oil system. Some typical average times are as follows:

- Hydraulic Oils Every 6 months.
- Compressor Oils Every 3 months.
- Gearbox oil Every 3 months.



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- Turbine oil Continuously.
- Crusher oil Continuously.

#### 4. OPTIONAL FEATURES

Whilst the basic purifier as described in the previous sections is a complete, packaged unit, there are circumstances where additional features (see below) may be beneficial:

**Automatic Water Discharge (Option A):-** Condensed water vapours will be collected in a transparent container below the condenser. A 3-way valve can be operated to drain collected condensate as required. If oil contains large quantities of water, an automatic water drain is recommended. Automatic water drain is accomplished by installing a lever sensor and an electrically operated valve.

**Portable Mounting (Option P): -** For easy movement of the purifier to various oil reservoirs in a factory, we recommend mounting it on 2 fixed and 2 swivel castors. Option P also includes inlet & outlet oil hoses each 6m long and a phase sequence relay to prevent incorrect rotation of pumps.

**Mobile Purifier (Option M):-** This feature is similar to the portable feature except that the purifier is installed into a specially designed, weatherproof and roadworthy trailer, capable of travelling on paved roads up to 120 km/Hr. Oil hoses 10m long and a phase sequence relay are also incorporated.

**NOTE : Important. Industrial Purifier Type I** with flowrates 300, 600 and 1200 l/hr are not suitable for oils containing large quantities of non-condensable gases, such as LPG, Freon, Ammonia, etc... If oils do contain condensable gases industrial purifier for I/ 2250 upwards must be used due to the open vacuum discharge degasser.

#### 5. ALARMS and INTERLOCKS - mounted in Instrument Panel

The following alarms and interlocks ensure simple and safe operation of purifier:

**Heater :-** Heater switches on only when flow of oil is positively ensured.

**VacuumBreak :-** Automatic break in vacuum chamber to pressurize and to protect vacuum pumps.

**Low Level Alarms :-** Indicates absence of oil and will shut down plant.

**Overloads :-** All motors are protected by overloads.

**Sound Alarm :-** In the form of a panel mounted siren is provided.

**Shut Down :-** Automatic and tight plant shut down in the case of any alarm situation.

In addition to direct alarms a number of interlocks are incorporated for safe operation such as:

**Low Level /High Level Alarm**

a) If fine filter blocks and operator does not notice high pressure differentials the inlet pump will start to recirculate through internal bypass and eventually Low Level Alarm will come on and stop the plant.



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b) In the case of inlet or discharge valve being closed during start-up or operation, no overpressure condition can occur, since Low or High Level Alarm will be activated and will shut down plant.

## 6. COMMISSIONING

A Commissioning Engineer will be available for start-up service and training for client's operators at an extra cost. Since Filterall purifiers are very easy to operate, commissioning is not usually required.

## 7. GUARANTEES

**Mechanical Warranty:-** Filterall warrants the machinery supplied under this specification against defects in material and workmanship under normal use and service for a period of 12 months from date of shipment. Filterall's obligation under this warranty is limited to repairing or furnishing without charge, F.O.B. point of manufacture similar part to replace any part which within warranty period is proven defective. Filterall shall not in any event be held responsible for any specials, indirect or consequential damages.

**Performance Guarantee :-** Filterall guarantees that the performance of the equipment will be within limitations as detailed in "Duty and Performance" in this specification.

## 8. DOCUMENTATION

Two copies of Operating and Maintenance Manuals are supplied with each purifier.

***FILTERALL RESERVES THE RIGHT TO CHANGE ANY  
PART OF THIS SPECIFICATION WITHOUT  
NOTIFICATION***