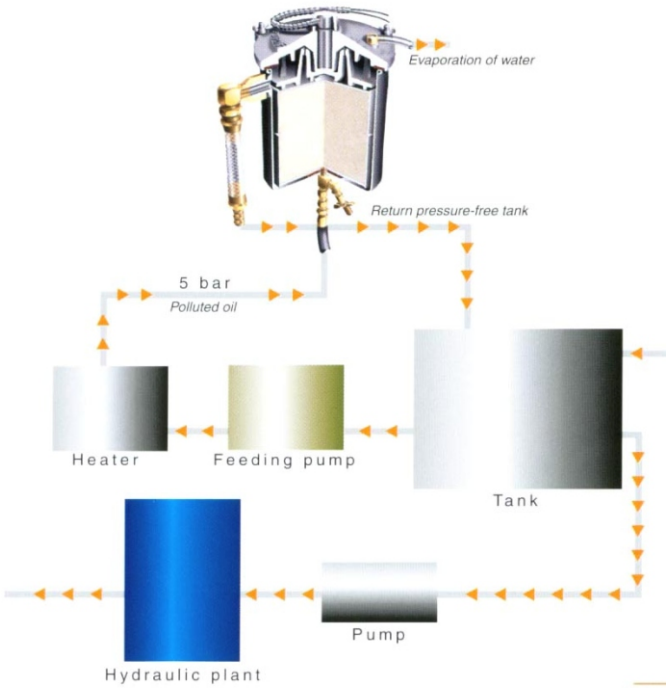
Purifiner - Oil Maintenance System



A Typical Purifiner Installation

Reasons to install the Purifiner
Questions and Answers
Typical Running Costs
Environmental Advantages
Maintenance Advantages

Frequent Questions / Answers

Q - What makes this unit different from other filtration systems that are available?
A - The Purifiner is a patented system. It is unique in that it uses evaporation to remove water and the gases that combined create acids. It is also unique in that it uses a pure unbleached cotton filter. This removes particles as well as free acids. It retains only a small amount of water. A benefit of using evaporation technology is that water retaining filters and centrifuges are not required. This saves operating costs.

Q - How is the Purifiner connected?
A - There are two types of Purifiner available. Both have 3/8 inch BSP inlet/outlet lines. Connection is by hard piping or by flexible and shielded marine grade hydraulic hose. Electrical connection is by regular power cable plugged into a 220/230V 50/60Hz 1.5 kW power supply. The unit is approximately 500mm cubed. The weight is 45 kg. It should be placed as close as possible to the machine it is protecting. The TF, gravity return version must be placed above the oil storage tank or reservoir.

Q - Can the Purifiner be used on Pressurised systems?
A - There are two versions of the Purfiiner described as follows:
1) The TF type is for use in systems that require no return pressure. Purifiner TF withdraws oil using a suction pump. it returns oil by gravity. For this reason, It must be mounted higher than the return tank or reservoir. Oil is drawn up by Purifiner's pump from a sump / reservoir or return line. The suction line must be fully submerged to avoid the pump sucking air.
2) The fully pressurized TS Purifiner draws oil from any low pressure line, circuit or reservoir. The return line is connected to another position on the oil circuit. Oil can be returned to the system with a back-pressure of up to 8 bar. Because of this care must be taken to ensure the oil pressure from the Purifiner will not inadvertently actuate the system. Oil should be returned to the oil reservoir or connected into the return circuit. It must not be possible for returning oil to actuate any part of the machinery such as a ram.

Q - Is this unit portable or does it have to be used in one position?
A - The Purifiner can be used as a portable unit. Some owners use it this way to clean up oil in various systems and even new oil. We recommends permanent installation on capital equipment such as Azipod drives, Thrusters, CP propeller system and Steering systems, etc. Used in this way a system is permanently protected. It is obvious that oil starts to deteriorate as soon as the Purifiner is removed and it is for this reason that permanent installation is recommended.

Q - What is the daily flow through the Purifiner?
A - The unit actually filters about 600 to litres per day. The actual flow through the pump is about 4 times this amount. Unfiltered oil is returned to the system. There is a fine valve in the filter base that restricts oil flow through the filter. Slow filtration is required to obtain good results. The pump provides adequate oil to the filters while returning the balance to the system.

Q - How long will the Purifiner take to clean 2000 litres of oil?
A - This is a difficult question to answer. It is dependent on several factors. Based on the average system starting with new oil at NAS 8 or NAS 9, the cleaning will take about 3 days. The filter system takes only a portion of the oil at a time and returns it to the system. This clean oil mixes with the oil in the system and as it does so, it reduces the contamination. All of the oil needs to pass through the Purifiner a few times before it is clean. We estimate this takes three or four full cycles. Based on the flow, this equates to around 3 or four days. Once clean, the oil is maintained at NAS 4 standards.

Q - What spare parts do we need to carry?
A - We normally recommend carrying pre and main filters. We also recommend keeping the normal wearing parts such as 'O' rings. Some companies are stocking spare motors, heating elements, etc.

Q - What is the warranty on the unit?
A - The machine is covered by a one-year warranty on parts excluding the consumable items.

Frequent Questions / Answers

Q - What is the capacity of the Purifiner?
A - The standard Purifiner is recommended for systems up to 2000 litres. Waagene also manufacture a double filter unit capable of handling 4,000 litres. Special designs are possible and larger systems can be connected to more than one Purifiner unit.

Q - What viscosity of oil can Purifiner handle?
A - The system is being used on 220 cSt and even 320 cSt oil. Such high viscosity oil can be filtered because all units have pre-heaters that reduce viscosity so that better flow through the filter is obtained. The lighter the viscosity of the oil, the less heat needs to be added at the pre-heating stage. Temperatures can be adjusted between 5 and 85 Deg C. Factory setting is 40 Degrees C.

Q - You state that the life of oil is extended. Can you say how much it is extended and if this extension has any detrimental effects on the oil?
A - Using the standard filter In applications that are not involved with the combustion process, Oil life is extended by up to 18 times. This is possible because the causes of oil degradation such as water, acid and the gases that combine with free water and lead to acid creation are constantly removed. Additives are left unaffected. In engines, there are other factors that cause oil and additives to break down. Sulphur from the combustion process combines with water and causes sulphuric acid creation. This is specially problematic close to the combustion chambers. The additives polluted with this acid are damaged beyond repair. The oils additives are destroyed. To counteract this effect, Puradyn has produced a special filter for use in combustion engines that replaces the additives as they are consumed. Details upon request.

Q - What levels of filtration can Purifiner achieve?
A - If left in line and switched on the Purifiner maintains oils to NAS 4 standards. The means that the oil will have a particle count of 1 mu and water content of 100ppm. New oils are usually filtered to around NAS 7 or even higher. Acid levels will be kept to very low levels and the development of new acids creation will be stopped.

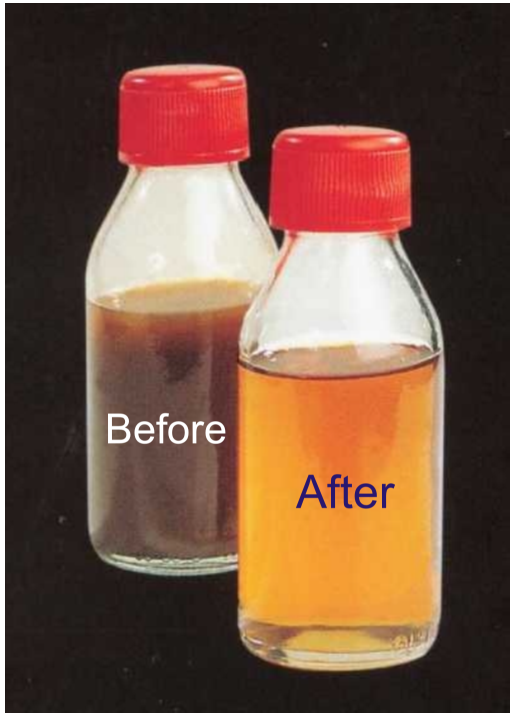
Q - What costs are associated with using the Purifiner system?
A - The running costs for the Purifiner include the cost of the filters, the cost of electricity and the cost of spare parts. The unit consumes about 1KW of power when the main heater is used. If the main heater is not required, the unit consumes about 0.35 KW. Both are calculated ate 220/230V. Consumables are very reasonably priced. The pump is rugged and has a long life.

Q - What are the advantages for us if we use this system?
A - There are many reasons to consider this investment, here are just a few

1) It is estimated by major oil companies that over 70% of breakdowns in hydraulic and other types of mechanical systems are related to oil contamination. Normally oil and filter changes are the only true oil maintenance that a machine receives. Oil deteriorate as soon as it is placed in a machine. In many cases oil has already degraded even before entering the machine. This is through water absorbion, poor storage etc. Avoiding downtime caused through poor oil quality is easy using Purifiner. It is one of the best forms of preventative maintenance.

2) Oil purification means an increased life for the expensive components. If abrasive particles, water and acids can be removed component life will be greatly extended. Replacement machine components are one of the other prices we have to pay to keep machinery running. If the life of these components can be increased, genuine reductions in running costs can be achieved.

3) The Environment - We all know that we use too much oil. Increasing the life of oil is one of the best ways of reducing our use of oils. Apart from the savings in the planets resources, oil is very expensive and the costs of it continues to rise. If somehow the amounts used could be reduced, then it is good for the environment while at the same time it is a very worthwhile investment



Purifiner

Oil Maintenance System
Removing Dirt, Water
Acids and Gases
In all types of Machinery
Filtering to NAS 4 Standards
1mu Particles
Water Content 100 ppm
www.rtsmarineandpower.com
E-mail rtsukcanada@aol.com
Tel. 1-604-708-8440

TS Pressurised Return

Purifiner Systems come in two versions, Pressurised return and non-Pressurised Return. Oil change intervals are greatly extended by many times. Oil quality is maintained at the highest standards. Reliability is greatly increased as 70% of all breakdowns are said to be associated with oil contamination.

TF Gravity Return