

Applying the Nephron "Kidney" System to Machines Means Durability and "Negligible" Waste Oil

Assorted Centrifugal Separator and Nephron® Filters
Nephron System [SR-Z]

1 Nephron System



040HP
(No Centrifugal Separator)



042HP
(No Centrifugal Separator)

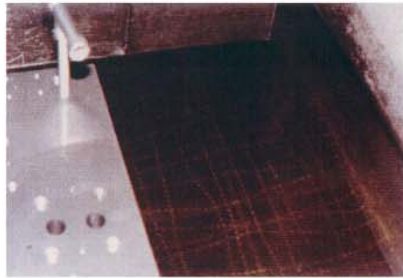


30P-042x2-P

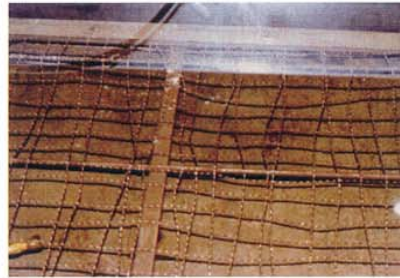


60P-042x7-HP

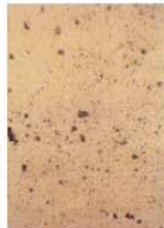
Oil samples before and after using Nephron Cleaning Oil Before



After



Turbine Oil Before



100µ

After 1 pass through Nephron filter



100µ

After 3 passes



100µ

After 6 passes



100µ

Japanese construction machine manufactures have dramatically reduced oil related circuit problems by using the Nephron System.

2 Nephron System for Automobile Engine Oil

2-1 "On board" Installations



003



005



040



042



"On board" samples

2-2 Dialysis System for Automobiles



Connect hoses from Dialysis System to engine drain plug of automobiles. The oil change takes approx. 5 mins.



Type 60P-40-HP-1200

Nonstop filtering of oil through the Dialysis System means clean oil is always available for the next customer. Regular use of the system will protect your vehicle against lubricating oil contaminants.

Expected Results and Benefits:

- Negligible waste oil is achieved.
- No more conventional oil changes means no more filter changes.
- Reduce engine trouble (wearing of parts due to contaminants and sludge buildup).
- Reduce fuel consumption.
- Protect environment by controlling CO₂ emissions and reducing soot in waste exhaust.



3 Nephron System for Diesel Engine Lubricating oil

Combination of centrifugal separator and Nephron filter are compatible with 100kw to 50,000kw engines.



20-P
(No Centrifugal Separator)



30P-20-HP-200



30P-40-HP



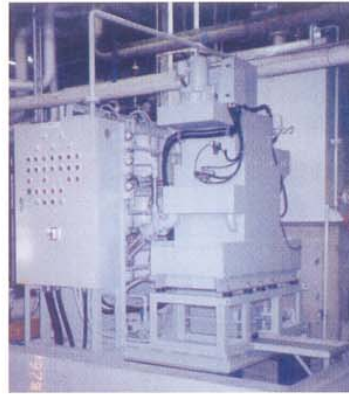
60P-60-HP



100PB-80-HP



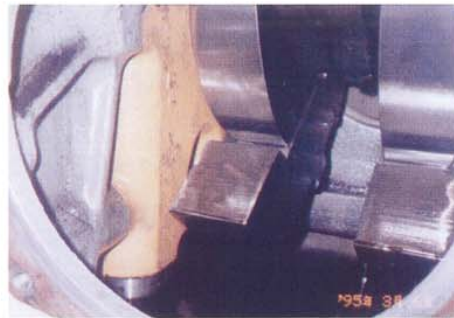
200PFA-180-HP for 5,000kw D/G



Results after using Nephron



Cam Shaft



Crankcase



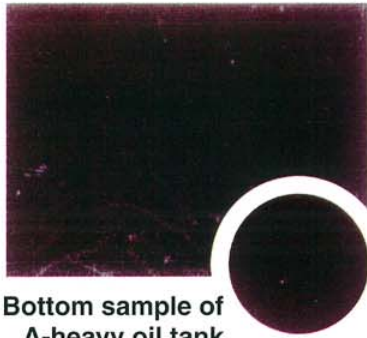
Metal



Cylinder Head

4 Nephron System for Diesel Engine Fuel Oil

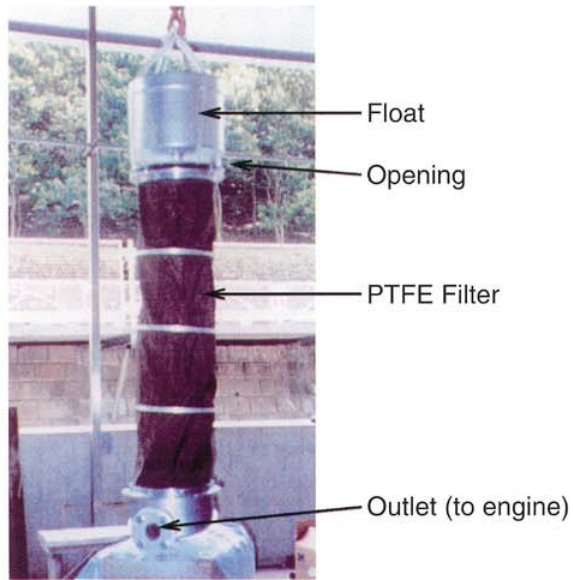
Delivering F/O supplied from the bottom of service tank is contaminated as shown below. Floating High Suction is a device for F/O of the service tank.



Bottom sample of A-heavy oil tank



Surface sample of A-heavy oil tank



Floating High Suction

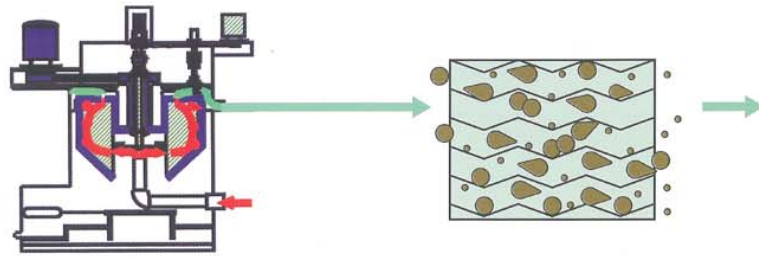


Gel Breaker

Results of F/O Management System



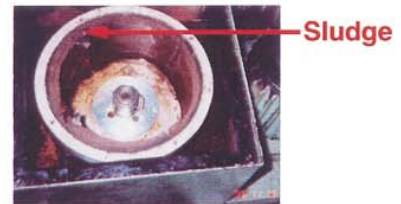
5 How The Nephron System Works



- **Centrifugal Separator eliminates contaminants larger than 10 μ m.**

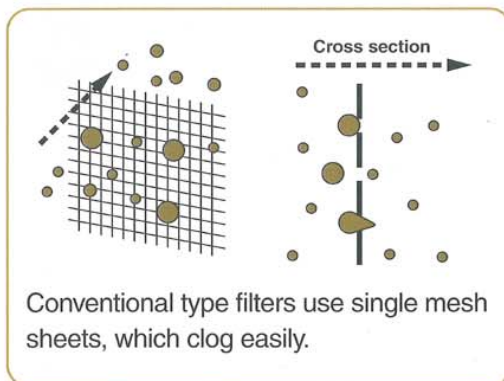
No water is used.

Separated contaminants are collected as solid body. There are three methods of cleaning the Centrifugal Sludge Separator: manual, semi-automatic, and fully automatic.

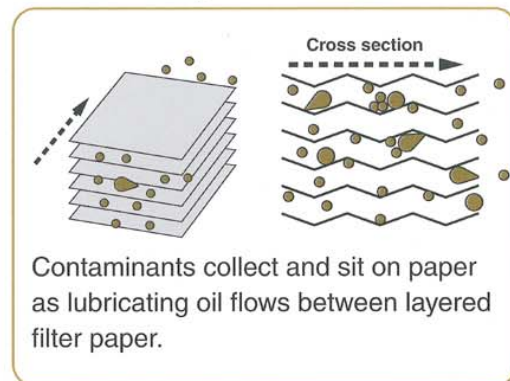


- **Nephron Filter**

Conventional Filter



Nephron Filter



Ash from 1/6 piece type 20
new Nephron filter
Weight 20g

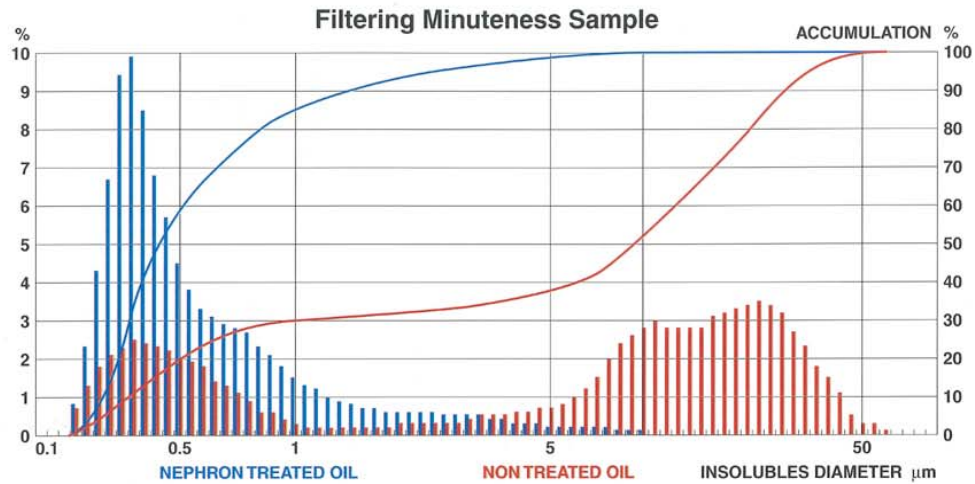


Ash from 1/6 piece type 20
used Nephron filter
Weight 210g



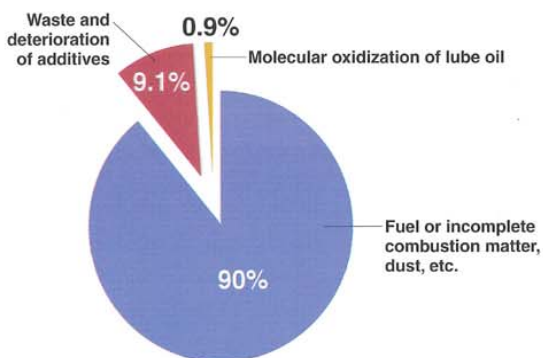
6 Filtering Sample from Nephron Filter

From the measurement of N engineering co.



Impurities larger than $10\mu\text{m}$ are completely removed by the Nephron Filter. 85% of particles remaining in lubricating oil are less than $1\mu\text{m}$.

7 What causes waste oil?



Deterioration mechanisms are not equal. If impurities larger than $1\mu\text{m}$ are removed and the consumed lube oil and additives are supplied, 95% of the problem will be solved.

Lubricating oil is heat resistant because it is subjected to high temperatures of 350 to 570°C through the production process at oil refineries.

The Nephron system improves reliability and durability on machinery, which saves energy and reduces maintenance costs.

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