

H₂Oil - Water in Oil Monitor



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Features & Benefits

- Water monitoring is now possible while machinery is working - H₂Oil saves on production downtime.
- Totally portable, can be used easily in the field without the need for mains power, as well as in the laboratory.
- Connects into system at pressures up to 420 bar, via either system 20 sensor or single point sampler.
- 90 second test time.
- Scrolling memory for 500 tests plus memory for 20 different oil calibration curves.
- Routine water monitoring of oil systems with H₂Oil saves time and money, promoting oil longevity.
- Samples that are tested are truly representative of water in the system. Analysis carried out before sample hydrodynamics change.
- Data entry facility enables user to store unique data test log details with every test carried out.
- Instant, accurate results are available on the display or the built-in printer ensuring maintenance decisions can be taken immediately.
- Computer interface available for downloading data on to the computer through the RS232 serial port.
- Internal diagnostics features ensures H₂Oil will work accurately and reliably.
- Supplied in a robust aluminium carrying case.
- Optional oil delivery kit for simple offline sampling (see fig.1) .



Fig.1

Typical Applications

- Off-shore & power generation
- Marine
- Construction machinery
- Paper mills
- Hydraulic equipment & system manufacturers
- Research & testing institutes
- Military equipment application

The H₂Oil is a two channel non-dispersive absorption spectrometer, designed to measure the level of water content polluting the oil, reducing system efficiency, promoting wear and affecting safety.

The H₂Oil makes it possible for an end user or service engineer to carry out quick, accurate measurements, taken in the field instead of remote laboratory analysis.

With its secured hoses the H₂Oil connects to an in-line System 20 sensor or single point sampler and features a re-chargeable 12Vdc power pack, diagnostic computer and on-board printer for effective logging and retrieval of data.



Specification

Construction:

Case-Noryl structural foam and ABS printer cover. Key pad silicone rubber.

Mechanical composition:

Brass, plated steel, stainless steel.

Seals:

Fluorocarbon.

Hoses:

Nylon (Kevlar braided microbore).

Hose length:

Fluid connection hose 1.2 metre (3.9 feet).

Flow rate:

Up to 400 l/min (100 US GPM).

(System 20 Sensors). Higher flows with SPS.

Max. working pressure:

Up to 420 Bar (6000 psi).

Fluid compatibility:

Mineral oil and petroleum based fluids.

Power:

Re-chargeable battery pack (12Vdc trickle charger supplied).

Fuse:

5.0 amp fast blow fuse included for overload protection.

H2Oil technology:

Infrared absorption spectroscopy

Measurement and range:

PPM (0-3000) or % content.

Max operating temperature:

+5°C to +80°C (+41°F to +176°F).

Environmental temperature:

+5°C to +40°C (+41°F to +104°F).

Test completion time:

90 seconds.

Memory store:

500 TEST (scrolling memory) capacity.

Printer facility:

Integral 16 column thermal printer for hard copy data.

Computer interface RS232.

Repeatability/accuracy:

Better than 5% (typical).

Viscosity range:

2-100 cSt (9-460 SSU). 500cSt with SPS.

Commissioning kit:

Includes 2 re-chargeable battery packs (1 fitted to monitor), 2 x thermal printer rolls, spare fuse, screwdriver, 12Vdc trickle charger and user manual.

Data entry:

24 character two line back lit dot matrix LCD. Full alpha numeric keypad.

Data retrieval:

Memory access gives test search facility.

Monitor carry case:

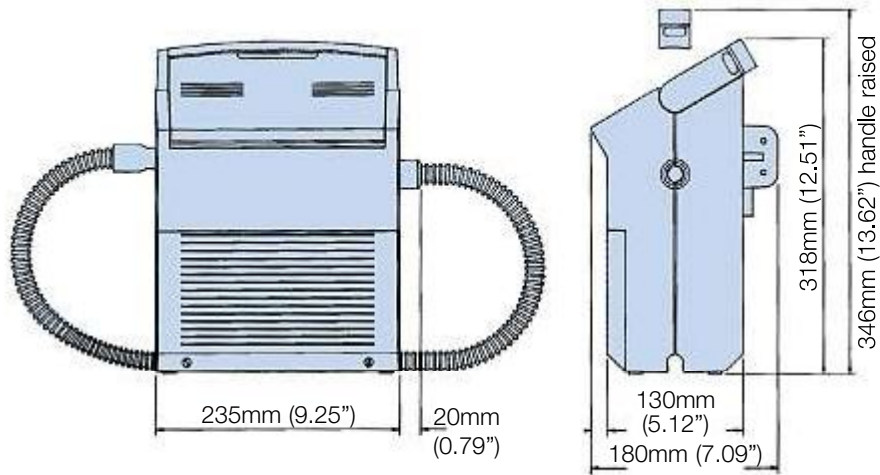
Robust padlockable aluminium presentation case.

Datum:

Condition monitoring data software pack plus cable included in commissioning kit.

Performance recheck:

Annual recheck of performance by an approved Parker Service Centre.



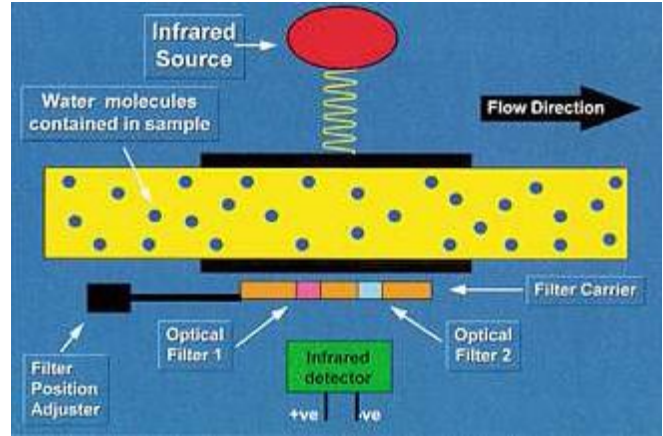
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How the H₂Oil Works

On-line testing allows a mixed and flowing sample of oil and water to pass through the infrared measuring cell. A series of measurements can be taken and the average given as a result. With this method a representative oil sample is seen, unlike the usual reservoir samples sent for analysis. Also, by taking the test at working temperature and pressure, a true water content is taken, as both affect the way water is absorbed in oil.

The flowing sample passes through a special “water free” optical cell.

The infrared detector monitors two narrow band pass filters, one of which matches the spectral width of the water attenuation band. The second narrow wave band selected is unaffected by water and serves as a reference. By taking the transmission ratio between the two points an effective measurement of water can be made.



Core Technology

H₂Oil uses true infrared (IR) analysis technique - the principle used in all laboratory spectrometers, to measure absorbed water (before saturation point).

Channel one (2.6μ) is the reference point, whereas channel two (3μ) is H₂O.

The IR source is a tungsten halogen bulb.

Effective Oil Maintenance

Take a typical application where water can have a very detrimental effect on bearings. Cracks are generated early in life of a bearing and water, once condensed in the crack, leads to corrosion and early damage.

Loss of bearing life, due to water contamination, (see below) can be prevented by stopping the water from entering the system in the first place. Introducing a regular water content monitoring function into the programme, such as the H₂Oil, would support such efforts.

Whatever the application, whether it be offshore in the oil industry or off-road in the construction or earth moving industry, the portability of the H₂Oil makes it an essential kit for the service van or engineers tool.

Ordering Information

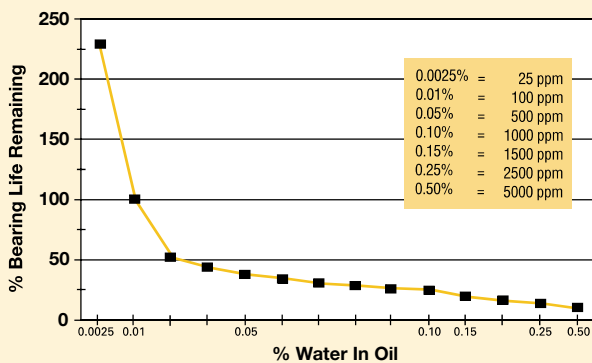
Standard products table

Product number	Supersedes	Description
WOM9100	N/A	H ₂ Oil (includes aluminium case and kit)
B91701	B.91.701	Printer paper (5 rolls)
S840134	N/A	Oil delivery unit
B84779	B.84.779	Datum download software
B91706	B.91.706	Cable and adaptor

Note 1: Part numbers featured with bold highlighted codes will ensure a “standard” product selection.

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Effect Of Water In Oil On Bearing Life



Effect of water in oil on bearing life (based on 100% life at .01% water in oil.)
Reference: "Machine Design" July 86, "How Dirt And Water Effect Bearing Life" by Timken Bearing Co.