

## Oil Analysis Solutions

High Specification, Exact Results.  
Fuel and Lube Oil Analysis Made Easy.

Non-Hazardous for shipping water in oil test  
available where you see the EasySHIP logo



ENGINEERING YOUR SUCCESS.

Make fast on-site maintenance decisions with Parker Kittiwake's oil analysis solutions. An accurate range, providing laboratory grade oil condition results in minutes.

The Parker Kittiwake oil analysis range provides a condition monitoring tool that enables you to make informed operational and maintenance decisions about your critical plant and equipment. Fuel and lubricating oils form a major cost element in the operation of almost all industrial machinery and engines; the quality must be closely monitored to protect

the investment. The ability to test on-site, at the point of use, enables engineers and facilities managers to conduct oil analysis quickly and easily. Detecting out-of-spec fuels or lubricants can identify potential problems before equipment damage occurs. Choose from a range of equipment and parameters to use individually or combine into a single Oil Analysis Suite.

**Protect assets, improve productivity & increase uptime using regular on-site oil analysis**

## On-site Oil Analysis Laboratories



NATO Approved Marine OTC

Parker Kittiwake supply two styles of On-site Oil Analysis Suite. Oil Test centres come in metal or industrial roller cases for portability, while Fuel and Lube test cabinets are designed for wall mounting on-site. Of rugged design and suitable for long term use in harsh environments, the equipment is simple to use and ideal for operation by non-technical personnel.

- Fast accurate results for multiple oil parameters.
- Make informed on-site maintenance decisions.
- Act before the onset of critical failure.
- Robust and reliable in harsh or remote environments.

Like all Parker Kittiwake equipment, the Oil Test Centre is manufactured under strict ISO 9001:2000 quality standards, ensuring consistent and accurate test results

All equipment is securely stored in a robust portable roller case, ideal for long term use in harsh industrial environments

Test cells for water in oil, insolubles and total base number (TBN), work in conjunction with the test console, via an electromagnetic link, eliminating the need for wires or batteries



The Parker Kittiwake Heated Viscometer and Test Console feature easy to use touch pad keys for simple operation, with results clearly displayed on an LCD screens

Storage space for all consumables and reagents within the cabinet ensuring that all necessary equipment is readily available and easy to find

Replacement reagents and spare equipment, including a range of sample bottles and sampling equipment, are available from Parker Kittiwake at short notice

### Flash Point Tester

An automated closed cup instrument using a small sample size and 1 or 2 minute standard test time. The flammability of a material determines its safety classification and the regulations under which it must be handled, stored and transported. Can also be used to help detect fuel dilution. Note: A standard butane (lighter) refill cartridge is required for operation.



#### Ordering Information

FG-K16909-KW: Electronic Flashpoint Tester

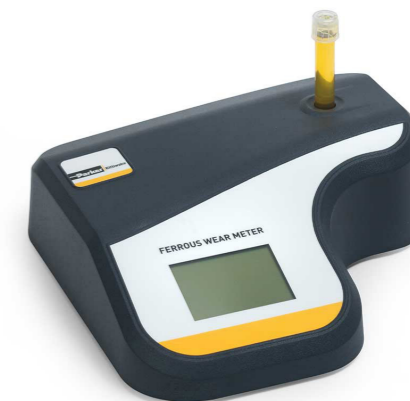
**Temp Range:** 0 to 300°C

**Test Time:** 1 to 99 minutes

**Sample Size:** 2 to 4 ml

### Ferrous Wear Meter

The Ferrous Wear Meter (FWM) detects metal particles in an oil samples taken from cylinder scrapedown oil. The FWM offers a simple, easy to use instrument that offers Parker Kittiwakes quality, accuracy and reliability. This unit is ideal for testing and analysing oil samples on-site, on-board or in remote locations where full laboratory analysis is not possible.



#### Ordering Information

FG-K30258-KW: FWM Ferrous Wear Meter

**Measurement Range ppm:** 0 - 2500 ppm

**Sample detection method:** Magnetometry

**Operating Temp. range:** 15°C - 40°C (60°F - 104°F)

**Display Resolution:** 5 ppm

**Repeatability:** +/- 10 PPM (0 - 1000 PPM), +/- 20 PPM (>1001 PPM)

**Sample bottle:** Standard 5 ml test tube

**Weight:** 1.1 kg

**Test Time:** < 3 seconds per sample

**Power:** 24 V DC - Power supply provided including UK, EU and US power adaptors

The FWM is constructed using a sophisticated magnetometer adapted for field applications. A 5 ml test tube filed with the sample is placed directly in the hole in the instrument and its metallic content, in PPM, is displayed on the screen in less than 2 seconds. Use in collaboration with the Cold Corrosion Test Kit to obtain total iron measurements from your ships cylinder oil.

## Density Meter

The Parker Kittiwake Density Meter is suitable for both distillate and residual fuel oils.

Measuring the density of fuel using hydrometers, the Density Meter can be used to confirm the quantity and grade of fuel delivered.

- Ensure the correct weight of fuel has been delivered.
- Density is calculated electronically, giving fast, accurate results and estimating the combustion performance (CCAI), and correct viscosity in cP to cSt.



### Ordering Information

#### FG-K1-300-KW: Density Meter

**Calculations:** Density at 15°C in vacuo, Centipoise to centiStokes  
Calculated Carbon Aromaticity Index (CCAI)

The Density Meter is supplied complete with three hydrometers and consumables. The Density Meter is available standalone or as part of an Oil Analysis Suite.

**Spare Hydrometers:** AS-K3-014  
AS-K3-015  
AS-K3-016

## Compatibility Tester

Ensure stability and compatibility of fuel types in minutes.

The compatibility tester will quickly identify potential fuel stability problems. It will also rapidly determine if a fuel is compatible with existing fuel stocks.

- Identify possible stability problems before mixing fuels, giving you peace of mind when accepting fuel deliveries.
- Prevent sludge deposits, failure of fuel handling systems and costly combustion related engine damage.



### Ordering Information

#### FG-K1-500-KW: Compatibility Tester

The Compatibility Tester is supplied complete with test papers and consumables. The compatibility tester is available standalone or as part of an Oil Analysis Suite.

# Configurations

## EasySHIP Oil Test Centre Configurations (supplied in portable roller case)

Application	Order Number	Test Console	0-0.1%* 0-2.5% Water Cell	0-6000 ppm Water Cell	1-100 TBN Cell	0-6 TAN Cell	0-3 TAN Cell	Insolubles Test Cell	Unheated Viscometer	Heated Viscometer
Diesel Engines	FG-K4-120-KW-A	x	x		x			x	x	
	FG-K4-120-KW-A-H	x	x		x			x		x
Steam turbines, gear boxes & compressors Aviation lubes and hydraulics	FG-K4-120-KW-B	x	x			x			x	
	FG-K4-120-KW-B-H	x	x			x				x
	FG-K4-120-KW-C	x		x		x		x	x	
	FG-K4-120-KW-C-H	x		x		x		x		x
Other configurations available	FG-K4-120-KW-D	x		x			x		x	
	FG-K4-120-KW-D-H	x		x			x			x
	FG-K4-120-KW-E	x		x	x		x	x	x	
	FG-K4-120-KW-E-H	x		x	x		x	x		x
	FG-K4-120-KW-F	x		x	x			x	x	
FG-K4-120-KW-F-H	x		x	x			x		x	

\* EasySHIP Water in Oil range 0-1.0% - non EasySHIP version 0-2.5%

Oil Test centre configurations are also available in marine NATO approved metal case. Part code FG-K4-100-KW-X(X) for EasySHIP

## Fuel and Lube Test Cabinet Configurations

Application	Order Number	DIGI Water/ TBN Cell	0-0.1% Water Cell & Console	TBN Cell	Insolubles Cell	Density Meter	Compatibility Tester	Heated Viscometer	Salt Test	Pour Point	Fuel Sampler
EasySHIP Marine Fuel & Lube	FG-K4-400-KW	x			ECON	x		x	x	x	
EasySHIP Marine Fuel & Lube with Compatibility Tester	FG-K4-401-KW	x			ECON	x	x	x	x	x	
EasySHIP Power Plant	FG-K4-600-KW		x		x	x	x	x	x	x	x
EasySHIP Oil Analysis Cabinet Steam Power Plant	FG-K4-602-KW		x	x		x	x	x	x	x	x

# Specifications

Test	Range	Correlation	Accuracy	Test Time	Power	Application
Water in Oil Test Cell	0-2.5% (0-1.0%) 0-6000 ppm 0-3000 ppm	EasySHIP IP 386 ASTM D4928	+/- 0.1%	3 minutes	110 - 250	Fuel / Lube Oils
			+/- 100 ppm +/- 50 ppm	10 minutes	VAC	
TBN Test Cell	0-100 mg/KOH	IP 400	+/- 5% <5 TBN + 1TBN	2.5 minutes	110 - 250 VAC	Lube Oils
Insolubles Test Cell	0-3.5% w/w 0-1.75%	IP 316 Mobil Soot Index	+/-0.1 w/w	1 minute	110 - 250 VAC	Lube Oils
TAN Test Cell	0-6 mg KOH TAN 0-6 mg KOH TAN IP139 0-3 mg KOH TAN IP177	IP 177 (ASTM D664) SAE ARP 5088 (modified IP139, ASTM D974)	+/-0.2 TAN	2 minutes	110 - 250 VAC	Fuel / Lube Oils
Density Meter	800-1010 kg/m3 at 15°C Temp. selectable (50 or 70 °C)	ASTM D1298 / IP160	+/- 0.1%	1 - 10 minutes	110 - 250 VAC	Fuel Oils
Compatibility Meter	As per ASTM D4740	ASTM D4740	Variation of 1 rating in 20 repeat tests	20 minutes unattended	110 - 250 VAC	Residential
Viscosity (heated)	20-810 cSt at 40 °C, 50 °C or 100 °C and 0.87 kgm-3 ≤ Density ≤ 1000 kgm-3	ASTM D445 / IP71	+/- 3% (20 - 450 cSt) or +/- 2 cSt	1 - 10 minutes	110 - 250 VAC	Fuel Oil Fuel / Lube Oils
Viscosity (unheated)	15-500 cSt at 40 °C, 50 °C or 100 °C	ASTM D445 / IP71	+/- 2% (15 - 320 cSt) or +/- 2 cSt	1 minute	110 - 250 VAC	Fule / Lube Oils
Salt/Fresh Water	Go/no-go		Pass / Fail	1 hour	-	Fule / Lube Oils
Pour Point	0-50 °C fuel oils ISO 8217 grade RMA-RMK	ASTM D97 / IP15	+/- 6 °C	10 minutes	-	Fule Oils

# Fuel and Lube Oil Analysis Equipment

Parker Kittiwake fuel and lubricating oil analysis equipment enables you to carry out a simple on-site condition based maintenance of your fuel and lubricating oils.

## Console

The console is the central control unit for the Oil Analysis range. A unique inductive coupled power supply enables individual test cells to be powered via an electromagnetic link, thus eliminating the need for wires, batteries or connectors.

An infra-red data link connects the Unheated Viscometer to the side of the Console. Measurement data is transmitted via the link and up to 256 sets of readings can be stored in the memory. Results are displayed on an easy to read LCD screen and can be downloaded to a PC for further analysis and trending. The console features large key pad buttons for simple operation.



## Specifications

<b>Display:</b>	8 digit LED
<b>Keypad:</b>	Membrane type with tactile buttons
<b>Interfaces:</b>	Measuring Cell socket with inductive power circuit and Infra Red data link. Infrared data link for viscometer. RS232 port for data down load to PC.
<b>Memory:</b>	Capacity to store 256 readings in non volatile storage
<b>Power:</b>	110 to 240 AC 50/60 Hz 20 VA

- Regular monitoring to provide trends, helps to avoid expensive machinery and equipment failure.
- Laboratory grade results, available on-board or in the field, instantly.
- Save time and money by knowing exactly when to change out oil.



## Water in Oil

Water can enter the oil from many sources including condensation, leakage and malfunction of oil treatment systems.

- Prevent corrosion and cavitation of machinery by detecting water in oil, before any damage occurs.
- Minimise instability of additive packages and damaging microbe growth by monitoring your oil.
- Two types of water in oil test cells are available, measuring 0-2.5% range and 0-6000 ppm or 0-3000 ppm range.

→ EasySHIP Easyship water in oil range 0-1%

### Ordering Information

FG-K17767-KW Water in oil 0-6000ppm  
FG-K17766-KW Water in oil 0-1%

Nato Stock No: 6630-99-024-7089

Test Kits contain Water in Oil Test Cell, Electronic Console and all reagents / consumables in a portable, robust metal case. Test Cells are also available as part of an Oil Analysis Suite → EasySHIP



Avoid costly machine breakdowns with regular oil testing

## Total Base Number (TBN)



Test Cells

The TBN of oil is the measure of the alkaline reserve, which is the ability of the oil to neutralise acids formed during the combustion process.

By determining the reference value of the new oil, the used oil TBN can be calculated.

- Avoid fouling within the engine and corrosion of engine components by monitoring the Total Base Number (TBN) of lubricating oils.

### Ordering Information

FG-K25197-KW: TBN Test Kit

Nato Stock No: 6630-99-702-4865

Test Kit contains TBN Test Cell, Electronic Console and all reagents / consumables in a portable, robust metal case. The TBN Test Cell is also available as part of an Oil Analysis Suite.

## Insolubles

Insolubles are a build up of combustion related debris and oxidation products within the oil.

- Regular monitoring of insolubles helps to prevent lacquer formation on hot surfaces, sticking of piston rings and wear of cylinder liner and bearing surfaces.
- Highly accurate results - two test modes are available; % insolubles w/w by IP316 or % insolubles by Mobil Soot Index.



Insolubles Test Cells

### Ordering Information

FG-K25194-KW: Insolubles Test Kit

Nato Stock No: 6630-99-811-8517

Test Kit contains Insolubles Test Cell, Electronic Console and all reagents / consumables in a portable, robust metal case. The Insolubles Test Cell is also available as part of an Oil Analysis Suite.

## Total Acid Number (TAN)

Total Acid Number or TAN is a measure of both the weak organic and strong inorganic acids present within oil.

- Prevent damage from oil oxidation by monitoring TAN levels.
- Highly accurate test results with separate reagent packs for 0-3 and 0-6 TAN.

### Ordering Information

FG-K25196-KW: Total Acid Number (TAN) Test Kit

Test Kit contains TAN Test Cell, Electronic Console and all reagents / consumables in a portable, robust metal case. The TAN Test Cell is also available as part of an Oil Testing Suite.

## Viscosity

Viscosity is regarded as an oil's most important characteristic. It is the viscosity that shows the oil's resistance to flow and the strength of the oil film between surfaces.

Viscosity can increase or decrease as a result of problems such as contamination, fuel dilution and shear thinning. Measurement of viscosity is extremely important for hydraulic oils, diesel engine oils, gears and fuel oils.

Two types of Viscometer are available from Parker Kittiwake - Heated and Unheated. The heated viscometer measures at the actual temperature required while the unheated viscometer measures at room temperature and then automatically corrects to the reported temperature.

Both instruments are designed to 'Tilt' from side to side in both directions, allowing the ball to fall under gravity and the viscosity of the oil calculated automatically.

- Monitoring viscosity gives an early warning for a range of common problems.
- Highly accurate results with two readings are available at 40°C, 50°C or 100°C.
- Calculate the SAE range, as well as viscosity (unheated viscometer).
- Test an even greater range of oils, by changing the viscosity index or density.
- Estimate the combustion performance (CCAI) of fuel oil.
- Heavy duty, robust equipment - ideal for long term use with rapid results.

### Ordering Information

#### FG-K1-200-KW: Heated Viscometer

Nato Stock No: 6630-99-811-8517

Test Kit contains Insolubles Test Cell, Electronic Console and all reagents / consumables in a portable, robust metal case. The Insolubles Test Cell is also available as part of an Oil Analysis Suite.

<b>Range:</b>	Calculated Viscosity at 40 °C, 50°C and 100 °C, Calculated Carbon Aromaticity Index (CCAI).
<b>Display:</b>	8 Digit LED
<b>Keypad:</b>	Membrane type with tactile buttons
<b>Power:</b>	110 to 240 AC 50/60 Hz
<b>Operational fluid density:</b>	$870 \text{ kgm}^{-3} \leq \rho \leq 1000 \text{ kgm}^{-3}$

Test Kit contains Heated Viscometer, power supply and all consumables in a portable robust metal case.

#### Unheated Viscometer

<b>Range:</b>	20-500 cSt Calculated Viscosity at 40 °C, 50°C and 100 °C. Calculated SAE Range
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\* Unheated Viscometer available as part of Oil Analysis Suite only



Heated Viscometer