Condition Monitoring
Product Overview and Ordering Information
Version 2.0
Total System Health Management

Condition Monitoring – an essential component of any predictive maintenance programme.

Why adopt condition monitoring?
Effective machinery and oil condition monitoring provide the end user with the ability to predict breakdown and eliminate or reduce the associated cost of failure. Having an intimate knowledge of the fluid and mechanical properties upon which your machine depends, can maximize pre-warning time, resulting in the most efficient planning of maintenance and resources for asset repair or replacement.

What is Condition Monitoring?
Condition monitoring techniques broadly fall into 3 areas - Reliability Centered Maintenance (RCM), a process to ensure that ‘assets’ continue to do what their users require in their present operating mode. Condition Based Maintenance (CBM), the preventive maintenance initiated as a result of knowledge gained of the condition of that ‘asset’ from routine or continuous monitoring. Condition Monitoring (CM), the continuous or periodic measurement and interpretation of data to indicate the condition of an ‘asset’ to determine the need for maintenance.

Why specify Parker Condition Monitoring?
Today, Parker offers one of the widest ranges of accurate, reliable and innovative condition monitoring products, providing solutions in:
- Detection of abnormal wear/ impending system failure.
- Detection of lube degradation/ contamination.
- Verification of the oil in use.
- Optimization of equipment service intervals.
- Improvement of operational safety.
- Reduction of risk and maximization of uptime.

Condition monitoring techniques divide into 3 techniques:
- Off-site analysis such as bottle sampling in a laboratory.
- On-site testing and detection.
- On-line, permanently installed sensors.
A combination of these techniques will provide end users with sufficient knowledge and feedback to take corrective action. Depending on the route taken, the condition monitoring ‘technique timescale’ and the predictability of system conditions will vary.

This chart shows the condition monitoring techniques used to pre-warn of failure. The y axis on the left is the condition of the equipment - with the black line showing perfect condition on the far left, moving through damage initiation, to failure on the far right. The maximum warning time between the start of damage and failure is the time gap between the two red arrows. By combining lubricant and machinery monitoring equipment, the earliest warning of damage initiation can be given and then the component requiring attention identified - that’s where Parker’s Condition Monitoring products can add value, save time and save money.

Contents
Condition Monitoring in the Laboratory
icountBplus / FTIR® Infrared Oil Analyser
ANALEXpql / ANALEXfdMplus

Condition Monitoring in the Field
icountLCM20 / icountLCM20 Case Mounted Pump
icountACM20 / icountACM20 Z2

Condition Monitoring in the Field
icountOS plus Wi-Fi / icount FS
MHC-Bearing Checker / MHC-Memo Pro

Condition Monitoring in the Field
Cold Corrosion Test Kit / Viscostick
10MFP Hydraulic Trolley / EWS

Condition Monitoring in the Field
Heated Viscometer / System 20
Oilcheck / Oil Test Centre

Condition Monitoring in the Field
DIGI Low Range Water Kit / DIGI Field Kit
Fuel, Lube Oil and Diesel Engine Analysis Cabinet

Condition Monitoring with On-Line Sensors
Metallic Wear Debris Sensor / Oil Condition Sensor
Holroyd Smart Sensors / icountMS Moisture Sensor

Condition Monitoring with On-Line Sensors
icountPD / icountPDR
icountPDZ2 / FPS - Fluid Property Sensor

Condition Monitoring with On-Line Sensors
WaterSCAN / LinerSCAN
PVS Vacuum Dehydration / Sentinel

Condition Monitoring Reagents & Spares
Replacement Reagents / EasySHIP Reagents
Bottle Packs / Procal Emissions Monitoring

Does the user have the information needed to make a decision...?
Does the user have the information needed to make a decision…?

Product Features

- Quick sample bottle analysis with variable test time options from 15 seconds and volume capacities from 25ml.
- On-board compressor and ‘shop’ air capability.
- CE compliant.

Specifications

- Principle of operation is Laser diode optical detection of actual particulates.
- Fluid compatibility - Mineral-based oils and petroleum-based fuel.
- viscosity range of the icountBSplus is 1 to 300cSt.
- Online sampling feature for pressures up to 350 bar.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGK17144PA</td>
<td>ANALEX pqL – PQ Instrument</td>
</tr>
<tr>
<td>FGK14948PA</td>
<td>x 360 off 80ml Sample Bottles</td>
</tr>
<tr>
<td>FGK15005PA</td>
<td>x 3000 off Grease Pots</td>
</tr>
<tr>
<td>FGK17074PA</td>
<td>x 1000 off 8ml Test Tubes</td>
</tr>
<tr>
<td>FGK17075PA</td>
<td>x 500 off 10ml Syringes</td>
</tr>
<tr>
<td>FGK17076PA</td>
<td>x 500 off 15ml Syringes</td>
</tr>
</tbody>
</table>
4

Condition Monitoring in the Field

icountLCM20
Portable Particle Counter (PPC)

Product Features
- icountLCM20 is a proven answer to fluid system contamination monitoring.
- 2-minute test procedure.
- Multi-standard ISO, NAS and AS4059 cleanliness reporting.
- Data entry, data graphing and integral printer.
- 420 bar rated maximum pressure.

Specifications
- Particle counts: MTD 4+, 6+, 14+, 21+, 38+ and 70+ microns(c) ACFTD 2+, 5+, 15+, 25+, 50+ and 100+ microns.
- International codes: ISO 7-22, NAS 0-12.
- Special ‘diagnostics’ are incorporated into the icount LaserCM microprocessor control to ensure effective testing.

icountACM20
Aviation Fuel Contamination Monitoring PPC

Product Features
- Multi-standard ISO cleanliness reporting.
- Laser optical scanning analysis.
- Fully manufactured by Parker with 20 years experience in the Particle Counter measuring market.

Specifications
- 2-minute test procedure.
- Latest averaging software as standard.
- Downloader software.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCM202022</td>
<td>icountLCM20 (MTD calibrated)</td>
</tr>
<tr>
<td></td>
<td><strong>Ordering Information:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Part Number</strong></td>
</tr>
<tr>
<td></td>
<td>LCM202022</td>
</tr>
</tbody>
</table>

icountLCM20 CMP
PPC with Case Mounted Pump

Product Features
- Off-line sampling from bottles, barrels and reservoirs.
- On-line pressure system sampling.
- Automatic Calibration Reminder.
- Integral printer.
- 300 Test Memory.
- Portable, lightweight.

Specifications
- Particle counts: MTD 4+, 6+, 14+, 21+, 38+, 70+ microns(c) ACFTD 2+, 5+, 15+, 25+, 50+, 100+ microns.
- International codes: ISO 7-22, NAS 0-12.
- 2 minute test time, every 2 minutes.
- Oil Viscosity 100cSt @ 40°C.
- Max Working Pressure - 2.5 bar with CMP, 420 bar on-line.
- Automatic Testing, 6 - 999 minute intervals.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCM202028</td>
<td>icountLCM20 with CMP (MTD Calibrated)</td>
</tr>
<tr>
<td>LCM202027</td>
<td>icountLCM20 with CMP (ACFTD Calibrated)</td>
</tr>
</tbody>
</table>

icountACM20 Z2
ATEX approved PPC

Product Features
- Assembled in an approved and certified stainless steel enclosure to comply with ATEX Directive 94/9/EC.
- Can be used in explosive and hazardous environments.
- ATEX Zone II.
- ATEX approved handset and keypad.

Specifications
- Certified to CE Ex II 3 G Ex nR/L1 IIC T6.
- “A” Class product defined for the Aviation market.
- Suitable for use with mineral oil and petroleum based fluid as per ACM20/LCM20 particle counters.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM202032UK</td>
<td>icountACM20 Z2 + Online Kit and UK Battery Charger</td>
</tr>
<tr>
<td>ACM202032US</td>
<td>icountACM20 Z2 + Online Kit and US Battery Charger</td>
</tr>
<tr>
<td>ACM202032EUR</td>
<td>icountACM20 Z2 + Online Kit and Euro Battery Charger</td>
</tr>
</tbody>
</table>
Condition Monitoring in the Field

**icountOS**

**Fuel Sampler**

**Product Features**
- Designed for use with hydrocarbon fuels
- Independent monitoring of system contamination trends
- Calibration by recognised online principles confirmed by relevant (ISO) procedures
- Specific ISO 4406 / NAS 1638 codes indicate contamination levels directly
- Self-diagnostic software
- Mineral fluid-compatible and Fuel-compatible construction
- Robust, portable design with a ‘soft’ handle and an optional carry strap
- On-board web page generation allows user setting of test parameters and code alarm limits
- On-board memory capable of storing in excess of 250,000 test results
- Flexible data exporting - as XML, CSV and TXT files
- Modular design for easy servicing

**Specifications**
- 4 channel product: 4µ, 6µ, 14µ, 30µ
- Sampling period from 5 second to 999 second
- No special software needed. Embedded web page generator for data download onto any PC or laptop via a universal RJ45 connection interface

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Fluid Type</th>
<th>Calibration</th>
<th>Connection</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOS1210EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>Offline</td>
<td>None</td>
</tr>
<tr>
<td>IOS1220EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>On line</td>
<td>None</td>
</tr>
<tr>
<td>IOS1211EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>Offline</td>
<td>WiFi</td>
</tr>
<tr>
<td>IOS1221EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>On line</td>
<td>WiFi</td>
</tr>
</tbody>
</table>

---

**icountFS**

**Fuel Sampler**

**Product Features**
- Simple Acoustic Emission measurement tool to assess bearing condition.
- Simple handheld device for determining the condition of rotating bearings and inadequate lubrication.
- The unit can instantly detect if there is a problem, allowing corrective action to be taken to prevent further damage or machine failure.

**Specifications**
- Operating temperature: 0°C to 65°C
- Dimensions: 98 mm x 62 mm x 34 mm (including magnetic sensor)
- Weight: 225g

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGH11510PA</td>
<td>MHC Bearing Checker</td>
</tr>
</tbody>
</table>

---

**MHC-Bearing Checker**

**Acoustic Emissions Instrument**

**Product Features**
- Portable monitoring tool providing fluid qualification to ISO 4406:1999 standards
- Quick, simple to use monitoring tool for sampling fluids from containers, fuel bunkers and holding tanks
- Field solution to laboratory methods for the detection of solid contamination and freewater inference
- On-board 250,000 test memory
- MS moisture sensor standard
- Now available with integrated WiFi transmitter for remote operation

**Specifications**
- Sampling period from 5 seconds to 999 seconds
- No special software needed. Embedded web page generator for data download onto any PC or laptop via a universal RJ45 connection interface

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Fluid Type</th>
<th>Calibration</th>
<th>Connection</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOS1210EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>Offline</td>
<td>None</td>
</tr>
<tr>
<td>IOS1220EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>On line</td>
<td>None</td>
</tr>
<tr>
<td>IOS1211EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>Offline</td>
<td>WiFi</td>
</tr>
<tr>
<td>IOS1221EUR</td>
<td>Mineral</td>
<td>MTD</td>
<td>On line</td>
<td>WiFi</td>
</tr>
</tbody>
</table>

---

**MHC-Memo Pro**

**On-Site Acoustic Emissions Instrument**

**Product Features**
- Advanced Acoustic Emission measurement tool for bearing analysis
- Monitor a near unlimited number of machines on a periodic basis
- The MHC-Memo Pro can store manually input values from any other device
- Super-Slo mode allows bearings on many slowly rotating applications to be analysed

**Specifications**
- Operating temperature: 0°C to 50°C
- Dimensions: 85 mm x 40 mm
- Weight: 320g (including cable)

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGH16111-KH</td>
<td>MHC-Memo Pro</td>
</tr>
</tbody>
</table>
Product Features

- Excellent correlation between field measurements and lab inductively Coupled Plasma (ICP) results
- Monitors products of corrosion that cannot be detected magnetically
- Provides early warning that cold corrosion is underway
- Gives a running commentary on internal corrosion as the operator adjusts the cylinder liner jacket temperature or oil feed rate
- When used in conjunction with the Parker Kittiwake LinerSCAN, it is possible to monitor abrasive and corrosive wear independently
- Each test is simple, cost effective and quick (4–5 minutes) to complete

Specifications

- Measurement Range
  0 - 400 PPM (Accuracy +/- 20 PPM) Parts Per Million (PPM)
  0 - 800 PPM (Accuracy +/- 40 PPM) Parts Per Million (PPM)
- Ambient Temperature: 20 - 55 °C

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K19763-KW</td>
<td>Cold Corrosion Test Kit (CCTK) including 1 Reagent Pack (100 tests)</td>
</tr>
<tr>
<td>FG-K19875-KW</td>
<td>Reagent Pack (100 tests)</td>
</tr>
</tbody>
</table>

Product Features

- Make informed maintenance decisions and prevent costly downtime
- Suitable for hydraulic oils, diesel engine oils, enclosed gears and fuel oils
- Simple, cost effective equipment requiring no consumables
- Measuring oil viscosity provides early detection of contamination, fuel ingress and shear thinning

Specifications

- Range: Go / no go
- No of tests: Unlimited
- Test time: 1 minute

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K3-020-KW</td>
<td>ECON Viscostick</td>
</tr>
</tbody>
</table>

Product Features

- 10MFP hydraulic trolley is the ideal way to pre-filter and transfer fluids into reservoirs or to clean up a system
- Maximum flow 38 l/min.
- Par-Gel water removal elements available
- icountPD particle detector option available
- MS Moisture Sensor option (IPD integrated)

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Motor Option</th>
<th>Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K140SA10D1UKPD</td>
<td>220/240 VAC</td>
<td>940802 937399Q</td>
</tr>
<tr>
<td>FG-K140SA10D1EURPD</td>
<td>220/240 VAC</td>
<td>940802 937399Q</td>
</tr>
<tr>
<td>FG-K140SA10D1INDPD</td>
<td>110VAC</td>
<td>940802 937399Q</td>
</tr>
</tbody>
</table>

For further information about specifications and ordering information for the EWS (Early Warning System) please contact Parker Filtration’s Condition Monitoring Centre, Thetford UK manufacturing location.
Heated Viscometer

Viscosity measurements

Product Features
- Accurate viscosity measurement in the field
- Rolling ball technique for high accuracy
- Direct readings in cSt @ 40
- Laboratory grade oil viscosity results in minutes

Specifications
- Range: Calculated viscosity @ 40°C, 50°C and 100°C
- Display: 8 digit LED
- Power: 100/240 Volts. User specified

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGK1200PA</td>
<td>Heated Viscometer, power supply and all consumables in portable metal case</td>
</tr>
</tbody>
</table>

Oilcheck

Hand-Held Oil Condition Monitor

Product Features
- Oilcheck hand-held condition monitor provides a visual comparison between new and used oils.
- The Oilcheck, once calibrated with clean oil, will store the calibration in memory when the unit is switched off, until such time that a re-calibration is required by the user.
- Completely portable and battery powered.

Specifications
- Numerical display shows positive or negative increase in dielectrics.
- Gives early warning of impending engine failure.
- Optional protective rubberised sleeve.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLK605</td>
<td>Oilcheck Kit with Numerical Readout</td>
</tr>
<tr>
<td>OLK611</td>
<td>Oilcheck Cleaner</td>
</tr>
<tr>
<td>ACO8NV001</td>
<td>Rubberised Protective Sleeve</td>
</tr>
</tbody>
</table>

System 20

 Inline Sensors, Flow and Pressure Monitoring

Product Features
- 2 types of System20 sensor are available. STI=industrial with reverse flow capability. STS=Mobile without reverse flow capability.
- 3 sizes of industrial inline System20 sensor for pressures up to 420 bar. 2 sizes of Mobile System20 sensor.
- Analogue monitor (STM) utilizes 3 day-glow gauges with protective cover.
- EM20 electronic monitor with full digital display and 300 test memory.
- For use with all mineral oils, water and oil/water emulsions.

Specifications
- Sensors Construction: Industrial: (STI)Body: S/Steel 303 Internal components: S/Steel and Brass Mobile: (STS)Body: S/Steel 303 Internal components: Cast Aluminium and S/Steel
- Max. working pressure: 420 bar
- Capability: Reverse flow (STI only)
- Aggressive Fluid Applications: EPDM internal/external seals

Ordering Information

<table>
<thead>
<tr>
<th>Product No.</th>
<th>Size</th>
<th>Flow Range l/min</th>
<th>Fluid Type</th>
<th>Port Threads</th>
<th>Reverse Flow Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>STI1414100</td>
<td>0</td>
<td>6-25</td>
<td>Mineral</td>
<td>3/8</td>
<td>Yes</td>
</tr>
<tr>
<td>STI1414100</td>
<td>1</td>
<td>20-100</td>
<td>Mineral</td>
<td>3/4</td>
<td>Yes</td>
</tr>
<tr>
<td>STI2414100</td>
<td>2</td>
<td>80-380</td>
<td>Mineral</td>
<td>1 1/4</td>
<td>Yes</td>
</tr>
<tr>
<td>STM82111110</td>
<td>-</td>
<td>L/Min</td>
<td>Mineral</td>
<td>Dual Scales, bar/PSI, °C/F</td>
<td></td>
</tr>
</tbody>
</table>

Fuel & Lube Oil Analysis

Hand-Held Oil Condition Monitor

Oilcheck

Product Features
- Fast accurate results for multiple oil parameters (Water / Base Number / Acid Number / Insolubles / Viscosity / Salt Contamination etc)
- Make informed onsite maintenance decisions
- Act before the onset of critical failure
- Robust and reliable in harsh or remote environments

Specifications
- Diesel engine configuration
- Steam turbines gear boxes & compressors, aviation lubes & hydraulics configurations
- Other configurations available

Ordering Information

Contact Parker Kittiwake to find out more about the configuration options available
Low Range DIGI Water Kit

**Accurate results for water in oil**

**Product Features**
- Electronic display gives simple, step by step instructions
- Fully portable for use on-board or in the field
- Fast, accurate results
- State of the art digital analysis

**Specifications**
- Range: 0.02 – 1%, 100 – 3000 ppm, 0 – 10%
- Test time: 3 minutes
- Battery Life: Five years

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGK17021PA</td>
<td>Low Range DIGI Water Kit</td>
</tr>
<tr>
<td>FGK2101PA</td>
<td>EasySHIP Water in Oil Reagent Pack (5G)</td>
</tr>
</tbody>
</table>

DIGI Field Kit

**Multiparameter test kit**

**Product Features**
- Lab grade accuracy in a field deployable kit
- State of the art digital analysis
- Monitor combustion related debris and oxidation products
- Easily understandable results

**Specifications**
- DIGI Combined Water in Oil / TBN Cell: 0.02 – 1%, 200 – 1000 ppm, 0 – 10%, 0 – 20% / 0 – 80 TBN
- ECON Insolubles Test: Qualitative
- ECON viscositch: go / no go
- ECON TAN Test: TAN 0 - 6

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGK1102PA</td>
<td>DIGI Field Kit</td>
</tr>
<tr>
<td>FGK24743PA</td>
<td>ECON TAN Drop Test Kit</td>
</tr>
</tbody>
</table>

Fuel & Lube Oil Analysis Cabinet

**Onsite oil analysis suite**

**Product Features**
- Wall mounted cabinet containing core QC tests for lubricants and residual fuel oils
- Rugged design, suitable for long term use in harsh environments
- Simple to use equipment

**Specifications**
- Viscosity: Unheated to 40°C, heated to 40°C & 50°C
- Water in Oil: 0 – 1%, 0 – 10%, 0 – 20%
- Base Number: 5 - 80
- Density: 0.8 – 1.1 RD

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K1-400-KW</td>
<td>Fuel &amp; Lube Test Cabinet</td>
</tr>
<tr>
<td>FG-K4-400-KW</td>
<td>EasySHIP Fuel &amp; Lube Test Cabinet</td>
</tr>
</tbody>
</table>

Diesel Engine Analysis Cabinet

**Power plant lab**

**Product Features**
- Fast accurate results for multiple oil and fuel parameters
- Determine fuel quality and quantity during the bunkering process
- Make informed maintenance decisions around your major lubricants
- Identify contamination in time to act

**Specifications**
- Viscosity: Unheated to 40°C, heated to 40°C & 50°C
- Water in Oil: 0 – 3000 ppm, 0 – 6000 ppm, 0 – 2.5%
- Base Number: 5 - 90
- Density: 0.8 – 1.1 RD

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K1-600-KW</td>
<td>Power Plant Cabinet</td>
</tr>
<tr>
<td>FG-K4-602-KW</td>
<td>Power Plant Cabinet - Steam</td>
</tr>
</tbody>
</table>
Condition Monitoring with On-Line Sensors

**Metallic Wear Debris Sensor**

Instant indication of condition

Product Features
- Sealed to IP67 suitable for industrial applications
- Robust iron enclosure provides strength and magnetic shielding
- Wide range of interface options due to variety of industry standard outputs

Specifications
- Detection Range: > 40 micron Ferrous & > 135 micron Non-Ferrous Metallic
- Fluid Compatibility: Petroleum, synthetic oils and water / oil emulsions
- Ambient Temperature: -20°C to 65°C

**Oil Condition Sensor**

Detect when an oil is no longer fit for service

Product Features
- Internal processing power offers wide interface options
- Stainless steel housing, gold plated sensor head – rugged and long life performance
- Standard ½” BSP thread fitting with long reach and alternative thread options

Specifications
- Detection Range: Oil condition (0 – 1 Oil Quality Units) @ 4% repeatability
- Fluid Compatibility: Petroleum and synthetic lubricating oils
- Ambient Temperature: -20°C to 70°C

**MHC 4000 Series Sensors**

Smart Acoustic Emission sensors

Product Features
- Signal detection – high frequency transducer and signal conditioning
- Flexible, user configurable alarm settings
- Data-logging – automatic non-volatile memory of trended values over the last 384 days
- Digital interface enables PC connection via Sigma / RT for set-up and memory download

Specifications
- MHC-Smart Std – smart sensor for use on shaft speeds above 30 RPM
- MHC-Smart Slo – smart sensor uniquely developed for monitoring shaft speeds from 60 RPM down to 0.25 RPM
- MHC-Sigma – smart sensor for intermittent or short duration machine operation

**icountMS Range**

Fluid Condition Monitoring - Moisture Sensors

Product Features
- MS moisture sensors provide fast, reliable and accurate inline detection of moisture in fluids.
- Technology developed for preventative maintenance programmes.
- MS150 ‘low pressure’ Suction Return line applications. 10 bar maximum operating pressure.
- MS200 ‘Programmable’ sensor monitoring and reporting relative humidity (RH), moisture content in oils. 420 bar MAOP.
- MS300 ‘Intrinsically safe’ sensor ATEX certificated for use in hazardous Zone 0 environments. 420 bar MAOP.
- Temperature Outputs on all versions.

Specifications
- Operating temperature: Minimum: -20°C. Maximum: +85°C
- Flow through sensor cell. Installed in active flowstream.
- Fluid compatibility: Mineral oils and petroleum-based fluids.
- Viscosity range: Unlimited.
- Port connections: 1/4” BSPT or 1/4” NPT.

**Ordering Information**

Specifying a part number for a Moisture Sensor is best done using the Product Configurator in the Hydraulic Filtration and Condition Monitoring catalogue. Alternatively contact Parker Filtration, Condition Monitoring Centre, Thetford UK for more details.
Product Features

- Independent monitoring of system contamination trends
- Continuous performance for prolonged analysis
- Visual indicators with power and alarm output warnings
- Self diagnostic software
- Cost effective solution to prolong fluid life and reduce machine downtime

Specifications

- Full PC/PLC integration technology such as: RS232 and 0-5 Volt, 4-20 mA, CAN(J1939)
- Set up and Data logging support software included
- Moisture % RH indicator (included)

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Fluid Type</th>
<th>Communication</th>
<th>Cable Connector kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPD12322230</td>
<td>Mineral</td>
<td>RS232/4-20mA</td>
<td>M12, 8 pin plug connector</td>
</tr>
<tr>
<td>IPD12323230</td>
<td>Mineral</td>
<td>RS232/0-5V</td>
<td>M12, 8 pin plug connector</td>
</tr>
<tr>
<td>IPD22322230</td>
<td>Aggressive</td>
<td>RS232/4-20A</td>
<td>M12, 8 pin plug connector</td>
</tr>
</tbody>
</table>

Product Features

- Independent monitoring of system contamination trends
- Rugged design ensures protection against environmental exposure
- Small and compact device constructed in stainless steel
- Continuous performance for prolonged analysis
- Cost effective solution to prolong fluid life and reduce machine downtime

Specifications

- Full PC/PLC integration technology such as: RS232 and 0-5 Volt, 4-20 mA, CAN(J1939)
- Set up and Data logging support software included
- Moisture % RH indicator

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Communication</th>
<th>Cable Connector kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPDR12115240</td>
<td>RS232/CAN-bus</td>
<td>M12, 12 pin plug connector</td>
</tr>
<tr>
<td>IPDR12112240</td>
<td>RS232/4-20mA</td>
<td>M12, 12 pin plug connector</td>
</tr>
<tr>
<td>IPDR1213240</td>
<td>RS232/0-5V</td>
<td>M12, 8 pin plug connector</td>
</tr>
</tbody>
</table>

Product Features

- Independent monitoring of system contamination trends
- Continuous performance for prolonged analysis
- Independent monitoring of system contamination trends
- Rugged design ensures protection against environmental exposure
- Small and compact device constructed in stainless steel
- Continuous performance for prolonged analysis
- Cost effective solution to prolong fluid life and reduce machine downtime

Specifications

- Full PC/PLC integration technology such as: RS232 and 0-5 Volt, 4-20 mA, CAN(J1939)
- Set up and Data logging support software included
- Moisture % RH indicator

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Fluid Type</th>
<th>Communication</th>
<th>Cable Connector Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPS2000</td>
<td>Mineral/Fuel</td>
<td>CAN-bus</td>
<td>4 pin plug connector</td>
</tr>
</tbody>
</table>

Product Features

- Simultaneous measurement of viscosity, density, dielectric constant & temperature
- Field or laboratory use
- Data logging
- Programmable sample rates
- Compact rugged construction
- Operates using Harmonics (tuning fork) Technology

Specifications

- Up to 50 cSt viscosity reporting
- Refresh rate - 30 seconds
- 12 Volt operating power supply
- IP68 compatible
- Max. operating pressure - 25 bar (max. 10% of operating time)

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Fluid Type</th>
<th>Communication</th>
<th>Cable Connector Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPDZ1212230</td>
<td>Mineral</td>
<td>M12, 8 Pin Plug Connector</td>
<td></td>
</tr>
<tr>
<td>IPDZ3212130</td>
<td>Aviation Fuel</td>
<td>M12, 8 Pin Plug Connector</td>
<td></td>
</tr>
</tbody>
</table>

* 4 Channels
**Condition Monitoring with On-Line Sensors**

### WaterSCAN

**Total water and soot sensor**

**Product Features**
- Measures the total concentration of free and dissolved water in oil
- Provides a direct readout of soot content (in % Wt)
- Works in the real world, where oils can exhibit varying degrees of oxidation and/or contain high levels of soot as a by-product of combustion
- Robust, waterproof housing and temperature stable circuitry

**Specifications**
- Communications: USB download / upload as standard
- Alarms: Programmable alarm levels for water and soot
- Ambient operating temperature: 5 to 55°C
- Measurement levels: Water 100 - 10,000 PPM. Soot 0 - 1% Wt.

### Sentinel™

**Portable purification system**

**Product Features**
- Proven vacuum dehydration technology, ensuring only clean, dry oil re-enters the reservoir.
- On board data display and storage via IQAN MD3 display screen.
- Rapid detection and removal - embedded % RH moisture, and optional solid particle contamination detector.
- Sentinel mode – long life automatic switch on, measurement, operation and shut-off.

**Specifications**
- Contaminated oil is drawn into the PVS by a vacuum of 25 In/Hg. The oil passes through the in-line low watt density heater/s where the oil is heated to an optimum temperature of 66°C (150°F).
- The oil then enters the distillation column where it is exposed to the vacuum through the use of dedicated dispersal elements. This increases the exposed surface area of the oil and converts the water to a vapour form, which is then drawn through the condenser by the vacuum pump. The vapour returns to water and drops into the condensate holding tank.
- The water-free oil falls to the bottom of the vacuum chamber and is passed through a final particulate removal filter by a heavy duty lube oil pump.
- Clean dry oil re-enters the reservoir/system via the outlet port.

### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K17353-KW</td>
<td>WaterSCAN Monitor – Complete</td>
</tr>
</tbody>
</table>

### LinerSCAN

**Cylinder liner monitor**

**Product Features**
- Highly capable communications enable the system to link with ships management systems
- Bespoke user-friendly software
- LinerSCAN takes the usage of oil analysis data a stage further than is possible with lab or test kit results
- Compact units require little space per cylinder

**Specifications**
- Operating temperature range: 0 - 65°C
- Power supply voltage: 24 DC
- Connection for power: Either @PSU at 24 V DC

### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG-K17400-KW</td>
<td>LinerSCAN Sensor complete (one per cylinder)</td>
</tr>
<tr>
<td>FG-K17401-KW</td>
<td>LinerSCAN Sensor &amp; Network (one per engine)</td>
</tr>
</tbody>
</table>

### PVS Series - Models 185, 600, 1200, 1800 and 2700

**Vacuum dehydration - portable purification systems**

**Product Features**
- PVS draws water contaminated fluid out of a system.
- Removes water, air and particulate content and returns the ‘clean’ fluid to the reservoir.
- Maximum flow 170 L/min (PVS2700).
- Reduces the catastrophic results of water contamination.

**Specifications**
- Contaminated oil is drawn into the PVS by a vacuum of 25 In/Hg. The oil passes through the in-line low watt density heater/s where the oil is heated to an optimum temperature of 66°C (150°F).
- The oil then enters the distillation column where it is exposed to the vacuum through the use of dedicated dispersal elements. This increases the exposed surface area of the oil and converts the water to a vapour form, which is then drawn through the condenser by the vacuum pump. The vapour returns to water and drops into the condensate holding tank.
- The water-free oil falls to the bottom of the vacuum chamber and is passed through a final particulate removal filter by a heavy duty lube oil pump.
- Clean dry oil re-enters the reservoir/system via the outlet port.

### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Model</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Parker Filtration for part number profile availability</td>
<td>Model 185</td>
<td>19 LPM</td>
</tr>
<tr>
<td>945274</td>
<td>Model 600</td>
<td>38 LPM</td>
</tr>
<tr>
<td>945274</td>
<td>Model 1200</td>
<td>76 LPM</td>
</tr>
<tr>
<td>945274</td>
<td>Model 1800</td>
<td>114 LPM</td>
</tr>
<tr>
<td>945274</td>
<td>Model 2700</td>
<td>170 LPM</td>
</tr>
</tbody>
</table>

### Optional accessories

- ACC6JH003 - Vacuum Pump Oil (1 LITRE)
- MS1504 - Moisture Sensor
### Reagents, Spares & Consumables

#### Replacement Reagent Packs

**Product Features**
- Parker Kittiwake test kits for individual parameters contain reagents, consumables and full instructions for multiple tests.

**Features**
- Replacement reagents can be ordered at short notice
- Kits contain all necessary equipment for instant test results in the field
- Reagents are packed in accordance with IATA/IMDG/IRD air/marine/road transportation codes and can be delivered to major ports worldwide

**Ordering Information**
- Please contact Parker Kittiwake for more information

#### Non hazardous oil analysis

**Product Features**
- Designed to withstand hot oil under vacuum conditions
- Supplied in sizes from 5 ml, 50 ml to 750 ml
- Self adhesive labels, pre-printed with your logo/information if required

**Specifications**
- Tamper evident locking
- Uniquely numbered sealing systems
- IATA compliant return sample cartons

**Ordering Information**
- Please contact Parker Kittiwake for more information

### Sample Bottles

#### Fuel oil sample bottle packs

**Product Features**
- Multi-component IR emissions analyser
- Low cost of through-life ownership
- Proven success in over 3000 applications worldwide
- Procal 2000 is an infra-red (IR), duct or stack-mounted analyser, designed to provide in-situ analysis of up to six gas-phase emission components

**Specifications**
- A typical system comprises a stack mounted analyser, an integral calibration function and a control unit with options which include a powerful in-situ heater and a stand-alone analysis software package

**Ordering Information**
- Please contact Parker Kittiwake for more information or visit www.procal.com

### EasySHIP Reagents

#### Non hazardous oil analysis

**Product Features**
- Multi-component IR emissions analyser
- Low cost of through-life ownership
- Proven success in over 3000 applications worldwide
- Procal 2000 is an infra-red (IR), duct or stack-mounted analyser, designed to provide in-situ analysis of up to six gas-phase emission components

**Specifications**
- A typical system comprises a stack mounted analyser, an integral calibration function and a control unit with options which include a powerful in-situ heater and a stand-alone analysis software package

**Ordering Information**
- Please contact Parker Kittiwake for more information or visit www.procal.com

© 2013 Parker Hannifin Corporation. All rights reserved.

Parker Hannifin
Hydraulic Filter Division Europe
filtrationinfo@parker.com
kittiwakesales@parker.com
www.parker.com/hfde
www.kittiwake.com

Your local authorized Parker distributor