

# FluidScan® Q1200 Series

## HANDHELD INFRARED OIL ANALYZER

Base Number Test for Marine Cylinder Lube Oils



Marine engine suppliers recommend daily monitoring of the Base Number (BN) to optimize cylinder lubrication feed rate and determine the residual BN of the piston underside oil. Recent changes in vessel operation are driving innovation in engine monitoring including:

- Shift to "slow steaming" and the resulting "cold corrosion" affecting every vessel in operation.
- Increases in early failure due to cylinder scuffing & scaling from improper lubrication in constantly changing conditions.
- New sulfur emissions requirements impacting some vessels. Running with multiple fuel types means major changes in lubrication BN to compensate for high fluctuations in acidic conditions in the cylinders.

According to Wärtsilä Services Technical Bulletin RT-161, daily control of the cylinder oil BN is the most effective way to prevent "cold corrosion." The FluidScan 1200 Series meets this challenge with a handheld BN analyzer.

The FluidScan® Q1200 Series provides direct quantitative BN measurement of cylinder lube oil for two-stroke engines – *in less than a minute.*

### Reduce lubrication oil costs

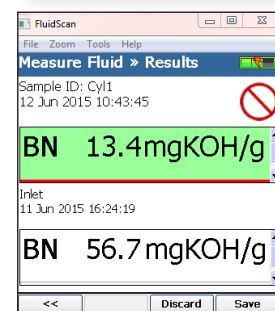
- Optimize feed rate to the cylinders, eliminating wasteful over-lubrication.
- Allows ship engineers to quickly comply with manufacturer recommendations for BN in new and residual cylinder oils.

### Increase component lifetime

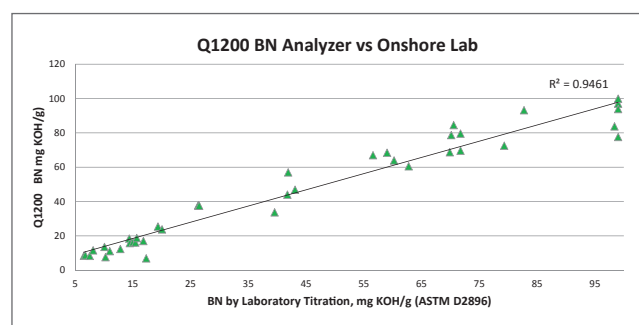
- Reduce "cold corrosion" due to the effects of slow steaming.
- Reduce cylinder scuffing due to insufficient lubrication.
- Prevent scaling which results from over-lubrication.

### The FluidScan brings innovation to ship-board BN tests

- *Fast and easy to use...* needs just one drop of oil and one minute to test, plus color-coded alarm limits for easy results interpretation.
- *Reduced testing costs...* fewer consumables and solvent-free. Eliminates need for hazardous chemicals onboard.
- *More accurate...* avoids the operator error of traditional onboard tests and correlates with lab methods (ASTM D2896).



Cylinder oil and inlet oil BN measurement



Correlation of Q1200 BN analyzer to laboratory titration

### Easily upgradeable to enable oil analysis for other shipboard equipment

- The Q1210 measures base number (BN) for marine cylinder oils in less than a minute.
- The Q1220 measures BN in cylinder oil, plus additional parameters in two-stroke system oil and other four-stroke engine oils.
- The Q1230 includes all of the above plus oils used in machinery components such as gear boxes, compressors, hydraulic systems, turbine and transmissions.

## FluidScan Q1200 Series Ordering Information

The FluidScan® Q1200 Series includes the FluidScan device, battery charger, USB cable, USB flash drive, and the Fluid Manager Suite, which contains the Fluid Manager desktop application, user manuals, and a backup copy of the FluidScan device software. The FluidScan standard accessories kit includes cleaning pads and pipettes for 100 samples and the IR check fluid.



The FluidScan Q1200 Series enables ship managers to keep optimal residual BN values to avoid cold corrosion and scuffing without wasting cylinder oil to over lubrication.

PART NUMBER				
FluidScan-Q1210	Q1210 Marine Cylinder Lubrication Oil BN Analyzer. Requires SA1001 Accessory Kit.			
FluidScan-Q1220	Q1220 Marine Cylinder Lubrication Oil BN and Engine (System) Oil Analyzer. Requires SA1001 Accessory Kit.			
FluidScan-Q1230	Q1230 Marine Cylinder Lubrication Oil BN, Engine Oil and Machinery Oil Analyzer. Requires SA1001 Accessory Kit.			
SA1001	FluidScan Standard Accessory Kit			
PRODUCT INFORMATION				
Application	Q1210: Marine Cylinder Oil (MCL) BN (Base Number) Q1220: MCL Oil BN and Engine (System) Oil Parameters Q1230: MCL BN, Engine (System) and Machinery Oil Parameters			
Output	UNITS	Q1210	Q1220	Q1230
Cylinder Lube Oil BN	mg KOH/g	Yes	Yes	Yes
Base Number (System and Engine oil)			Yes	Yes
Oxidation	Abs/0.1 mm		Yes	Yes
Nitration	Abs/cm		Yes	Yes
Sulfation	Abs/0.1 mm		Yes	Yes
Soot	Abs/cm		Yes	Yes
Glycol	% wt		Yes	Yes
Water, ppm (dissolved and Free + Dissolved with Comprehensive water option)	ppm		Yes	Yes
Methodology	ASTM D7889, ASTM E1655			
Range	5-100 BN			
Accuracy	± 5% of measured value, typical			
Repeatability	± 5% of measured value, typical			
Calibration	Factory calibrated to wet chemistry methods ASTM D2896 for TBN. Use Check Fluid for instrument validation.			
OPERATIONAL SPECIFICATIONS				
Sample Volume	100 µL (about 3 drops)			
Solvents/Reagents	None			
Ambient Operating Temperature	10°C to 50°C (14°F to 122°F)			
Relative Humidity	0 to 100%, non-condensing			
Ambient Altitude	up to 5,000 meters (16,404 feet)			

### USER INTERFACE SPECIFICATIONS

Software/Operating System	Device: Microsoft Windows CE PC System: Windows 7 Pro, 32/64 bit, English US version (for Fluid Manager software)
Display	320 x 320 transfective color screen
Data Storage	Up to 5,000 analyses
Data Transfer	USB for data updates and synchronization
Data Entry	Directional pad and soft buttons

### POWER REQUIREMENTS

Battery Power Source	Built in Rechargeable Lithium Ion Battery
Power	AC 110/240 V, 50/60 Hz, 10 Watts
Typical Runtime	6-8 hours
Recharge Time	6.5 hours

### MECHANICAL SPECIFICATIONS

Dimensions	240 mm (H) x 140 mm (W) x 70 mm (D) (9.5 in x 5.5 in x 2.75 in)
Weight	1.4 kg (3 lbs)
Shipping package dimensions	17.1 cm (H) x 6.3 cm (W) x 5.5 cm (L); (18 in x 16 in x 14 in)
Shipping package weight	8.1 kg, (18 lbs)

### COMPLIANCE

CE Mark: EMC Directive (2004/108/EC); RoHS

### ACCESSORIES & CONSUMABLES

FL310	IR Check Fluid 5 mL
PV1011	Disposable Non-Abrasive Cleaning Pads; package of 500
P-11052	60 µL Disposable Pipettes, package of 500
PV1012	60 µL Disposable Pipettes & Non-Abrasive Cleaning Pad Kit; pkg. of 100 each
FL373	Engine Library License. Updates Q1210 to Q1220 configuration.
FL360	Full Library License. Updates Q1210/1220 to Q1230 configuration.

Note: Every system includes data logging on device and export capability to spreadsheet. Every system is upgradeable with additional lubricant library and parameters for other shipboard equipment.