![Spectro Scientific logo — Confidence in knowing]

Spectro LNF Q200 Series

PARTICLE COUNTER, WEAR CLASSIFIER, FERROUS MONITOR

The LNF (LaserNetFines™) is the world's best particle counter technology for lubrication oils. The advanced design makes it so much more than a particle counter: The LNF also calculates free water in ppm, and differentiates contaminants (silica) from machine wear (metal).

It provides particle counts and codes, abnormal wear classification and ferrous wear measurement.

Sample preparation is efficient with the LNF – viscosities up to 320cSt can be processed without dilution due to the wide dynamic range. And unlike conventional light blockage particle counters there are no flow control valves that need adjusting when testing different sample viscosities.

With an intuitive, configurable GUI and no calibration required, the Q200 series is fast, accurate and easy to use.

The LNF features:

- Particle count for all particles from 4 to 100 μm.
- Highest saturation limit, up to 5,000,000 particles/ml with a coincidence error <2%.
- Viscosity range ISO15 to ISO320, undiluted.
- Images through dark fluids containing up to 2% soot with automatic laser gain control.
- Error corrections for water and air bubbles.
- Particle counts and codes per ISO 4406, NAS 1638, NAVAIR 01-1A-17, SAE AS 4059, GOST, ASTM D6786, HAL, and user defined bins.
- Data export formats include Spectrotrack and AMS Machinery Health Manager.™

Multiple configurations and options cover the needs of commercial laboratories and of industrial plants for contamination control and predictive maintenance. Options include:

Ferrous Monitor to measure ferrous content

Ferrous wear measurement is a critical requirement for monitoring machine condition. The high sensitivity magnetometer measures and reports ferrous content in ppm, and provides ferrous particle count and size distribution for large ferrous particles >25 μm.

The in-line design of the magnetometer with the LNF flow cell enables measurement of both ferrous content and total particle count on the same sample, eliminating the need to measure Ferrous content on another instrument.
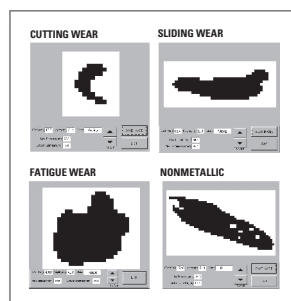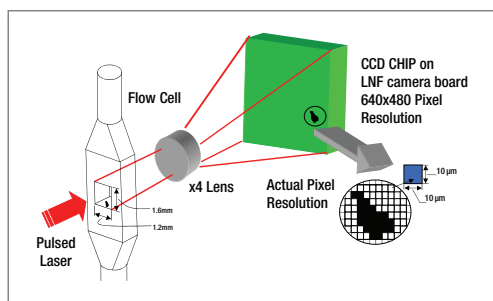
Classification of wear particle shape

The Q200 directly images wear particle silhouettes, and counts and classifies wear particles over 20 microns as cutting wear, sliding wear, fatigue wear, nonmetallic or fibers. This allows operators to determine the type of wear debris, wear mode and potential source from internal machinery components.

AutoSampler for high throughput sample processing

The Autosampler is a low cost solution for automatic and unattended processing of a batch of up to 24 samples and may be added to existing LNF installations by the end user with minimal setup.
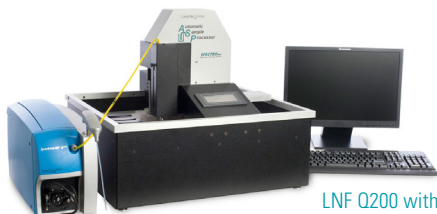
Direct particle imaging with LNF

Spectro LNF Q200 Series Ordering Information

PART NUMBER

SpectroLNF-Q210	LNF particle counter. Requires SA1023 or SA1024 accessory kit and a PC.
SpectroLNF-Q220	LNF particle counter with wear particle shape classifier. Requires SA1023 or SA1024 accessory kit and a PC.
SpectroLNF-Q230	LNF particle counter, wear particle classifier, and ferrous monitor. Requires SA1025 or SA1026 accessory kit and a PC.
SA1023	LNF Q210/Q220 standard accessories with ultrasonic cleaner, 115V
SA1024	LNF Q210/Q220 standard accessories with ultrasonic cleaner, 220V
SA1025	LNF Q230 standard accessories with ultrasonic cleaner, 115V
SA1026	LNF Q230 standard accessories with ultrasonic cleaner, 220V

ACCESSORIES AND CONSUMABLES

LNF-903	Q200 series preventative maintenance kit
LNF-509	LNF calibration check fluid 2806, 400 ml
LNF-545	Ferrous validation standard, 400 ml
P-10193	Electron solvent (1 gallon)
LNF-902	Skydrol kit (phosphate ester fluids) for Q210 and Q220 only (field installation)
LNF-905	Skydrol kit (phosphate ester fluids) for Q230 only (field installation)
ASP	Autosampler for Q200 series
A475101	OilView LIMS software
750-00047	Software for Oilview LIMS interface

PRODUCT INFORMATION

Applications	Mineral and synthetic lubricants including gear, engine, hydraulic, turbine and distillate fuels
Output	Particle count: ISO 4406, NAS 1638, NAVAIR 01-1A-17, SAE AS 4059, GOST, ASTM D6786, HAL and user defined
	Total ferrous, ppm Ferrous particle count and distribution
	Free water, ppm; Soot wt. %; Particle shape per LNF method
Methodology	ASTM D7596
Standard Analytical Range	Particles 4 µm - 100 µm
Calibration	Not required. Validation standards supplied with instrument.

OPERATIONAL SPECIFICATIONS

Sample Volume	5-30 mL, varies with viscosity
Solvents/Reagents	Solvent options when processing mineral based oils: Electron-22 Environmentally Safe Solvent Lamp Oil/Kerosene Diesel or Jet Fuel
	Note: Higher flammability solvents (Isopropyl Alcohol (IPA), Hexane, Heptane, Naptha, Mineral Spirits, Toulene, Petrol) may be used with appropriate caution in the LNF, however these may NOT be used with an ASP.
	Solvent options when processing Skydrol: IPA (Isopropyl Alcohol) only
Environmental Operating Requirements	5C to 40C ambient temperature, 10-80% relative humidity, non-condensing, 2000 m maximum altitude

USER INTERFACE SPECIFICATIONS

Software/Operating System	Windows®7 Pro, 32 or 64 bit, US English version

POWER REQUIREMENTS

Power	AC 110/240 V, 50/60 Hz, 10 Watts

MECHANICAL SPECIFICATIONS

Dimensions	22.9 cm (H) x 17.8 cm (W) x 43.2 cm (D) (9 in x 7 in x 17 in)
Weight	7.65 kg (17 lbs)
Shipping Package Dimensions	35.6 cm (H) x 36.8 cm (W) x 78.7 cm (L) (14 in x 14.5 in x 31 in)
Shipping Package Weight	12.2 kg (27 lbs)

COMPLIANCE

CE Mark: EMC Directive (2004/108/EC); RoHS, UL , CSA, ETL

Q200 Series Comparison

	Q210	Q220	Q230
Total particle count & codes	✔	✔	✔
Non-metallic particles (sand/dirt)	✔	✔	✔
Free water measurement	✔	✔	✔
Air bubble/water droplet correction	✔	✔	✔
Wear particle classification		✔	✔
Ferrous content			✔
Ferrous particle count & size distribution			✔
Auto sampler option	✔	✔	✔

LNF Q200 with Autosampler option