



Product Catalog

total laboratory
responsibility chlorine waste clean motion
foaming characteristic copper corrosion
distillation disruptive system cold properties
wear oil manufacturing tribological cover
sensing aspect demonstrator conservation wear
economy system lubrication technique footprint efficient
presented oxidation mechanical relative
coulometry replace therefore emphasize solution edxrf include
direction metrology friction viscosity help
ferrous content flash point
right gearbox turbine sustainability managing able name
reducing emphasize replace flexible life
environmental sulfur detection
enhanced surface establishing modification crude oil
namely fluid technology on-site oil analysis discipline
elemental legislation expected conservation
carbon residue total acid base number
technique evaporator predictive maintenance
compliant analysis equipment

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SpectrOil 100

(RDE-OES) Elemental Analyzer

ASTM D6595, ASTM D6792

SpectrOil 100 Series Rotating Disc Electrode Optical Emission Spectrometer (RDE-OES) is the eighth generation of the market leading RDE elemental spectrometer. It is widely used in commercial oil laboratories, on-site or trailer labs, as a proven means of precisely determining elemental composition in lubricating oil, coolant, light or heavy fuels, grease, and process water.



Specifications

Models	110E	120C	120F
Main application	Mineral & Synthetic Lubricants	Mineral & Synthetic Lubricants Glycol coolants Turbine washdown water	Mineral & Synthetic Lubricants Distilled Fuels Heavy Fuel Oil
Number of Elements	15	24	15
Default Calibration	Lubricating Oils	Lubricating Oils	Light & Heavy Fuel
Optional Calibrations	N/A	Available	N/A
Spectral Range	203 nm to 810 nm		
Calibration	Factory set, no calibration required		
Sample Volume	2 mL of fluid		
Detectors	CCD proprietary design for frequency range of interest		
Excitation Source	Oscillatory arc discharge, JOAP characteristic		
Standard Elements	Ag, Al, B, Cr, Cu, Fe, Mo, Ni, Pb, Si, Sn (0-1000 ppm) Ca, Na, P, Zn (0-3000 ppm)	Sb (0-100 ppm) Ag, Al, B, Cd, Cr, Cu, Fe, K, Li, Mn, Mo, Ni, Pb, Si, Sn, Ti, V (0-1000 ppm) Ba, Ca, Mg, Na, P, Zn (0-6000 ppm)	Na (0-100 ppm) Si (0-300 ppm) Al, Ca, Cr, Cu, Fe, K, Li, Mn, Ni, Pb, V, Zn (0-500 ppm) Mg (0-1500 ppm)
Extended Elements	N/A	As, Bi, Ce, In, W, Zr (0-100 ppm)	N/A
Coolant Calibration	N/A	Al, Ca, Cu, Fe, Mg, Pb, Zn (0-50 ppm) Mo, Si (0-500 ppm) B (0-1000 ppm) P (0-2500 ppm) K, Na (0-10000ppm)	Al, Ca, Cu, Fe, Mg, Pb, Zn (0-50 ppm)

Spectroil M

Oil Analysis Spectrometer

ASTM D6595, ASTM D6728

The latest SpectrOil M series is the eighth generation RDE Optical Emission Spectrometer for elemental analysis in oil and fuel. It is a compact, rugged, transportable and easy to use optical spectrometer that meets military shock and vibration and environmental test standards. The analyzer can be placed in the toughest remote locations around the globe, while still maintaining the laboratory grade accuracy and sensitivity needed for aerospace engine test requirements.

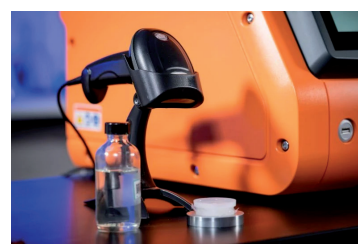
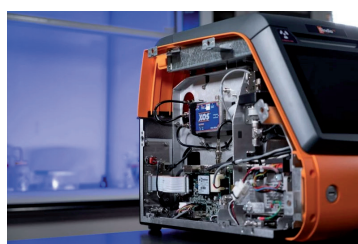
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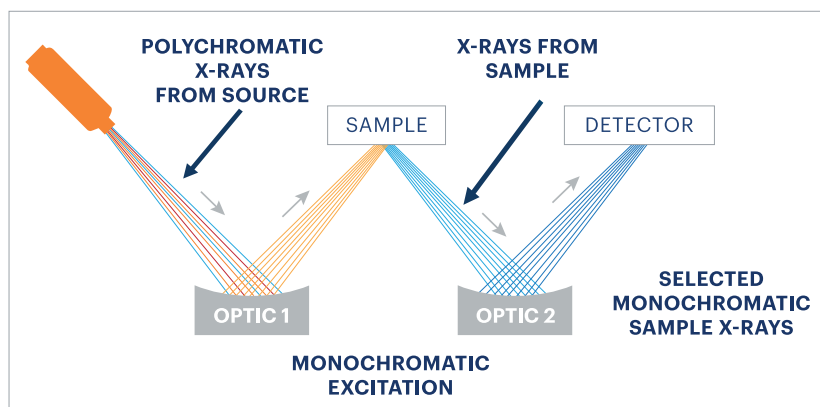
Sindie R Series

Total Sulfur Analyzer

Easier to use than ever, Sindie R2 provides the best value and combination of detection limits, measurement speed, ease of use and reliability and is the ideal sulfur analytical solution to help you stay in compliance with ASTM D2622, ASTM D7039, and ISO 20884 methods, enabling complete flexibility for your analytical needs.



Models	Sindie R1	Sindie R2	Sindie R3	Sindie+Cl
Test Method	ASTM D2622, D7039, ISO 20884			ASTM D2622, D4929, D7536, D7039, ISO 20884
Limit of Detections	0.7 ppm	0.4 ppm	0.15 ppm	0.4 ppm (Sulfur) 0.3 ppm (Chlorine)
Measurement Range	0.7 ppm to 10 wt%	0.4 ppm to 10 wt%	0.15 ppm to 10 wt%	0.4 ppm to 5 wt% (Sulfur) 0.3 ppm to 3000 ppm (Chlorine)
Dimensions	42 cm (h) x 40 cm (w) x 54 cm (d) 16.5 in (h) x 15.8 in (w) x 21 in (d)			
Power	100-120 VAC, 47-63 HZ at 5.0 Amps 200-240 VAC, 47-63 HZ at 2.5 Amps			
Sample Volume	Standard – 5 mL, Accucell – 1 mL			
Ambient Temperature	5-40°C (40-104°F)			
Optical Path	Vacuum			
Excitation Source	75 W air-cooled			

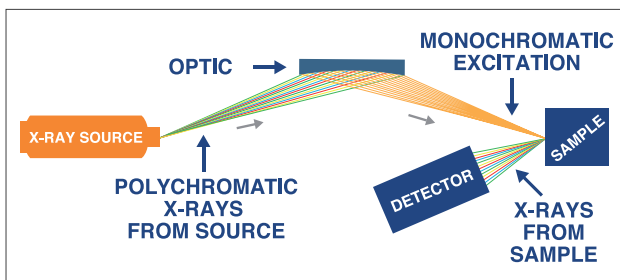


Monochromatic Wavelength dispersive X-Ray fluorescence

Petra 4294

EDXRF Sulfur Analysis System

Petra 4294 is a high-precision XRF analyzer that delivers ASTM D4294 sulfur analysis across a broad measurement range. This instrument offers advanced precision with HDXRF, advanced reliability, advanced software and data management. Petroleum laboratories depend on reliable, robust analytical solutions for their fast-paced environment. Petra 4294 was designed to meet these needs with an innovative sample introduction system that directs accidental spills to a drip tray and away from valuable components.



HDXRF Technology

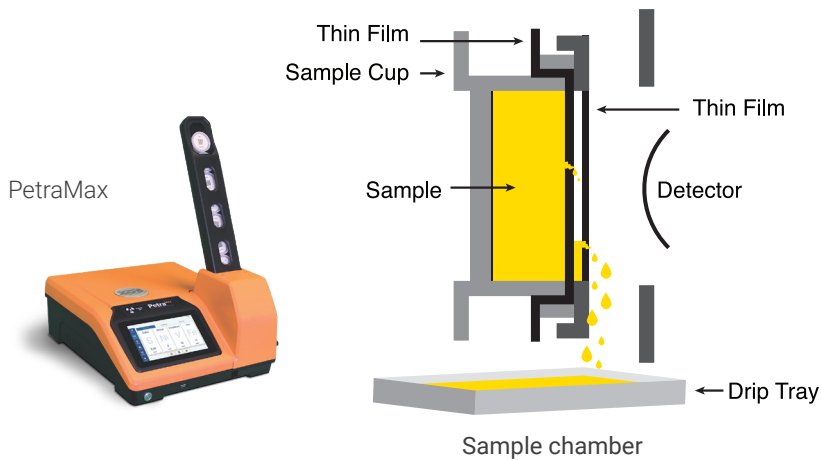


Table 1. Crude Oil Analysis by Petra Max (ppm)

Repeats	S	V	Fe	Ni
1	4,716	0.35	0.51	2.50
2	4,752	0.35	0.42	2.47
3	4,756	0.31	0.56	2.55
4	4,833	0.41	0.57	2.57
5	4,750	0.36	0.51	2.51
6	4,690	0.32	0.47	2.51
7	4,786	0.30	0.50	2.57
8	4,721	0.32	0.49	2.55
9	4,793	0.27	0.51	2.56
10	4,749	0.31	0.49	2.52
Average	4,755	0.33	0.50	2.53
Standard Deviation	41,4	0.04	0.04	0.03

Dynamic Range, LOD & Applications						
Petra Max	Dynamic Range	Sulfur 5.7 ppm - 10 wt%				
		Sulfur 5.7 ppm				
	Limit of Detection (ppm @ 600 s) in Hydrocarbons	P	Cl	K	Ca	V
		17	3	0.7	0.4	0.1
		Mn	Fe	Co	Ni	Cu
	Applications	0.07	0.07	0.07	0.04	0.1
Petra 4294	Method Compliance	ASTM D8252, D4294, ISO 8754, IP 336 & UOP 979				
	Dynamic Range	Sulfur 2.6 ppm - 10 wt%				
	Limit of Detection (ppm @ 600s)	Sulfur 2.6 ppm				
	Applications	Hydrocarbons				
	Method Compliance	ASTM D4294, ISO 8754 & IP 336				

Clora R Series

Total Chlorine Analyzer

The Clora R compact analyzer measures total chlorine in hydrocarbons such as aromatics, distillates, heavy fuels, crude oils, and water. This state-of-the-art technology complies with ASTM D4929C / D7536 and delivers unparalleled accuracy and precision for petroleum and petrochemical applications where simple, quick, and reliable analysis is critical.



Models	Clora	Clora 2XP	Sindie+Cl
Test Method	ASTM D7536, ASTM D4929		ASTM D2622, D4929, D7536, D7039, ISO 20884
Limit of Detections	0.13 ppm	0.1 ppm	0.4 ppm (Sulfur) 0.3 ppm (Chlorine)
Measurement Range	0.7 ppm to 10 wt%	0.4 ppm to 10 wt%	0.4 ppm to 5 wt% (Sulfur) 0.3 ppm to 3000 ppm (Chlorine)
Dimensions	42 cm (h) x 40 cm (w) x 54 cm (d) 16.5 in (h) x 15.8 in (w) x 21 in (d)		
Power	100-120 VAC, 47-63 HZ at 5.0 Amps 200-240 VAC, 47-63 HZ at 2.5 Amps		
Sample Volume	Standard – 5 mL, Accucell – 1 mL		
Ambient Temperature	5-40°C (40-104°F)		
Optical Path	Vacuum		
Excitation Source	75 W air-cooled		



Phoebe

Total Phosphorus Analysis System

From crude oil to bio-fuels, in additives or water, Phoebe benchtop analyzers deliver exceptional precision and accuracy for complete phosphorus analysis.

- LOD: 0.4 ppm at 600 s
- Dynamic Range: 0.4 ppm to 3000 ppm
- Automatic sulfur correction
- Robust touch-screen user interface
- User programmable measurement time: 30-900 s
- Low power air-cooled excitation X-ray tube



Signal

Silicon Detection System

Signal complies with ASTM D7757 and delivers quantitative analysis of silicon (Si) from gasoline to ethanol and toluene. Silicon contamination continues to impact fuel quality, resulting in costly engine failures and catalyst fouling.

- Easy to use
- Extremely low maintenance
- Total silicon analysis
- For use in multiple application areas
- Hassle-free sample prep

Genius IF

Bench Top EDXRF Spectrometer With Secondary Targets

Xenometrix's Genius IF (Secondary Targets) EDXRF spectrometer offers a cost-effective solution in today's market of elemental analysis. The analyzer provides a non-destructive qualitative and quantitative determination from Carbon(6) to Fermium(100), providing detection limits from sub-ppm to high weight percent concentrations.



Models	SDD	SDD LE
Detector	SDD with 125 eV sensitivity (Silicon Drift Detector)	Optimized light element detector
Elements	F(9) - Fm (100)	C(6) - Fm (100)
Measuring Range	0.1 ppm - % 100	
Excitation	50 kV, 50W Rh anode X-Ray Source	
Excitation Type	Via direct or secondary target	
Filters	8 Pieces	
Analysis Environment	Air / Helium / Vacuum	
Sample Chamber	8 or 16 Chamber Sampling Unit	
Dimensions (WxDxH)	55 x 32 x 55 cm	
Power Requirements	110 - 230 VAC 50/60 Hz	



P-Metrix

Portable Field Laboratory – Taking the Laboratory to the Field

A portable field laboratory with safe and superior Energy-Dispersive X-Ray Fluorescence (EDXRF) quantitative and qualitative analysis. P-Metrix is a high-power analyzer that incorporates performances and safety of a top-grade EDXRF benchtop analyzer, combined with easy mobility and cost-effective benefits of a portable device and field engineered. This powerful 50kV, 10W with Rh anode providing onsite lab quality excellent performance for complex field applications.



RoHS

Ensure Compliance With RoHS With the Ability for Full Elemental Analysis

The fast quantitative analysis allows manufacturers to comply with the new regulations, while automatically identifying the matrix components and selecting optimal acquisition parameters for samples of various matrices, thicknesses, and sizes. RoHS fully complies with the latest RoHS 2 2011/65/EU directive and is ready for future regulation updates and upgrades.



Apollo

Sensitive Analysis of Particulate Matter Collected on Air Filter Samples

The Apollo analyzer can test for inorganic air pollutant species while supporting compliance with the US-EPA's air quality regulation requirements. Along with the power to quantify the deposits of airborne particulates up to 60 elements, the Apollo is fast, accurate, easy to use, and achieves low detection limits. With the ability to analyze filters "as received" without destruction and with no preparation or extraneous handling, the instrument ensure that the air filter sample can be preserved for future reference.

www.biolab.com.tr

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LaserNet 200 Series

Particle Counter & Wear Debris Analyzer

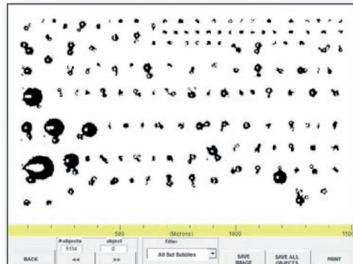
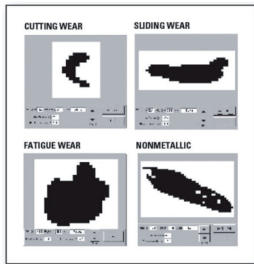
**ASTM D6786, ASTM D8120, ASTM D7596
ISO 4406, NAS 1638, NAVAIR 01-1A-17, SAE 4059**

The Spectro LNF Q200 series applies the world's best oil particle counter technology. With an intuitive, configurable GUI and no calibration required, the Q200 series is fast, accurate and easy to use. Sample preparation is efficient with the LNF. Viscosities up to 320 cSt 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.



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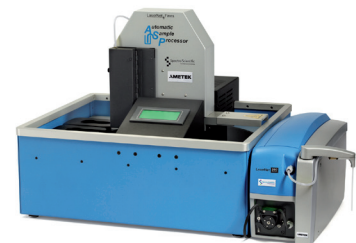
Models	210	215	220	230
Applications	Mineral and synthetic lubricants including gear, engine, hydraulic, turbine and distillate fuels			
Output	Particle count: ISO 4406, NAS 1638, NAVAIR 01-1A-17, SAE AS 4059, GOST, ASTM D6786, HAL and user defined. Total ferrous, ppm - Large ferrous, ppm - Ferrous particle count and distribution percentage large ferrous particles, %ferrous wear severity index free water, ppm; Soot wt. %; particle shape per LaserNet 200 Series method			
Standard Analytical Range	Particles 4 µm - 100 µm			
Sample Volume	5 - 30 ml, varies with viscosity			
Environmental Operating Req.	5°C to 40°C ambient temperature, 10 - 80% relative humidity, non condensing, 2000 m maximum altitude			
Software / Operating System	Windows®7, Windows 10 Pro, 32 or 64 bit, US english version			



Operating Principles

The LaserNet 200 Series system employs an innovative, patented approach to testing the fluid directly from the sample bottle. The core of the device combines a direct imaging particle analyzer with a sensitive magnetometer together to generate both particle counts, images and ferrous concentration in ppm. Oil and fluid samples are passed through a flow cell, illuminated by a laser, and a CCD video camera counts and classifies the particles from the image data. This technique provides the user with a very reliable and accurate particle counter that can tolerate a wide range of dirty and clean samples, with varying viscosities.

LaserNet Comparison	210	215	220	230
Total particle count & codes	✓	✓	✓	✓
Non-metallic particles (sand/dirt)	✓	✓	✓	✓
Free water measurements	✓	✓	✓	✓
Air bubble/water droplet correction	✓	✓	✓	✓
Wear particle classification	✗	✗	✓	✓
Total ferrous concentration	✗	✓	✗	✓
Ferrous particle count & size distribution	✗	✓	✗	✓
Large ferrous concentration	✗	✓	✗	✓
Autosampler option	✓	✓	✓	✓



ASP Autosampler

The ASP autosampler is a low cost solution for automatic and unattended processing of a batch of up to 24 samples. The ASP may be added to existing LaserNet 200 installations with minimal setup.

FluidScan

On-Site Oil Analysis System

ASTM D7889, ASTM E2412 ASTM E1655

The FluidScan 1000 Series provides quantitative measurement of a lubricant's condition and plays an important role in predictive maintenance. Using the device, you can eliminate unnecessary oil changes or service by testing not just servicing the oil.

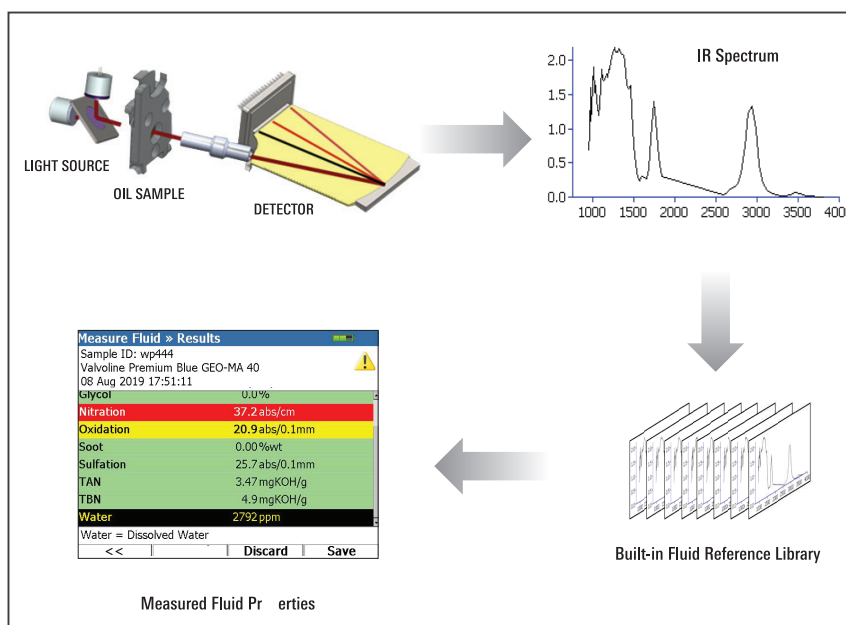
Applications Include:

- Mineral and synthetic oils used in gear boxes, engines, transmissions
- Hydraulic systems, turbines and other machinery components
- Biodiesel/Fuel
- Quality assurance of new oils



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	FluidScan 1000	FluidScan 1100
Default Library	One free library industrial from FL364 to FL371 at time of purchase	
Upgradable to Full Library	Yes	Yes
Total Water License	Optional	Optional
Route Base Analysis	No	Yes
OilView Interface	No	Yes
TruVu 360 Device Console interface	No	Yes
Intended Application	Fleet, marine, military, aerospace, fuel QC	Industrial manufacturing plants, power plants



TL 7000

Total Acid / Base Number Titrator

**ASTM D94, D664, D974, D2896, D4739, D4929, D3227
UOP 163, UOP 212, EN 14111**

With its performance spectrum, the TL7000 total Acid/Base Number Analyzer is the ideal starting device for potentiometric titration with potential for expansion and automation. high-resolution and precise pH/ mV and "dead-stop" measuring interface, makes it possible to determine a wide range of parameters quickly, reliable and accurate.



Viscol 20AS

Dual-Bath Automatic Kinematic Viscometer

ASTM D445, ASTM D446, ISO 3104, ISO 3105, IP 71

Viscol 20AS is a fully automated dual bath kinematic viscometer with 23 position autosampler for each bath. The unit is equipped with latest temperature control, time detection and washing features to minimize potential human errors while ensuring consistent and reliable results for each measurement.

Viscol 20AS Dual Bath Kinematic Viscometer offers sensitive temperature control and wide viscosity range with two separate baths for simultaneous measurements at two different temperatures. Sampling nozzles are designed with special nozzle wash & dry (SPW) feature to avoid any cross contamination between samples.

Viscol 20AS is a stand-alone unit, ready to go, without the need of an external PC for any operation as measurement, washing or to check analysis history. Windows based wide-screen touch panel PC is designed to control each bath separately with a user-friendly interface.



Key Benefits

Dual Bath Design: Simultaneously operate at two different temperatures for enhanced productivity.

Sensitive Temperature Control: 0.001°C temperature control sensitivity within wide temperature range.

Automatic Operation: Fully automated sampling, measurement, calibration and cleaning mechanism.

Wide Measurement Range: Suitable for a wide range of samples and applications.

Precise Measurement: Achieve highest accuracy with unattended analysis and calibration.

Unique Cleaning: Standard dual-solvent design in each bath with SPW feature to avoid any cross contamination.

User-Friendly Interface: Windows based touch screen panel and device software for simplified operation.

Data Integration: Easily export and integrate your data with lab management systems and Viscosoft software.

Safety: Built-in temperature and bath liquid level safety features and alarms to ensure secure operation.

Time-Saving: Automated sampling, measurement and washing features to increase operator efficiency.

Economic: Lower solvent consumption by full automatic washing and drying system.

Specifications

Methodology	ASTM D445, ASTM D446, ISO 3104, ISO 3105, IP 71
Viscometer type	Ubbelohde
Viscometer range	170 - 225 Fold
Temperature range	10°C to 120°C * Other temperatures (optional)
Temperature sensitivity	0.001°C
Temperature stability	0.005°C
Time detection precision	0.001 s
Carousel Capacity	23 samples
Measurement range	0.15 cSt - 30000 cSt
Sample volume	10-15 mL
Cleaning	Dual solvent per bath & SPW
Display	12" Touch Panel Screen
Data transfer	USB & Ethernet (RJ45)
Cooling	Built-in cooling coil per bath
Security	Low Bath Oil & Over Temperature Safety Interlocks
Weight	100 Kg
Dimensions	60 x 60 x 90 cm
Power requirement	220 VAC - 50 Hz
CE Mark	



Viscol 10AS

Automatic Kinematic Viscometer

**ASTM D445, ASTM D446
ISO 3104, ISO 3105, IP 71**

Viscol 10AS is a fully automated single bath kinematic viscometer with 23 position autosampler. The unit is equipped with latest temperature control, time detection and washing features to minimize potential human errors while ensuring consistent and reliable results for each measurement.



Viscol 10A

Automatic Kinematic Viscometer

**ASTM D445, ASTM D446
ISO 3104, ISO 3105, IP 71**

Viscol 10A is a fully automated single-bath kinematic viscometer according to ASTM D445/D446 and related standards. The unit is designed for kinematic viscosity measurements of all newtonian type fluids up to 120°C.



Viscol 10P

Automatic Polymer Viscometer

**ASTM D789, ASTM D871, ASTM D1243
ASTM D1795, ASTM D2857, ASTM D4603
ASTM D4243, ISO 307, ISO 5351,
ZEC 60450, TAPPI 230, ISO 1628**

Viscol 10P is a fully automated single-bath polymer viscometer for relative, specific, reduced, inherent, intrinsic viscosity measurements. The unit is designed with high resistive teflon and glass components to suit analysis with high acidic solvents in different types of polymer samples.



Viscol 10J

Automatic Cold Temp. Viscometer

**ASTM D445, ASTM D446, ASTM D1655
ASTM D2532, ISO 3104, ISO 3105, IP 71**

Viscol-10J Automatic Cold Temperature Viscometer, equipped with the latest temperature control, detector, chronometer and washing features for low temperature kinematic viscosity measurements down to -45°C.

Specifications

	Viscol 10A	Viscol 10B	Viscol 10P	Viscol 10J		Viscol 10AS	Viscol 20AS
Main application	Fuel & Oil, In-Service Oil	Fuel & Oil, Bitumen	Plastic, Polymer Paper & Pulp (Cellulose)	Fuel & Oil, Jet Fuels		Fuel & Oil, In-Service Oil	Fuel & Oil, In-Service Oil
Viscometer type	Ubbelohde						
Viscometer range	170 - 225 Fold						
Temperature range	Ambient to 120°C	Ambient to 150°C	10°C to 140°C	Viscol 10J-25 -25°C to 120°C	Viscol 10J-40 -45°C to 120°C	Ambient to 120°C	Ambient to 120°C
Temperature sensitivity	0.001°C						
Temp. stability	0.005°C						
Time det. precision	0.001 s						
Caroussel capacity	N/A					23 samples	46 samples
Measurement range	0.15 cSt - 30000 cSt						
Sample volume	10-15 mL						
Cleaning	Dual solvent per bath & SPW						
Display	7" Touch Panel Screen						12" Touch Panel Screen
Data transfer	USB & Ethernet (RJ45)						
Cooling	Built-in cooling coil per bath						
Security	Low Bath Oil & Over Temperature Safety Interlocks						
Weight	40 Kg	40 Kg	40 Kg	50 Kg		50 Kg	100 Kg
Dimensions	30 x 50 x 80 cm	30 x 50 x 80 cm	30 x 50 x 80 cm	30 x 50 x 80 cm		30 x 60 x 90 cm	60 x 60 x 90 cm
Power requirement	220 VAC - 50 Hz						
CE Mark							

MiniLab Series

4 simple tests and less than 15 minutes to comprehensive oil analysis

Can be operated on-site by plant staff; no chemist required.



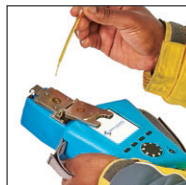
Particle Count and Ferrous Monitor

The direct imaging particle counter and ferrous monitor provides particle counts and ISO codes, wear classification, ferrous particle counts & size distribution, and total ferrous measurement.



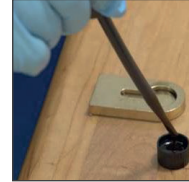
Viscosity

The portable viscometer provides high accuracy 40°C kinematic viscosity measurements.



Chemical Analysis

The infrared spectrometer measures Total Acid Number (TAN), oxidation and water for machinery oils and hydraulic.



Elemental Analysis

The elemental analyzer provides measurement of 24 elements to identify individual contaminants, wear metals and the elemental composition of additives.





Elemental Analysis



- Measures ppm levels of up to 32 elements in less than 30 seconds
- Easy to operate – no sample preparation, gases, coolants or solvents needed
- Compliant with ASTM D6595 for used oil analysis



Particle Count



The LaserNet 200 Series provides particle counts and codes, large wear particle classification and ferrous wear monitoring.

NSN: 6635015101712



Viscosity



- Solvent free and easy to use
- Viscosity range 1-700 cSt @40°C
- Accuracy +/- 3% to NIST viscosity standards
- Fast results: ISO 15 ~10 seconds, ISO 320 ~ 3 minutes

NSN: 6630016222461



Chemical Analysis



- Compliant to ASTM D7889 "Standard Test Method for Field Determination of In-service Fluid Properties Using IR Spectroscopy"
- High correlation to TAN and TBN laboratory tests conducted with ASTM D664 and D4739
- Patented, Comprehensive Water Measurement option extends range to 6.5%. (Included all MiniLab systems.)

NSN: 7025016516207



Fuel Dilution



- Conforms to ASTM D8004
- 0.2 to 15% fuel dilution range
- Excellent repeatability (<= 5% RSD)
- Disposable vials
- Small sample volume (0.5ml)
- Fast analysis (1 min.)
- Onboard memory calibration profiles
- USB data export hub
- On-site analysis (Battery powered)

NSN: 6630015100495

MiniLab Models

MiniLab 153 – provides a complete oil analysis report with elemental analysis, comprehensive wear particle analysis, solid and water contamination, fluid chemistry and viscosity. It is ideal for large power plants and manufacturing plants with many assets.

MiniLab 53 – provides a Trivector report with comprehensive wear particle analysis, solid and water contamination, fluid chemistry and viscosity.

MiniLab 33 – provides a basic Trivector report with total ferrous wear, fluid chemistry, water in oil and viscosity.

MiniLab 23 – provides basic oil condition information including viscosity, chemistry and water in oil.



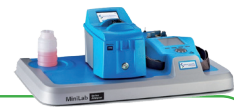
MiniLab 153 - 4 Test



MiniLab 53 - 3 Test



MiniLab 33 - 3 Test



MiniLab 23 - 2 Test

	Parameters	Elemental ASTM D6595	Particle Count & Ferrous ASTM D7596	Ferrous ASTM D8120	Viscosity ASTM D8092	Chemical ASTM D7889
Contamination	Particle Count and ISO Codes		✓			
	Non-metallic Particle Count, Distribution & Images		✓			
	Sodium & Silicon	✓				
	Total Water					✓
Chemistry & Viscosity	Viscosity				✓	
	Total Acid Number (TAN)					✓
	Oxidation					✓
	Fluid Integrity					✓
	Total Base Number (TBN), Oxidation, Nitration & Sulfation for engine oils					✓
	Magnesium, Calcium, Barium, Zinc, Molybdenum & Phosphorus	✓				
Wear	Wear Particle Images and Counts		✓			
	Total Ferrous Content, ppm		✓	✓		
	Large Ferrous Content, ppm		✓			
	Copper, Silver, Chromium, Titanium, Aluminum, Nickel, Iron, Manganese, Lead, Tin, Cadmium, Vanadium	✓				

FieldLab Series

Portable Oil Lab

ASTM D812, D7889, D8092

Commercial field service professionals managing fleets of high-value assets require portable, lightweight devices that provide rapid oil analysis results with quality similar to oil analysis labs. Funded by the United States Department of Defense (DoD), then developed and commercialized by Spectro Scientific, the FieldLab C Series is state of the art military technology now available for commercial use.

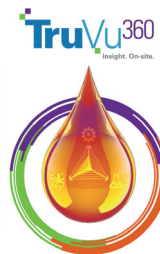
The FieldLab C Series integrated system requires only a few milliliters of oil to complete four comprehensive tests to help maintain readiness of critical assets while economically managing maintenance costs.

Key Features

- Rugged design with battery power for on-site field use
- No solvents or chemicals required
- Complete oil analysis lab with 4 technologies integrated into a small case
 - X-Ray Florescence (XRF) spectrometer for elemental analysis
 - Filter Particle Quantifier (FPQ) pore blockage particle counter
 - Infrared (IR) spectrometer
 - Kinematic viscometer (40°C)
- 4 tests generate more than 20 oil analysis parameters in less than 10 minutes
- Built-in controller for measurement, data, and asset with touch screen interface
- Uses only 12 mL of oil



NSN: 7025016529051



Spectro Scientific		FieldLab C Series	
Location: [Blank]		Asset ID: [Blank]	
Asset Name: [Blank]		Asset Type: [Blank]	
Asset Status: [Blank]		Asset Location: [Blank]	
Asset Description: [Blank]		Asset History: [Blank]	
Asset Maintenance: [Blank]		Asset Performance: [Blank]	
Asset Compliance: [Blank]		Asset Security: [Blank]	
Asset Audit: [Blank]		Asset Report: [Blank]	
Asset Summary: [Blank]		Asset Details: [Blank]	
Asset Notes: [Blank]		Asset Attachments: [Blank]	
Asset Actions: [Blank]		Asset Settings: [Blank]	
Asset Help: [Blank]		Asset Logout: [Blank]	



FieldLab 58C



FieldLab 33C

	Parameters	Elemental	Particle Count	Viscosity	Chemical	Ferrous
Contamination	Particle Count and ISO Codes		✓			
	Silicon (Sand and Dirt)	✓				
	Water, Glycol, Soot				✓	
Chemistry & Viscosity	Kinematic Viscosity			✓		
	Total Acid Number (TAN) Total Base Number (TBN)				✓	
	Oxidation, Nitration, Sulfation				✓	
	Fluid Integrity				✓	
Wear	Elemental > 4 microns Copper, Silver, Chromium, Aluminum, Silicon, Nickel, Zinc, Iron, Lead, Tin, Molybdenum and Vanadium	✓				
	Total Ferrous Content, ppm					✓

MicroLab Series

On-Site Oil Analyzer

ASTM D7417

The MicroLab combines automation and artificial intelligence in an all-in-one oil analysis tool.

15 minutes to comprehensive oil analysis

- Can be operated by maintenance staff, no chemist required
- Fully automated operation and cleaning
- Easy to understand reports with color-coded alarm limits and diagnostic statements



Monitoring equipment & oil health with oil analysis

The four automated MicroLab tests provide a complete look at equipment and oil condition.

Mechanical condition parameters indicate potential equipment failure:

- Wear metal analysis
- Contamination (glycol, dirt, water)

Oil condition parameters indicate potential degradation and contamination:

- Viscosity
- Oil chemistry (Total Base Number, oxidation, nitration)
- Contamination (glycol, water, soot, particle count)
- Oil additive levels



Chemistry

The MicroLab Infrared Spectrometer measures six key parameters which indicate potential oil degradation and contamination.

Both the MicroLab 30 and 40 provide:

- Oil degradation: oxidation, nitration, total base number
- Oil contamination: soot, water, glycol



Elemental Analysis

The MicroLab Optical Emission Spectrometer quantifies wear metals cause from mechanical components, as well as other elements from oil additives or sources of contamination.

Both the MicroLab 30 and 40 provide:

- Analysis of 20 elements including: Aluminium, Chromium, Copper, Iron, Lead, Tin, Barium, Boron, Calcium, Magnesium, Manganese, Nickel, Phosphorous, Titanium, Vanadium and Zinc.



Viscosity

The MicroLab Dual Temperature Viscometer provides kinematic viscosity analysis which can help identify potential oil degradation or contamination.

Both the MicroLab 30 and 40 provide:

- Kinematic viscosity at 40°C and 100°C
- Viscosity Index (VI)







Particle Count

The MicroLab 40 model is equipped with a particle counter to measure particle contamination which is crucial for maintaining hydraulic systems, compressors and turbines.

The MicroLab 40 measures:

- ISO particle size

	MicroLab 40 For engines, transmissions, power steering, generators, hydraulics, gear oils	MicroLab 30 For engines, transmissions, power steering, generators
 Infrared Spectrometer	✓	✓
 Kinematic Viscometer	✓	✓
 OES Elemental Analyzer	✓	✓
 Particle Counter	✓	

InfraCal

Total Oil & Grease Analyzer



InfraCal 2 ATR-SP

The ATR-SP model is the most common model chosen by customers. Like EPA 1664, the ATR-SP uses hexane and an evaporation during the measurement process making it an ideal solution for customers trying to get comparable results to the EPA 1664 method.

- Strong correlation to EPA 1664 because both methods use a hexane extraction procedure
- Uses a variety of solvents such as hexane, pentane and cyclohexane that are inexpensive, easily obtained
- ATR crystal is robust and is easily maintained with proper cleaning
- No sample handling accessory required
- Measurement range can extend up to 15%

InfraCal 2 TRANS-SP

The TRANS-SP uses the traditional IR transmission method for measuring oil in water/soil. Since the TRANS-SP does not rely on an evaporation, there is no loss of volatile material during measurement which is why the TRANS-SP was used for developing ASTM D7066.

- Measures both volatile and non-volatile hydrocarbons
- No evaporation required
- Used to develop ASTM D7066
- Strongly correlates with other regulatory methods
- Uses a variety of solvents, some of which are non-toxic and environmentally friendly

Analytical Wavelength / Wave Number	3.4 μ m, 2930 cm
Power Requirements	18 volts DC, 3.3 amps, internal battery
Power Supply	Universal AC/DC provided
Weight	5.8 lb (2.6 kg), with battery - 7.0 lbs (3.2 kg)
Dimensions	6.7" (17 cm) x 7.8" (19.8 cm) x 5.2" (13.2 cm)
Suggested Operating Range	40°F (5°C) - 110°F (40°C)
Measurement Range	ATR-SP: 0.3 - 2000+ ppm 0.3 - 15+ % TRANS-SP: 0.1 - 2000+ ppm
Analysis Time	10 - 15 minutes, including extraction process
Instrument Repeatability	ATR-SP: \pm 0.3 ppm TRANS-SP: \pm 0.1 ppm
Communication Port	USB, RS 232

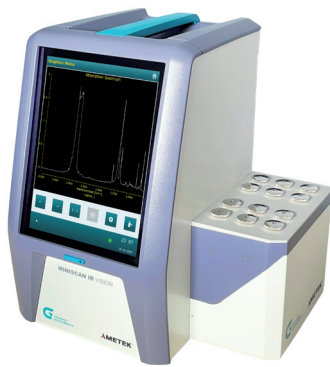
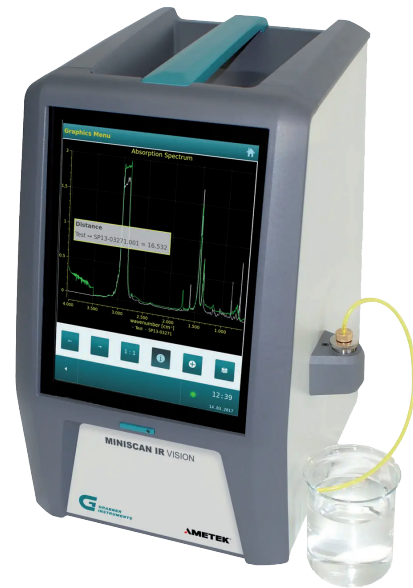
MiniScan IR Vision

Fuel Analysis System

The MINISCAN IR VISION is a high speed, compact and robust FTIR fuel analyzer for the comprehensive and automatic measurement of gasoline, jet and diesel fuels. The analyzer is configured to measure more than 100 fuel parameters and components for fuel blending, for quality inspection and to check compliance with fuel specifications directly at the point of sale.

Features

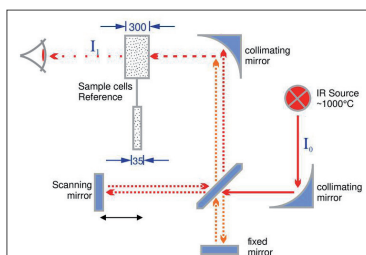
- Portable Fuel Analyzer for Gasoline, Diesel, Jet Fuel and Biofuel Blends
- Full Spectrum PLS Analysis using Superior Processing Power
- Smart 2+1 Cell Design
- Beam Splitter: Ge-Coated KBr
- Bubble Free Metal Filling System
- Thermoelectric Temperature Regulation of Filler, Density Meter and Cells



AS Vision Autosampler

AS Vision (ASV) is an innovative autosampler that allows rapid and continuous testing of up to 12 samples, with a single press of the play button on MINISCAN IR VISION analyzers. It was developed to achieve the highest sample throughput for the confident fuel analysis via FTIR.

FTIR Principle of IR Vision



GASOLINE				DIESEL			
Properties		Range ₁₎		Properties		Range ₁₎	
RON		70-110		Cetane Number		20 - 80	
MON		65-105		Cetane Index		20 - 80	
AKI		67-107		Kinematic Viscosity@40°C		0 - 10 mm²/s	
Distillation/Evaporation		IBP, T10, T50, T90, FBP, E70/100/150 (°C), E200/300(°F)		Dynamic Viscosity @40°C		0 - 10 mPas	
Density		0-3 g/cm³ _{s.d} = 0.0005g/cm³		CF PP		-50°C to +20°C	
Driveability Index (DI), VOC emissions, Vapor Lock Index (VLI)				Distillation/Recovery		IBP,T10/50/65/85/90/95,FBP R250, R350	
COMPONENTS				Density		0-3g/cm³ (r _{s.d} = 0.0005g/cm³)	
Oxygenates	Range ₂₎	Aromatics	Range ₂₎	COMPONENTS		Range ₂₎	
MTBE	0-20 m %	Benzene	0-10 m %	Total Aromatics		0 - 80 m %	
TAME	0-20 m %	Toluene	0-20 m %	Poly Nuclear Aromatics		0 - 50 m %	
ETBE	0-20 m %	o.p.m-Xylene	0-20 m %	Cetane Improver: EHN, IPN		0-10000 ppm	
DIPE	0-20 m %	Ethylbenzene	0-20 m %	Biodiesel (FAME, FAEF)		0 - 40 v%	
Methanol	0-15 m %	Propylbenzene	0-20 m %	JET FUEL			
Ethanol	0-20 m %	Mesitylene	0-20 m %	Properties		Range ₁₎	
Isopropanol	0-20 m %	Durene	0-20 m %	Flashpoint		-20°C to +100°C	
2-Butanol	0-25 m %	Naphtalene	0-10 m %	Freezing Point		-80°C to + 20°C	
tert-Butanol	0-25 m %	Pseudocumene	0-20 m %	Kinematic Viscosity @ -20°C		0-10 mm²/s	
Sec-Butylacetate	0-10 m %	2-/3-/4-Ethyl toluene	0-20 m %	Distillation		IBP,T10/50/90/95, FBP, E10/50, R200	
Iso-Butylacetate	0-10 m %	Other Aromatics	0-20 m %	Smoke Point		0 - 1000 mm	
Dimethylcarbonate	0-10 m %	Anilines	Range ₂₎	Total Aromatics		0 - 40 m %	
Dimethoxymethane	0-10 m %	Aniline	0-5 m %	Naphtalenes		0 - 5 m %	
Acetone	0-25 m %	N-Me-Aniline	0-5 m %	MSEP		60 - 100 %	
Other Oxygenates	0-20 m %	N,N-Dimethylaniline	0-5 m %	Density		0 - 3 g/cm³ (r _{s.d} = 0.0005 g/cm³)	
Octane Boosters	Range ₂₎	o,p,m-Methylaniline	0-5 m %	COMPONENTS		Range ₂₎	
MMT/CMT (mg/l)	0-10000	Total Parameters	Range _{1),2)}	Biodiesel (FAME)		0 - 0.12 m %	
Manganese (MMT)	0-2500	Total Oxygen	0-12 m %	FUEL ETHANOL MODULE			
Manganese (CMT)	0-2500	Total Aromatics	0-80 m %	COMPONENTS		Range ₂₎	
DCPD	0-15 m %	Total Olefins	0-80 m %	Ethanol		0 - 100 v %	
Nitromethane	0-9 m %	Di-Olefins	0-20 m %	Methanol		0 - 15 v %	
Other	Range ₂₎	Total Aniline	0-5 m %	Water		0 - 100 v %	
Cyclohexane	0-100 m %	Total Esters	0-5 m %	Denaturant		0 - 100 v %	
Standards & Particles		ASTM D5845, D6277, D7777, D7806, E1655, EN 238, EN 14078, ISO 15212					
Correlation to		ASTM D86, D323, D445, D1319, D5191, D6371, D6378, D613, D2699, D2700, D56/3828, D1322, D1840, D2386/D7153, D3948, D6379, ISO 3405, ISO 5163, ISO 5164, ISO 5165, EN 116, EN 13016					
Spectrometer		Temperature and Laser Regulated, 2+1 Cell+FTIR					
Density Measurement		Temperature Regulated Escillating U-Tube Cell					
Warm-Up / Scanning Time		<30s / 80s (Multiple Scans)					
Units of Measurement		v%, m%					
Interfaces		2xUSB, 2x LAN					
Power Supply		100-264 VAC, 45-63 Hz, max. 130 W (Auto-switching power supply). 12V DC vehicle battery adapter available for field use					
Dimensions (WxHxD), Weight		293 x 390 x 280 mm (10.5 x 15.4 x 11 inch), 12 kg (26 lb)					

MiniVap

Vapor Pressure Analysis System

MINIVAP VP Vision is a highly versatile portable vapor pressure tester that features best-in-class precision and a pressure range of 0-2000 kPa. It is the first analyzer that demonstrates excellence in engineering by earning certificates for robustness and durability. Based on Grabner's cutting-edge Cockpit™ technology, the instrument offers unmatched networking capabilities and enables worldwide access to analyzers.

Features

- Unmatched precision
- US EPA and CARB approved Grabner test method for highest accuracy
- Pressure range from 0-2000 kPa (290 psi)
- Unique 2-D Calibration™
- Complete calibration history and backup
- Cockpit™ software for remote multiinstrument and multi-location management
- Modern, app-like user interface
- Customizable user templates
- Results download: csv, PDF w/ graphics
- Portable, shock- and vibration-resistant design, certified for use in cold, dry and damp heat environment
- Best-in-class Sampling Pro™ valve design
- Integrated shaker for Crude Oil with adjustable speed



Temperature Range	Measured: 0 to 120°C (32 to 248°F), user programmable Extrapolated: -100 to 300°C (-148 to 572°F)
Temperature Stability	± 0.01°C (0.018°F)
Temperature Profiles	Single temperature, multipoint, curve, extrapolation
Pressure Range	MINIVAP VP Vision: 0 to 2000 kPa (0 to 290 psi)
Pressure Resolution	0.01 kPa (0.0014 psi)
Precision	Repeatability r= ± 0.13 kPa (0.01 psi) Reproducibility R= ± 0.20 kPa (0.02 psi)
Vapor/Liquid Ratio	0.02/1 to 100/1, depending on method
Measurement Time	~ 5 min., depending on method
Sample Introduction	Automatic with built-in piston (no vacuum pump required)
Sample Volume	1 mL (2.2 mL per rinsing cycle)
Results Database	> 100,000 detailed results w/ graphics stored within the instrument
Results Download	csv, PDF
Instrument OS	Linux™
Instrument Electronics	Intel® Industry PC, 10" industrial touchscreen, 24 bit ADC
Instrument Languages	en / de / fr / es / pt / it / ru / ar / zh / ja; customizable
PC Software	Grabner Cockpit™ with automatic instrument recognition for multi-location results and user management, remote device configuration, update, diagnostics, support and calibration checks
Interfaces	2x USB, 2x LAN (1x DVI-I, 1x RS 232) for direct connection to LIMS, PC, printer, LIMS, keyboard, mouse or barcode reader
Power Supply	100-264 V AC, 45-63 Hz, max. 80 W (auto-switching power supply). 12 V DC vehicle battery adapter available for field use
Environmental, Shock, Vibration Certificates	EN60068-2-1, EN 60068-2-78, EN 60068-2-14; EN 60068-2-6, EN 60068-2-27 (IEC 60721-3-2, Class 2M2)
Dimensions (WxHxD)	293 x 390 x 280 mm (10.5 x 15.4 x 11 inch)
Weight	10.5 kg (28 lb)



Vapor Pressure Crude Oil Package

The GRABNER INSTRUMENTS' Crude Oil Package is a comprehensive solution for the transport and measurement of the vapor pressure of crude oil according to ASTM D6377 (Expansion Method). The unique Floating Piston Cylinder allows safe sample transfer of "live crude oils" according to ASTM D3700 and eliminates the risk of evaporation of light hydrocarbon ends during transport. The Grabner Instruments crude oil package is also strictly in accordance with the Russian standard GOST 52340.



MiniVap On-Line RVP Analyzer

MINIVAP ON-LINE is a process monitoring analyzer for the determination of the vapor pressure of gasoline, crude oil, LPG and NPG. Also, the vapor-liquid ratio (LVR) of gasoline can be measured. The measuring principle is identical to the worldwide used laboratory instruments MINIVAP and therefore the MINIVAP ON-LINE produces equivalent results.

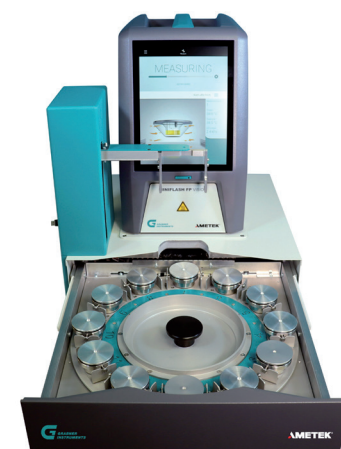
MiniFlash FP Vision

Flash Point Analyzer

MINIFLASH FP(H) VISION is part of Grabner Instruments Vision analyzer family. The flash point tester MINIFLASH FP(H) Vision combines the field-proven advantages of Grabner analyzers with a convenient touchscreen design. The Industry 4.0-ready instrument fully integrates with enterprise level networks and the COCKPIT™ Software.

Features

- Intuitive menu navigation on 10" color touchscreen
- Full network, PC and LIMS integration via LAN
- USB printer support and data transfer
- Digital manual reading and export
- Extended temperature range
- User rights management with COCKPIT™ Software
- Unlimited number of methods and results
- Automatic ignition cleaning program
- Automatic sample loading and ejection



MiniFlash FPA Vision Autosampler

The MINIFLASH FPA Vision Autosampler is the latest addition to the Vision-series product line, an automated accessory specifically developed for use with the MINIFLASH FP Vision analyzer. (Photo shows FP Vision and Autosampler). The modular design offers the flexibility to expand with an autosampler anytime. MINIFLASH FPA Vision autosampler can be used interchangeably with all FP Vision Series analyzers.

Temperature Range	FP Vision: <ul style="list-style-type: none"> • 0 to 120°C (32 to 248°F) without cooling • Down to -25°C (-13°F) with water cooling FPH Vision: <ul style="list-style-type: none"> • 10 to 400°C (50 to 752°F)
Temperature Stability	FP Vision: ±0.05°C (0.09°F) FPH Vision: ±0.07°C (0.13°F)
Precision (FP VISION)	ASTM D6450: Repeatability ±0.4°C (0.7°F) Reproducibility ±0.9°C (1.6°F) ASTM D7094: Repeatability ±0.5°C (0.9°F) Reproducibility ±0.9°C (1.6°F)
Sample Volume	1 ml (ASTM D6450) or 2 ml (ASTM D7094)
Fast Sample Throughput	Up to 16 samples/hour, depending on method
Interfaces	4x USB, 2x LAN
Instrument OS	Linux™
Remote Control	Remote Control via COCKPIT™ Software for Vision analyzers
Power Supply	100-264 V AC, 45-63 Hz, max. 125/235 W (FPV/FPHV; auto-switching power supply). 12 V DC vehicle battery adapter available for field use
Dimensions (WxHxD)	293 x 390 x 280 mm (10.5 x 15.4 x 11 inch)
Weight	FPV 10.2kg (22.4 lb) / FPHV 11.2kg (24.6 lb)

AD 92

Automatic Cleveland Flash Point Analyzer

ASTM D92, IP 36, ISO 2592

The apparatus is a benchtop model which houses the mechanical components and a miniature PC with touch screen. A software running under Windows Embedded permits to select the test method and the test parameters, run the test automatically, store, retrieve and print data, diagnose and calibrate the instrument offering in the meanwhile all the features of Windows systems such as LAN connectivity. The instrument is equipped with a sensor for the correction of the results towards atmospheric pressure.

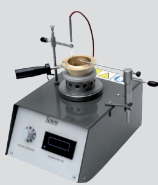


AD 93

Automatic Pensky Martens Flash Point Analyzer

ASTM D93 (A+B+C), IP 34, ISO 2719 (A+B), DIN 51758

The apparatus is a benchtop model which houses the mechanical components and a miniature PC with touch screen. A software running under Windows Embedded permits to select the test method and the test parameters, run the test automatically, store, retrieve and print data, diagnose and calibrate the instrument offering in the meanwhile all the features of Windows systems such as LAN connectivity. The instrument is equipped with a sensor for the correction of the results towards atmospheric pressure.



D92

Cleveland
Flash Point Analyzer

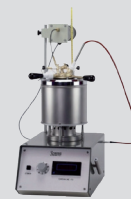
ASTM D92, ISO 2592



D93

Pensky Martens
Flash Point Analyzer

ASTM D92, ISO 2592



Abel 33

Abel Flash Point Analyzer

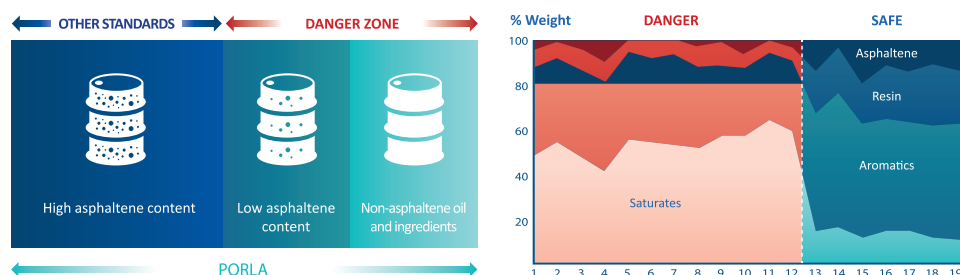
IP 33, 170, ISO 13736

Porla

Heavy Fuel Oil & Crude Oils Stability, Compatibility Analyzer

ASTM D7112

The analyser is used for blending optimisation in crudes, feed stocks, heavy oils and bitumen as well as the maximisation of oil refining process profitability. As an important part of the Auramarine portfolio the product is further developed together with clients, resulting in enhanced reliability, easier user experience and full customer support.



DIST D-2892 CC

Fully Computer Controlled Distillation System
according to ASTM D2892 (TBP)

The i-Fischer DIST D-2892 CC is a fully computer controlled unit of turn-key design, and ready for use after installation and commissioning. The system is fully housed and equipped with doors in the front and rear to satisfy safety requirements and to facilitate service aspects.

The automatic fraction collector with 20 receivers includes a built-in internal balance for the determination of the fraction weight, while the separate volume follower system is used for discharging the fractions into the final receivers and the determination of the fraction volume as well as for the direct distillation rate control.

The vacuum equipment and the control system are designed for highest accuracy, repeatability and reproducibility of data.

Also available with 100 ltr, 150 ltr, 250 ltr and 500 ltr fully automated computerised distillation systems acc. to ASTM D2892 equipped with a set of comprehensive safety features in correlation with the applicable EU Machine Directives and refinery standards. Numerous optional items are available.





OilLab 900

Atmospheric Distillation Unit

ASTM D86, D850, D1078, ISO 3405

Flask Volume: 125 ml
Sample Volume: 100 ml
Max. Temperature: 400°C
Pressure: ATM



Dist D2892 TBP

Crude Oil Distillation System

ASTM D2892

Flask Volume: 2-500 L
Fractions: 1,2,5 L
Max. Temperature: 400°C
Pressure: 1 Torr

Dist D1160 CC

Vacuum Distillation System

ASTM D1160

Flask Volume: 500 ml
Sample Volume: 200 ml
Max. Temperature: 650°C (AET)
Pressure: 1 Torr

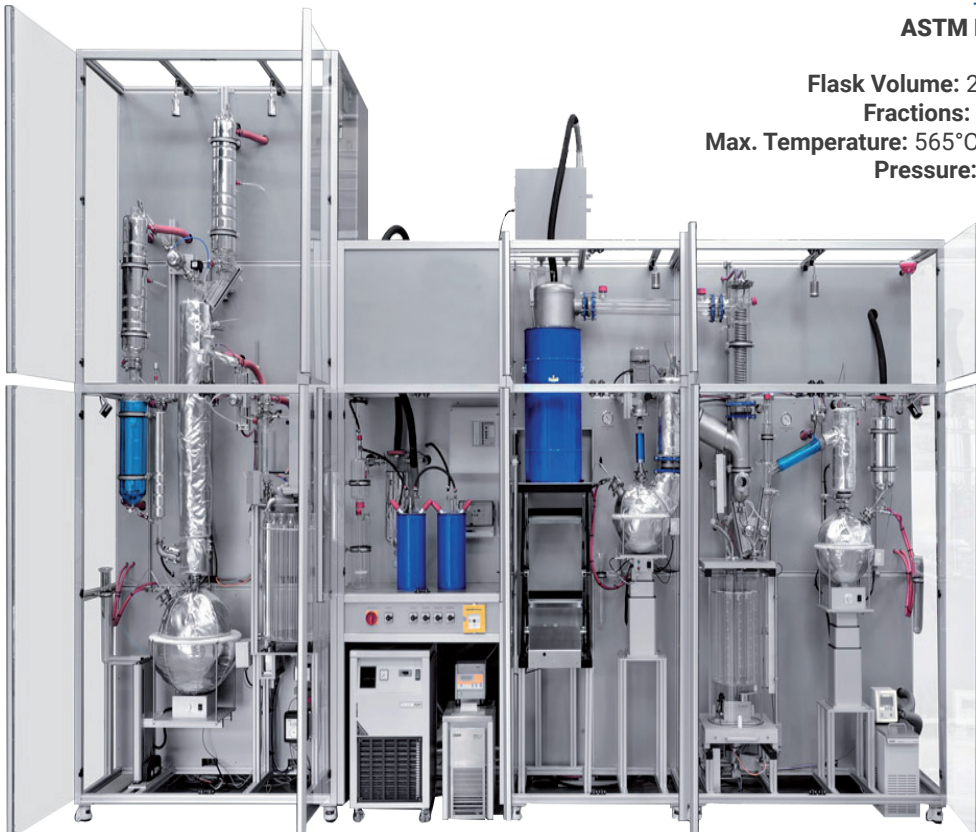
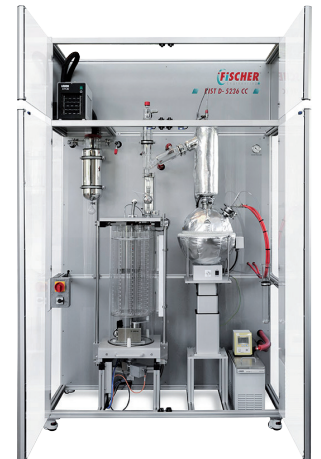


Dist D5236

Potstill Distillation System

ASTM D5236

Flask Volume: 2-250 L
Fractions: 1,2,5 L
Max. Temperature: 565°C (AET)
Pressure: 1 Torr



Computer Controlled-Combined
Distillation System according to
ASTM D2892 (TBP) and
ASTM D5236 (Potstill)

DS 50

Thin Film Evaporator

Thin Film Evaporators are used in chemical industry for the production and processing of low-molecular as well as macro-molecular substances. Because of the thermal sensitiveness of products, this separation method is applicable. The medium which is to be distilled is exposed only for a very short time to the heating substances because the film, which is created by the wiper, can evaporate very quickly. The residence time of medium on the heating surface is a matter of seconds, thus essentially less than in a reboiler flask, circulating evaporator etc.

Evaporators in borosilicate glass 3.3 are available with heat exchange areas 0.02...0.8 m².

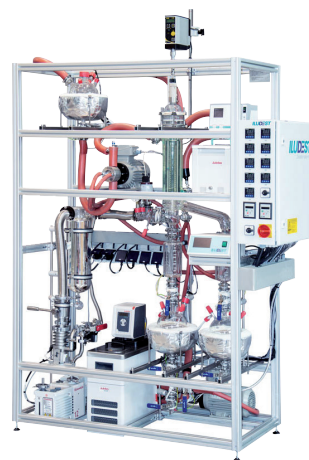


KV 80

Short-Path Evaporator

Short Path Evaporators are used in chemical industry for the production and processing of macro-molecular substances. Because of the thermal sensitiveness of products, this separation method is applicable. The sample to be distilled is exposed only for a very short time to the heating substances because the film, created by the wiper, can evaporate very quickly. The residence time of medium on the heating surface is a matter of seconds, thus essentially less than in a reboiler flask, circulating evaporator etc. The evaporated product (operation pressures down to 10-3 mbar and temperatures up to about 300°C) has to pass a "short path" to the condenser only, which is located in the middle of the evaporator.

Evaporators in borosilicate glass 3.3 are available with heat exchange areas 0.02...0.8 m².



LM-6/H

Solvent Recycling System

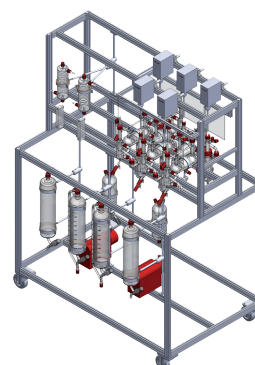
LM-6/H is an efficient solvent recycling system with custom reflux ratios. Objections to solvent recycling are usually based on concerns about the adequacy of the recovered product and the expected effort required to complete the distillation. First concern has been addressed above and we see that, for most clinical applications, very pure materials can be recovered.



EMS 20

Mixer Settler Extractor

EMS-20 Mixer-Settler Extractor for liquid extraction according to the Mixer-Settler-principle, design according to Dr. E. Müller (Lurgi). EMS-20 Mixer-Settler Extractor with screw stirrer for intensive mixing of the phases, especially suited for metallic salt extraction. Pumping capacity and residence times are changed by adjusting the stirrer speed.



Pasol

Oxidation Stability Analyzer

ASTM D2272, ASTM D4742, ASTM D7098, ASTM D942

Pasol Oxidation Stability Analyzer is a fully automated oxygen pressurized dry vessel to evaluate the oxidation stability of new and used oils in the presence of water and a copper catalyst coil at 150°C according to ASTM D2272 (RPVOT), D2112, D4742, D942 and IP229 standards.

Oxidation stability is a chemical process that occurs when lubricating oil is effected by oxygen. High working temperature, water, acids, and catalysts speed up the oxidation process. Remaining life of a lubricant is shortened especially at high temperatures. Additionally, oxidation causes an increase in the viscosity, as well as varnish and sludge deposits. Oxidation in oils, such as lubricating, hydraulic, pump, etc. is one of the main causes of mechanical malfunction. Therefore monitoring oxidation resistance of oils helps preventing machinery break downs.

Pasol Oxidation Stability Analyzer automatically conducts the rotating pressure vessel oxidation test (RPVOT) to measure the oxidation resistance of oil samples. The device is a stand-alone unit, ready to go, without the need of an external PC for any operations as measurement, washing or to check analysis history. Windows based wide-screen touch panel PC is designed to control the unit with a user-friendly interface.



Key Benefits

Sensitive Temperature Control: 0.01°C temperature control sensitivity within wide temperature range.

Automatic Operation: Fully automated oxygen pressure regulation, heating, measurement, calibration and cleaning.

Real-time Monitoring: Real time monitoring of pressure, chamber and sample temperature with graphical interface during the analysis.

Precise Measurement: Achieve highest accuracy with unattended analysis.

Reporting: Graph and analysis data report transfer to USB and PC environment whenever required.

Cooling: Built-in coil for fast cooling of the test chamber.

User-Friendly Interface: Windows based touch screen panel and device software for simplified operation.

Data Integration: Easily export and integrate your data with lab management systems.

Safety: Built-in over temperature and over pressure interlocks

Economic: Lower solvent consumption by full automatic washing and drying system.

Specifications

Methodology	ASTM D2272, ASTM D4742, ASTM D7098, ASTM D942
Analysis chamber	Stainless steel dry vessel
Rotation	Magnetic contactless rotation
Temperature range	Up to 200°C
Temperature sensitivity	0.01°C
Temperature stability	0.05°C
Time detection precision	0.01 s
Pressure Unit	bar / psi / kPa
Sample volume	50 mL
Cleaning	Automated chamber cleaning
Display	7" Touch panel screen
Data transfer	USB & Ethernet (RJ45)
Cooling	Embedded cooling coil
Security	Over pressure & over temperature interlocks
Weight	40 Kg
Dimensions	30 x 40 x 40 cm
Power requirement	220 VAC – 50 Hz
CE Mark	

CuTie

Copper Corrosion Analyzer

**ASTM D130, ASTM D1838, ASTM D4048
ASTM D4814, IP227, ISO 2160, IEC 62535**

Cutie Copper Corrosion Analyzer performs all copper and silver corrosion tests up to 200°C. Unit has an aluminum dry block test chamber available in 4, 8 and 12 sample containers. Cutie Copper Corrosion Analyzer is suitable for aviation gasoline, aviation turbine fuel, automotive gasoline, natural gasoline or other petroleum products' corrosiveness tests according to ASTM D130, D1838, D4048, D4814, IP227, ISO 2160 and IEC 62535.

Copper corrosion test is used to determine the level of corrosiveness to copper of hydrocarbons. At different temperatures, a polished copper strip is immersed in the hydrocarbon sample. After a given time, strip is checked for corrosion. A classification number is assigned according to the ASTM D130.



Key Benefits

Sensitive Temperature Control: 0.01°C temperature control sensitivity within wide temperature range.

Clean Analysis: Aluminum dry block to avoid oil bath pollution for clean and easy analysis.

Rapid Heating: Powerful heating for fast and stable set temperature up to 200°C.

Compatible: Different adapters for different sample types.

Cooling: Built-in coil for fast cooling of the test chamber.

Ergonomic: Small footprint to fit on any bench.

Safety: Built-in over temperature interlock and chamber cover.

Economic: Lower power consumption and doesn't require bath liquid.

Models

CuTie 60 Copper Corrosion Analyzer	6 Test slots
CuTie 80 Copper Corrosion Analyzer	8 Test slots
CuTie 120 Copper Corrosion Analyzer	12 Test slots

Specifications

Methodology	ASTM D130, ASTM D1838 ASTM D4048, ASTM D4814 IP227, ISO 2160, IEC 62535
Analysis chamber	Aluminum dry block
Chamber options	6, 8 and 12 positions
Temperature range	10°C to 200°C
Temperature sensitivity	0.05°C
Temperature stability	0.1°C
Cooling	Embedded cooling coil
Security	Over temperature interlock & Test chamber cover
Weight	30 Kg
Dimensions	38 x 52 x 27 cm
Power requirement	220 VAC – 50 Hz
CE Mark	

Odol

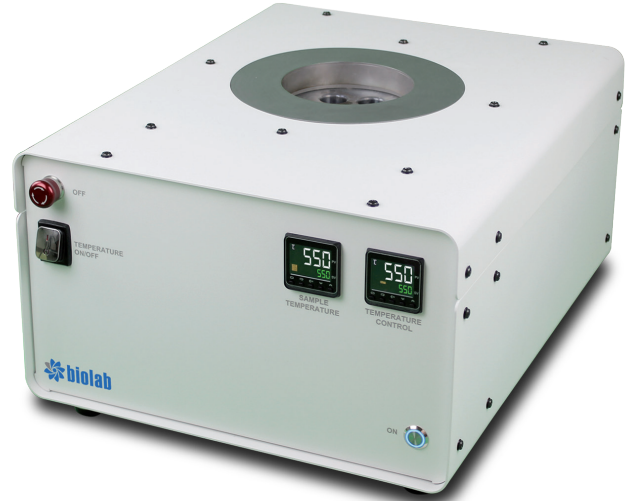
Ramsbottom Carbon Residue Analyzer

ASTM D524, IP 14, ISO 4262

Odol Ramsbottom Carbon Residue Analyzer is used for determination of the amount carbon residue left after evaporation and pyrolysis of an oil, and is intended to provide some indication of relative coke-forming propensity according to the ASTM D524 and related standards.

The carbon residue of fuel&oil products indicate oils' tendency to form a carbonaceous residue at high temperatures. Carbonaceous residue, generally referred as carbon residue, is also known as coke or thermal coke. FFAs, glyceride content, residual catalyst, polymers, soaps, and other pollutants are all represented in the residue.

Ramsbottom carbon residue test consists weighing a sample in a glass bulb container and heating to 550°C. The light components are usually distilled out of the bulb, while the rest of the sample creates thermal coke. The bulb is cooled and re-weighed after the heating period. The residue is reported as a percentage of the original sample.



Specifications

Furnace	Stainless Steel Block
Capacity	5 Bulb
Max. Temperature	700 °C
Temperature Precision	0.1 °C
Weight	30 Kg
Dimensions	30 x 30 x 35 cm
Power Requirement	220 VAC – 50 Hz



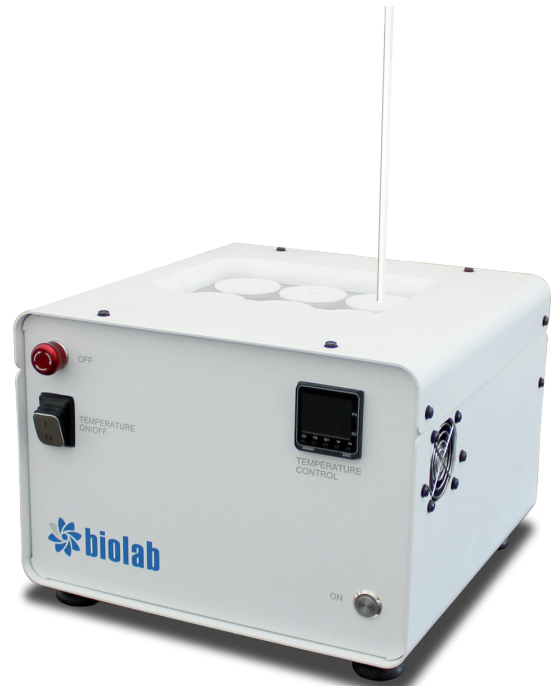
Ager 6P

Fuel Oil Aging Bath

**ASTM D4870, ISO 10307-1, ISO 10307-2, ISO 8217
IP 375, IP 390 (proc. A)**

Ager Fuel Oil Ageing Bath is a 6 position capable dry-block bath with precise temperature control for analysis according to ASTM D4870, ISO 10307, IP 375 and IP 390 (proc. A) standards. The unit has dry aluminium block that avoids the use of oil as heating environment. Fuel Oil Ageing Bath's dry block ensures clean and safe analysis to the operator.

Fuel Oil Ageing Bath is being used in combination with hot filter system for analysis of total sediment amounts up to 0.40 % m/m at 100°C. Unit is supplied with condensers, stoppers and 50 ml conical flasks complete ready for analysis.



Auto-D97

Automatic Pour Point Analyzer

ASTM D97, IP 15, ISO 3016

Fully automated ASTM D97 Pour Point Analyzer with of a benchtop case containing the jacket capable to reach -120°C , the cooling compressor, the electronics and supporting the analytical head. An 8.4" touch screen interface on the front panel to control the instrument, enter data, start tests, retrieve, print reports and calibrate the sensors. Two USB ports and one Ethernet connector for connecting to printers and lab network.



Auto-D1177

Determination of Freezing Point of Antifreeze Liquids

ASTM D1177

Fully automated ASTM D1177 Freezing Point Analyzer, the sole instrument on the market equipped with a seeding jacket, where it's possible to cool down a small portion of sample for the seeding operation (saving the money for expensive cumbersome criocoolers) consists of a benchtop case containing the cooling compressor, the jacket, the electronics and supporting the analytical head. An 8.4" touch screen interface on the front panel to control the instrument, retrieve, print reports and calibrate the sensors. Two USB ports and one Ethernet connector allows the user to connect to printers or lab network.



Auto-D2386

Automatic Freezing Point with Integrated Cooling

ASTM D2386, IP 16, ISO 3013, DIN 51421

Fully automated ASTM D2386 Freezing Point Analyzer with a benchtop case containing the cooling compressor capable to cool the jacket down to -120°C and supporting the analytical head. An 8.4" touch screen interface on the front panel to control the instrument, calibrate the sensors, retrieve and print analysis data. Two USB ports and one Ethernet connector allows the user to connect to printers or laboratory network.



Auto-D2500

Automatic Cloud & Pour Point Analyzer

ASTM D2500, D97, D5771, D5853, D5950, IP 219, IP 15 - ISO 3015, ISO 3016

Fully automated ASTM D2500 Cloud & Pour Point Analyzer with a benchtop case containing the cooling compressor with the cooling jacket and supporting the analytical head. An 8.4" touch screen interface on the front panel to control the instrument, calibrate the sensors, retrieve and print data. Two USB ports and one Ethernet connector allows the user to connect the instrument to printers or laboratory network.



Auto-CFPP 6371

Cold Filter Plugging Point Analyzer

ASTM D6371, IP 309, EN 116, EN 16329

Fully automated ASTM D6371 Cold Filter Plugging Point Analyzer with a benchtop case containing the cooling compressor, the thermally insulated jacket and supporting the analytical head. An 8.4" touch screen interface on the front panel to control the instrument, retrieve and print data and calibrate the sensors. Two USB ports and one Ethernet connector on the rear panel allows the user to connect to printers or network.



Foamer Series

Foaming Characteristics Analyzer

ASTM D892, ASTM D6082, ASTM D1881, ASTM D7840

Foamer Foaming Characteristics Analyzer is a fully-automated foaming characteristics (tendency) analyzer according to ASTM D892, D6082, D1881, D7840 and user-defined custom methods.

Foaming tendency is one of the fundamental properties of a lubricating fluid which can be caused by detergents, anti-oxidation additives, mixing of various types of lubricating oils or by the dust or water. Foaming in a lubricant causes improper lubrication and oil loss that leads to high expenses and pollution. Also the lubricant's capacity to bear the load gets lower; oxidation gets higher and heat transfer property becomes inefficient.

Foamer Series Analyzers are designed to measure foaming tendency of lubricants and anti-freeze samples in a dry oven block up to 160°C. With different models, Foamer Analyzer is a stand-alone unit, equipped with flow, temperature controllers and foam volume sensors to avoid operator requirement for analysis and reporting.



Key Benefits

Sensitive Temperature Control: 0.01°C temperature control sensitivity within wide temperature range.

Automatic Operation: Fully automated air flow regulation, heating, measurement, calibration.

Real-time Monitoring: Real time monitoring of foam volume, chamber and sample temperature with graphical interface.

Precise Measurement: Achieve highest accuracy with unattended analysis.

Reporting: Analysis data report transfer to USB and PC environment whenever required.

User-Friendly Interface: Windows based touch screen panel and device software for simplified operation.

Data Integration: Easily export and integrate your data with lab management systems.

Foam Detection: Automatic foam volume measurement up to 1000 mL with Optical Foam Detection System (OFDS)

Models

Foamer S20	4 slots, 2 flow controller
Foamer S40	4 slots, 4 flow controller
Foamer A40	4 slots, 4 flow controller, 4 volume sensors

Specifications

Methodology	ASTM D892, ASTM D6082, ASTM D1881, ASTM D7840
Heating	Dry oven block
Viscometer range	125 - 170 Fold
Temperature range	15°C to 160°C
Temperature sensitivity	0.01°C
Temperature stability	0.05°C
Temperature control	Chamber & sample
Time detection precision	0.01 s
Measurement range	Up to 1000 mL
Display	7" Touch Panel Screen
Data transfer	USB & Ethernet (RJ45)
Cooling	Embedded cooling coil
Security	Over temperature
Weight	70 Kg
Dimensions	60 x 50 x 90 cm
Power requirement	220 VAC – 50 Hz
CE Mark	

FBT-3

Four Ball Tester

**ASTM D2266, D2596, D2783, D4172, D5183,
DIN 51350-2-3-4-5, IP 239, ISO 20623:2017**

The four-ball test is a fast, repeatable and an accurate way to test lubricants for their wear preventive, extreme pressure and frictional properties. With high levels of automation, the FBT-3 makes this test easy to run. Its simple interface hides powerful features and technologies. A patented friction measurement system, automated scar prediction system and other features make four-ball testing more accurate and convenient than ever.



Key Features

- Robust, tabletop instrument
- Extreme Pressure (EP) Tests
- Wear Preventive (WP) Tests
- Coefficient of Friction (COF) Tests
- Automatic Loading
- Built-In Touch Screen Interface
- Preset international test standards
- Custom test program mode
- Proven compliance with test standards



TR-30

The original TR 30 Series was the first Four Ball Tester on the market that combined the robustness required for Extreme Pressure (EP) tests and the sensitivity required for Wear Preventive (EP) tests in a single machine. Our latest generation of this tester improves on its performance and accuracy.



4 Ball Test Specimen

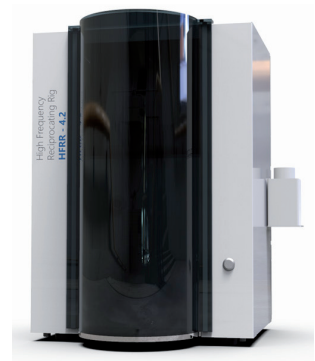
The Four Ball Test Specimen is the industry benchmark for evaluating the anti-wear and extreme pressure properties of lubricants. When you're striving for accuracy and reliability in your testing procedures, you need a specimen that won't let you down. With our premium-grade Four Ball Test Specimen, ensure that your results are precise and dependable, every time.

HFRR 4.2

High Frequency Reciprocating Rig

**ASTM D6079, D7688, ISO 12156-1, GOST R ISO 12156-1-2006, JPI-5S-50-98
BS EN 590, IP 450/2000, CEC F-06-A-96, SH/T 0765**

The High Frequency Reciprocating Rig (HFRR-4.2) is a state of the art fuel lubricity tester that is designed for full compliance with global test standards. Its compact and easy to use design makes tests simple to set up and the high precision automated humidity control system eliminates manual activities by the operator. The HFRR 4.2 can be used to test diesel fuel, gasoline and lubricants. It can also be used for fretting wear tests with its low displacement, high frequency reciprocating testing mode.



HFRR Test Specimen Pack

HFRR (High Frequency Reciprocating Rig) upper and lower specimen kit to be used with HFRR 4.2 High Frequency Reciprocating Rig and other HFRR Analysis instruments according to the global standards. To be used for lubricity testings of low-sulphur diesel fuel and similar fuels as specified in the ISO 12156-1, ASTM D6097 and CEC F-06-A-96 test methods these certified HFRR Test Specimens conform to global standards and have been tested with the low and high reference fluids by an independent laboratory.

UniTest

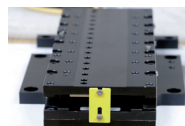
Universal Test Platform

Fast interchangeability, a vast testing ecosystem and many modules to choose from is what makes the UNITEST so powerful and adaptable. Our platform design is modular and open. It comes standard with a synchronized dual drive system and an embedded high precision Y stage. High precision position sensors are embedded in both axes. Its electronics is physically separated for excellent isolation high fidelity data acquisition capabilities.



Sensing & Measurement

The UNITEST can be equipped with a variety of loading and sensing heads that are quickly interchangeable. These heads are available with force measurement capabilities in 1, 2, 3 and 6 axis. These load cells can be strain gauged, capacitive or piezoelectric. Our patented multi-axis load sensor offers unparalleled performance in a compact form factor. Another one of our patented sensor is designed to fully mechanically decouple forces for unparalleled performance.



Motion. Any Way You Want It.

Precise and controlled movements are fundamental to many mechanical tests and all tribological tests. The UNITEST offers a wide variety of motion modules, so you can adapt your test system to match your specific movement requirements. Motion modules are all software controlled and programmable. Some of our standard motion modules include Linear Micro Drive, Linear Macro Drive, Linear High Performance Drive and Rotary Drives.



Multi-Scale Testing Ready

By interchanging load heads, the UNITEST platforms testing and measurement capabilities can range from nano scale to macro scales. Our load head options are our patented MicroForce load head for multi scale testing, DecaForce Load Head Series, HectoForce Load Head Series and the KiloForce Load Head Series. Our specially developed BioForce Load Head which was purpose built for biotribological applications is also available.

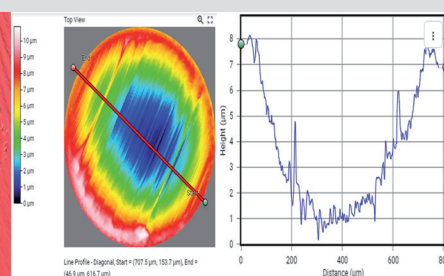
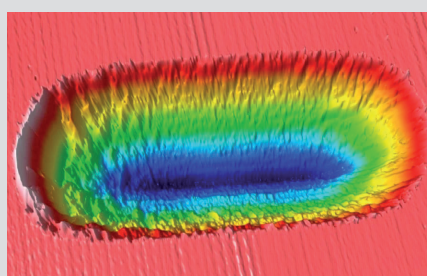


Testing Environments? Its All Here.

Low temperature testing options for ambient to -120 Deg C (-184 F) and high temperature options for ambient to 1200 deg C (2200 F) are available for testing temperature dependent properties of materials. Other environment control systems like lubrication modules, corrosion modules and humidity modules are also available.

3D Profilometry

Non contact 3D profilometry head can be added on to the UNITEST to enhance surface measurement capabilities. Mounted on the moving Z-Axis beam, the profiler head can quickly and conveniently be placed over the area of interest on a specimen for easy high resolution 3D sample imaging. The integrated software works seamlessly and test data, digital microscopy images and 3D profilometry data can all be combined for easy reporting.

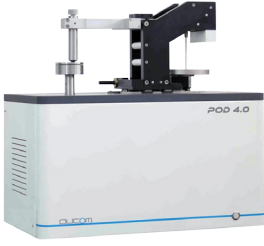


Test Standards

ASTM D1894 Piston Ring Liner
ASTM D2266 Four Ball Test
ASTM D2509 Block on Ring, Timken
ASTM D2596 Four Ball Test
ASTM D2714 Block on Ring, Timken
ASTM D2782 Block on Ring, Timken
ASTM D2783 Four Ball Test
ASTM D2981 Block on Ring, Timken
ASTM D3702 Thrust Washer
ASTM D3704 Block on Ring, Timken
ASTM D4172 Four Ball Test

ASTM D5183 Four Ball Test
ASTM D5706 Linear Reciprocating Tests
ASTM D5707 Linear Reciprocating Tests
ASTM D6079 Linear Reciprocating Tests
ASTM D6425 Linear Reciprocating Tests
ASTM D7217 Linear Reciprocating Tests
ASTM D7420 Linear Reciprocating Tests
ASTM D7421 Linear Reciprocating Tests
ASTM D7594 Linear Reciprocating Tests
ASTM G119 Linear Reciprocating Tests
ASTM G132 Pin/Ball on Disc

ASTM G133 Linear Reciprocating Tests
ASTM G174 Linear Reciprocating Tests
ASTM G181 Piston Ring Liner
ASTM G203 Linear Reciprocating Tests
ASTM G204 Linear Reciprocating Tests
ASTM G206 Linear Reciprocating Tests
ASTM G77 Block on Ring, Timken
ASTM G99 Pin/Ball on Disc
DIN 50324 Pin/Ball on Disc
DIN 51834 Linear Reciprocating Tests



Pod 4.0

Multi Capability Tribometer

**ASTM G99, ASTM G133, ASTM G77
ASTM G59, ASTM G102, DIN 50324
DIN ISO 7148-1, DIN ISO 7148-2**

The tabletop POD-4.0 is a high performance, multi capability tribometer that is capable of performing various popular tribology tests in a single instrument.



VT 3.0

Vacuum Tribometer

ASTM G99, ASTM G133

The VT-3.0 is our third generation vacuum tribometer that is now modular and more capable than ever. Easily switch from manual to automatic loading, change test modes from rotary to angular oscillation and even linear oscillation.



TDE

Twin Disk Tribometer

Roller on roller features independently driven twin disc configuration offering rolling-sliding contacts with a wide range of contact pressures. The roller on roller set up is widely accepted as a reliable precursor to FZG tests.



SPE

Air Jet Erosion Tester

ASTM G76, ASTM G211

The Air Jet Erosion Tester is a unique and a feature rich erosion tester that is capable of testing bulk materials and coatings under erosion.



SPE

Slurry Jet Erosion Tester

Erosion leads to loss of life of components in machinery and pipeline which handle slurry. In order to maximize life, proper selection of materials that are used is required.



WDE

Water Droplet Erosion Tester

Repetitive liquid drop impact on materials can cause severe wear. This type of wear is frequently seen on leading edges of surfaces that operate at high speeds in rain or other environments where water droplets may be present.

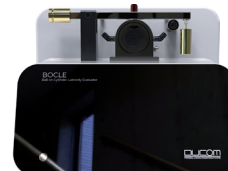


ABT 3

Abrasion Tester

ASTM G65, ASTM G105, ASTM B611

A single, compact and automatic tester to bring complete three body abrasion testing capabilities to your lab. Dry sand abrasion (ASTM G65) or abrasion in slurry (ASTM G105, ASTM B611), the ABT-3 can do it all.



Bocle

Aviation Turbine Fuel (ATF) Lubricity Analyzer

ASTM D5001

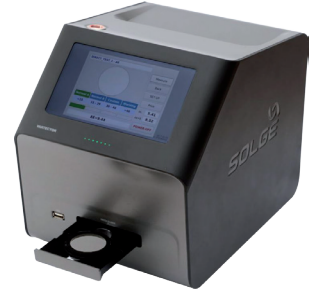
The BOCLE consists of a rotating ring against which a ball is pressed with a force. The fuel under test is contained in a bath under the ring and the ring is partially immersed.

Vartector

MPC (Membrane Patch Colorimetry) Tester

ASTM D7843

It is World's 1st MPC (Membrane Patch Colorimetry) Tester that confirms to ASTM D7843 (Standard Test Method for Measurement of Lubricant Generated Insoluble Color Bodies in In-Service Turbine Oils using Membrane Patch Colorimetry). It quantifies the varnish potential of Turbine, EHC, Hydraulic Oils in CIE delta E value.



FerroCheck





Ferrous Content Analyzer

ASTM D8120

The FerroCheck 2000 Series of portable ferrous analyzers offer accuracy and convenience for total ferrous measurement of in-service lubricating oil and grease. Fast and easy to use samples are analyzed in less than 30 seconds. Small sample volumes of just 1.5 ml of oil or 0.75 ml of grease are needed to measure ferrous content in part per million (ppm) by weight. The FerroCheck measures the total ferrous content of both small particles from normal machine wear and large abnormal wear particles.



On-Line Oil Monitoring Sensors

MC-FD Ferrous Debris Sensor	OC-RH Oil Relative Humidity Sensor	OC-L Oil Condition Sensor	OC-V Viscosity Sensor
			
Real-time monitoring of ferrous debris	Real-time monitoring of relative humidity (RH%)	Real-time monitoring of oil condition	Real-time monitoring of viscosity
<p>Gearbox: Bearing, Engine, Transmissions, Rotating Machinery</p> <p>Real-time monitoring of ferrous wear particles in the lube oil of each rotating machinery and use as predictive diagnosis tool</p> <p>Large particle / Fine particles</p>	<p>Lubrication, Hydraulic, Gear, Turbine, Storage Tank, Insulating Oil, Synthetic, Purifier</p> <p>Absolute moisture ppm measurement and not identify whether or not there is free water in the equipment, but the relative humidity sensor can detect the presence of free water.</p> <p>Relative humidity / Temperature</p>	<p>Lubrication, Hydraulic, Gear, Turbine, Engine, Insulating Oil; Storage Tank, Purifier</p> <p>Sensor that measures permittivity in the oil to determine oil conditions such as oil life</p> <p>Permittivity of oil changes due to degraded by-products, additives, contaminants, wear particles, moisture, mixing of different types of oil,... etc.</p> <p>Can measure free water</p>	<p>Lubrications, Hydraulic, Gear, Turbine, Engine, Insulating, Fuel, Ethanol, Chemical reagent, Coating Ink</p> <p>A sensor calculating viscosity and density of which oscillator component is operating in resonance</p> <p>Absolute viscosity (mPa.s) / density (kg/m³) / temperature</p> <p>Applicable to high viscosity oil</p>



L 48A

Oxidation Stability of Lubricating & Transmission Fluids

CEC L-48-A-00

The apparatus is a benchtop model which houses the mechanical components and a miniature PC with touch screen. A software running under Windows Embedded permits to enter the test parameters, run the test automatically, store, retrieve and print data, diagnose and calibrate the instrument offering in the meanwhile all the features of Windows systems such as LAN connectivity.



D 2274

Oxidation Characteristic of Distillate Fuel Oil

ASTM D2112 - D2272 - D4742

The apparatus consists of a benchtop steel case containing an aluminium thermostatic block with a series of jackets for the introduction of the oxidation cells and a water dispenser for the condenser refrigeration: versions with variable area flowmeters or with mass flow controllers and touch-screen interface available.



D 2112

Oxidation Stability of Inhibited Mineral Insulating Oils, Steam Turbine Oils (RP-VOT) & Gasoline Automotive Engine Oils (TFOUT)

ASTM D2112 - D2272 - D4742

The apparatus consists of a benchtop case hosting a stainless steel tank with two independent motors for the rotation of the vessels equipped with rotating heads with electronic pressure transducers.



D 942

Oxidation Stability of Lubricating Grease

ASTM D942, IP 142

The apparatus consists of a benchtop case containing an aluminium block and the electronics: a touch screen interface on the front permits to control the equipment.



D 665

Rust Preventing Characteristic of Inhibited Mineral Oils

ASTM D665, IP 135, ISO 7120

The apparatus consists of a benchtop case containing a dry block heater or a stainless steel tank and a support for the stirrer motors.



D 525

Oxidation Stability of Gasoline & Aviation Fuels

ASTM D525, ASTM D873, IP 40, IP 138 ISO 7536

The apparatus consists of a benchtop case containing an aluminium block and the electronics: a touch screen interface on the front permits to control the equipment.



D 227

Determination of Silver Corrosion by Aviation Turbine Fuels

IP 227

The apparatus, suitable for the execution of the test at 50°C, consists of a steel case containing a stainless steel bath with a four-hole cover for the test tubes and a manifold for connecting water to the condensers.



D 2440

Oxidation Characteristic of Mineral Insulating Oils

ASTM D2440 - IEC 1125 (A + B + C) EN 61125 (A + B + C) - IP 280, 306, 307

The apparatus consists of a benchtop steel case hosting a dry bath, 4, 8 or 12-positions: the instrument is equipped with individual electronic mass flow controllers to maintain the correct flow throughout the test and a touch screen interface.

4000 M7

GC-MS System

The GC-MS system based on the Crystallux-4000M chromatograph and the M7 mass spectrometer, developed jointly with Persee, is a reliable and accurate system that is suitable for mass routine analysis and accurate research. GC-MS is widely used in the field of food analysis, ecology, chemical industry, oil and gas processing, medicine, forensic science in other areas.

Key Features

- Presence of the observation window and the indicator panel
- Lateral vacuum chamber design simplifies system maintenance
- Double filament reduces service frequency
- The special design of the surface repulsion electrode
- The presence of pre-quadrupoles allows to reduce the pollution of the main quadrupole
- Molybdenum alloy quadrupole
- Compact amplifier with a combined conversion technology
- The software is intuitive and easy to use even for users without special training
- With the remote access feature, our experts will help you manage the tool and analyze data



TL 7500

KF Water Content Analyzer

**ASTM D1364, ASTM D1533, ASTM D4377 ASTM E203
IP 356, IP 471, ISO 10336, ISO 6296, DIN 51777**

The TL7500 KF trace is a compact, easy-to-use coulometric titrator for water content determination according to Karl Fischer (KF) titration method with a typical operating range of 1 ppm – 5% water.



Vapol 10

Universal Evaporator

**ASTM D1364, ASTM D1533, ASTM D4377, ASTM D6304
ASTM E203, IP 356, IP 471, ISO 10336, ISO 6296, DIN 51777**

The Universal Evaporator can be used in conjunction with Karl Fischer Moisture Titrator to measure the moisture concentration of oils, liquids, solids and all in between which are insoluble in Karl Fischer reagents or contain interfering substances.



DDM 2911

Automatic Density Meter

ASTM D1250, ASTM D4052 ASTM D5002, DIN 51757

The SVI Density Meter, with high precision Peltier temperature control of sample, has the features to meet the needs of today's industries including Petroleum, Chemical, Pharmaceutical, Beverage and many others.

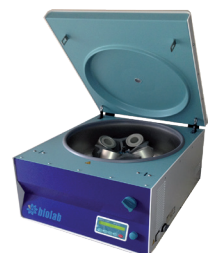


Fido

Benchtop Heated Centrifuge

**ASTM D91, D96, D893, D1290, D1796, D1966, D2273, D2709, D2711, D4007
DIN 51793, IP 75, IP 359**

An ideal centrifuge for research and industrial laboratories offer a wide range of accessories for routine applications, while also enabling customized solutions for special requirements.



L 2000

PCB/Chloride Analyzer

The L2000DXT PCB/Chloride Analyzer System is a versatile easy-to-use option for on-site analysis of PCB and other chlorinated organic compounds in four matrices; transformer oil, soil, water, and surface wipe samples. Decisions regarding site clean-up or remediation begin with determining and delineating the extent of contamination. The L2000DXT provides real-time results quickly, on-site, allowing for faster decision making while affording considerable time and cost savings when compared with laboratory analysis.



Analytes	PCBs, Chlorinated Organics
Matrix	Water, Transformer Oil, Surface Wipes, Soil
Method	Electrochemical
Action Level	3-2000 ppm (Oil & Soil) / 10 ppb - 2000 ppm (Water)
Analysis Time	5 min.

On-site Test Kits



Clor-N-Oil 20

On-Site Test Kits for Transformer Oil
U.S. EPA SW-846 Method 9079



Clor-N-Oil 50

On-Site Test Kits for Transformer Oil
U.S. EPA SW-846 Method 9079



Clor-N-Oil 500

On-Site Test Kits for Transformer Oil
U.S. EPA SW-846 Method 9079



Clor-N-Soil

On-Site Test Kits for
PCB Screening of Soil at 50 ppm



Clor-D-Tect 1000

U.S. EPA SW-846 Method 9077
ASTM Method D-5384



HydroClor Q4000

On-Site Test Kit to Quantify
Organic Chlorine in Wastewater



HydroSCOUT Analyzer System

On-Site Analysis for
Quantifying Water in Used Oil



TitraLube TAN

On-Site Test Kit for Quantifying Total
Acid Number (TAN) in Industrial Oils



TitraLube TBN

ASTM Method
D-5984-96

Consumables



Spectroil
Graphite Discs



Spectroil
Graphite Rods



Spectroil
Sample Holders



Spectroil
Oil & Fuel Standards



Prolene, Etnom, Mylar
Sample Films



XRF
Sample Cups



TAN and TBN
Standards



FTIR Operational
Test Standards



Viscosity
Standards



Base Oils Standards
& Stabilizer



JOAP/Military
D-Series Standards



Multi-Element
Standards



Single-Element
Standards



Custom Oil
Based Standards



Metallo-Organic
Standards



PremiSolv
ICP Solvent



Wear Metals in
Lubricating Oil



Sulfur & Chlorine
in Oil Standards



PartiStan Particle
Size Standards



Flash Point
Standards



Beytepe Mah. Beyler Cad. 1651. Sok. No: 8
06810, Çankaya, Ankara, TÜRKİYE

Tel: +90 312 468 85 30 **Fax:** +90 312 468 85 33
www.biolab.com.tr biolab@biolab.com.tr