**F2U Combo Octane Engine for RON, MON**
Determines and certifies the anti-knock characteristics of motor fuels with digital XCP Panel and Falling Level method with an optional Octane Analyzer for unattended fast sample analysis. Runs Research and Motor Method in 40-120 octane number range.
For ASTM D2699 and D2700.

**F5 Cetane Engine**
For ASTM D613.

**XCP Cetane**
The gold standard for obtaining cetane numbers. This product features new timing pickups to increase accuracy and stability, which include LED's on the sensors that illuminate when the target is in range. The injector is not sensitive to vibration or pressure pulsations in the fuel lines. It has a user-friendly HMI, and a sensor data display. It also has a handwheel sensor, which reduces operator error.

**FIT Fuel Ignition Tester**
Measures the ignition delay of a diesel fuel under prescribed conditions to determine a Derived Cetane Number (DCN). Result is equivalent to the Cetane Number measured by the “Gold Standard” CFR Diesel Cetane Rating Engine. Easy installation and operation, low maintenance cost and high throughput (short test cycles).
For ASTM D7170.

**XCP Octane**
The latest generation of Waukesha CFR octane rating units combining the easy-to-use features of a digital control panel with robust engine design. Features an easy to use touch-screen panel interface for accurate data recording and comprehensive report generation. Optional XCP Octane Analyzer (XCP-OA) for semi-automatic operation.
For ASTM D2699 and D2700.
**ERACHECK**
CFC-Free Oil-in-Water Testing. Ultimate high-speed, precision solution for low, and sub-ppm concentrations of FOG or total hydrocarbons up to 2,000 ppm. Eco-friendly, cost-cutting extraction with cyclohexane.

For ASTM D7678.

**EC01 ERACHECK PRO**
For detection from .5 to 2,000 mg/L.

**EC02 ERACHECK**
For detection from 1.5 to 200 mg/L.

**ERAFLASH**
The safe side of flash point testing.

**EF01 ERAFLASH**
High-speed operation, continuously closed measuring chamber, small sample size (1-2ml) and the widest temperature range available in a single instrument (-25 to 420°C / -13 to 788°F).

For D6450 and D7094.

**EFS10 ERAFLASH S-10**
With 10-position auto sampler for unattended operation.

**EF02 ERAFLASH LT**
For testing -40 to 120°C / -40 to 248°F.

**ERASPEC**
Spectral fuel analysis in seconds! A fully automated and multi-fuel capable, portable NIR/MID-FTIR spectrometer. Patented rugged design makes it ideal for fast gasoline, diesel and jet fuel analysis, delivering precise results for over 40 fuel parameters, like aromatics including benzene, oxygenates, FAME, etc. and many fuel properties like octane, cetane, density, distillation, vapor Pressure, etc. Optional 10-position sample changer is available.

**ERAVAP** Vapor Pressure Analyzer
Vapor pressure testing at its best! A user-friendly, fast and accurate vapor pressure analyzer for virtually all types of fuel, from gasoline to LPG. Available with a 10-position sample changer that can be added anytime. For ASTM standards D5188, D5845, D5191, D6377, D6378, D6897.

**EVO1 ERAVAP** Vapor Pressure Analyzer
For testing up to 145 psi.

**EVO2 ERAVAP** Vapor Pressure Analyzer for LPG
For testing up to 290 psi.
1 Block-on-Ring
Evaluates the friction and wear characteristics of materials and various coatings and lubricants in many simulated test conditions. User-controlled load, speed and environment of the test and downloadable results with Falex 330 SoftWEAR™. For ASTM D2509, D2714, D2782, D2981, D3704, G77.

400 Falex Oxidation Stability Tester
Combines the most popular test instrument for thermal oxidation stability with an ellipsometer for the most precise and consistent testing of jet fuels. Uses Falex Heater Tube test specimens, which meet the ASTM Subcommittee D02.J regulations. For ASTM 3241.

420 Tube Rater
Allows for qualitative comparison of heater tube film thickness to an accepted color scale per D3241. A convenient automatic light switch allows two-handed evaluation. For ASTM D3241.

430 Ellipsometer
For quantitative and customized analysis of thermal oxidation stability by determining film thickness and volume for the ultimate in heater tube deposition measurement. Select express, detailed or custom measurement programs for minimal operator interface. For ASTM D3241.
NA-20761 Manual Ring & Ball Apparatus, 2 position unit
Determines the softening point of bitumen! Two-test ring and ball apparatus includes holder, rings, balls and beaker.
For ASTM D36.

NBA 440 Automatic Softening Point Tester
Ring-and-Ball Apparatus provides safe, automatic softening point testing. Features a large display, pre-set programmable methods with controlled heating rates and stirring speeds with a waterproof heating element and fan cooling for safety.
For ASTM D36.

NA-23963 Ash From Petroleum Products
Determines ash in the range 0.001-0.180 mass percentage from distillate and residual fuels, gas turbine fuels, crudes oils, lubricating oils, waxes, and other petroleum products with potential ash-forming properties.
For ASTM D482.

NTA 440
Fully automatic D56 tag flash point tester determines the Tag method flash point of thin liquids (viscosity ≤ 9.5 cst at 25°C) and flash points from sub-ambient to 93°C. Equipped with ticket printer, cup and cover, cup support, PT-100 probe, detection cable and gas tubing.
For ASTM 56.

NMC 210 Semi-automatic Micro Conradson tester
An economy, automatic apparatus only for D4530 is delivered ready to use and equipped with 2ml vial with holder, cleaning cable, holder hook. Test is performed automatically under program-controlled atmosphere.
For ASTM D4530.
NMC 440 Automatic Microcarbon Residue Test (MCRT) with Ash Capability
Measures carbon residue formed after evaporation under certain conditions. Ambient temperature use 15 to 30°C.
For ASTM D4530.

NTL 450 Fully Automated Cold Filter Plugging Point
Determines the cold filter plugging point (CFPP) of diesel and domestic heating fuels using automated equipment. Continuous visual monitoring of different cooling steps, sucking up and release time and possible use of a linear cooling slope.
For ASTM D6371.

NTE 450 Fully Automated Cloud and Pour Point Tester
Simultaneous pour and cloud point testing that mimics the standard method. Continuous visual monitoring of different cooling steps with user-chosen detection every 3 °C or 1 °C.
For ASTM D97, D2500.

NDI 450
The fifth generation automatic distillation analyzer is a stand alone unit with built-in extinguishing system and external nitrogen bottle, including manometer for minimum pressure control.
For ASTM D86, D850, D1078.

NA-941302 Existent Gum In Fuels By Jet Evaporation
Features air-jet evaporation to test for existent gum content of aviation fuels, motor gasolines and other volatile distillates or other volatile distillates in their finished form, including those containing alcohol and ether type oxygenates and deposit control additives at the time of test.
For ASTM D381.

NA-941303 Existent Gum In Fuels By Jet Evaporation
Features air and steam jet evaporation to test for existent gum content of aviation fuels, motor gasolines or other volatile distillates in their finished form, including those containing alcohol and ether type oxygenates and deposit control additives at the time of test.
For ASTM D381.
NA-941680 *Smoke Point*
Determines the smoke point of kerosine and aviation turbine fuel. Complete apparatus delivered with one interchangeable oil container. For ASTM D1322.

**PENETROMETERS**
Designed to measure penetration of semi-solid and solid bituminous materials, waxes, petrolatums and personal care products with ease and accuracy. For ASTM D5, D217, D1321, D1403, D937.

**NA-941731 Manual Penetrometer**
Features a large table on leveling feet with spirit level, a manual release mechanism and a dial indicator in 0.01 mm. Needle, holder, sample containers weight to be ordered separately.

**NA-941734 Automatic Penetrometer**
Automatic surface positioning, user-friendly software and full auto approach on conductive products and hard bitumen.

**CLEVELAND FLASH POINT TESTER**
For ASTM D92.

**NCL 120 Manual Cleveland Flash Point Tester**
Manual heater, heating slope regulator, temperature reading and pilot flame. Includes cup and thermometer.

**NCL 220 Semi-Automatic Cleveland Flash Point Tester**
Featuring digital display with manual pilot flame detection. Uses Pt 100 probe and electronic regulator+F69.

**NCL 440 Cleveland Open Cup Flash Point**
Detects both flash and fire point in operating range between ambient temp to +400 C. Optional six position sample changer available.
PENSKY-MARTENS FLASH POINT TESTER
Tests the flash point of distillate fuels, lubricating oils and homogenous liquids in the temperature range from ambient to 360° C by the oldest, most reliable method.
For ASTM D93.

NPM 121 Manual Pensky-Martens Closed Cup Flash Point Tester
Easy switch from A to B testing.

NPM 221 Semi-Automatic Pensky-Martens Closed Cup Tester
Automatic flash point detection, stirring, heating slope and temperature measurement by Pt 100 probe.

NPM 450 Automatic Pensky-Martens Closed Cup Flash Point Apparatus
Double flash point detection by ionization ring and thermocouple and a hydrocarbon detector for safety. For procedures A, B and C.

NABLEND Reference Fuel Blender
Gravimetric Reference Fuel Blender is available in 3, 5 or 6 tanks with improved PRF/TSF blending accuracy and traceability. Automatic blending by weight using software to read the electronic balance and control the dosing pumps helps eliminate human error.

Parker ACM20
Quickly and easily detects contamination in fuel levels, trends, and integrity in a reliable, reproducible, and repeatable two-minute test. International jet fuel specifications require particle counts (IPS24) instead of traditional Millipore as of June 30, 2009.
ABS Ball-on-Cylinder Lubricity Evaluator (BOCLE)
Microprocessor-controlled Ball-on-Cylinder wear test system for fast, repeatable testing for lubricity of aviation turbine fuels.
For ASTM D5001.

ABSSL Scuffing Load Ball-on-Cylinder Lubricity Evaluator (SL-BOCLE)
Fully automated to carry out lubricity testing of diesel (middle distillate) fuel. Standard ABS test equipment can be modified for SL-BOCLE testing or ABSSL test equipment supplied as new.
For ASTM D6078.

HFRR High Frequency Reciprocating Rig for Diesel Fuel Lubricity
Microprocessor-controlled reciprocating friction and wear test system for fast, repeatable assessment of fuels and lubricants. Wear tests diesel fuels and boundary friction measurements of engine oils, greases and other compounds.
For ASTM D6079, D7688.

PETRODIST 100 SERIES
Reliable, distillation systems from a leader in the industry with options for manual, semi or fully automatic operation for ASTM 2892.

PETRODIST 100 M  Manual Distillation
Most economical distillation system for occasional use. Distillation is performed from the Initial Boiling Point (IBP) to the End Boiling Point (EBP) by the operator.

PETRODIST 100 S  Semi-Automatic Distillation
Automatic stop and flask cool down between runs, with operator restart.

PETRODIST 100 CC  Fully Automatic Distillation
Intended for unattended operation during distillation from the gas cut (IBP) to the pre-selected end point.
PETRODIST 200 SERIES
Distillation systems according to D5236 (Potstill).

PETRODIST 200 S  Semi-Automatic Distillation
Designed for runs including debutanization, with an automatic stop and flask cool down between runs. Operator enters parameters to restart run.

PETRODIST 200 CC  Fully Automatic Distillation
Turnkey, fully automatic operation for ASTM D5236 (Potstill). Features a compact design with control system and safety items for unattended operation during distillation from the gas cut (IBP) to the pre-selected end point.

PETRODIST 200 CC/HV Distillation according to ASTM D5230 (Potstill)
Designed for High-Vacuum (HV) operation in vacuum range 10 – 0.006 mmHg according to a determined indirect or direct distillation rate.

PETRODIST 300 SERIES
PETRODIST 300 CC
Facilitates product optimization with a processor-controlled, crude oil distillation system that determines the boiling ranges of crude oil products under vacuum in fully automatic operation, from the initial boiling point to the pre-selected end boiling point or detected break-off. Works with models 100, 200 and 400.

For ASTM D1160.

PETRODIST 300 CC-F
Facilitates automatic fractionation for subsequent laboratory analysis using a processor-controlled, crude oil distillation system.

For ASTM D1160.

PETRODIST 300 M
Most economical distillation system for occasional use. Distillation is performed from the Initial Boiling Point (IBP) to the End Boiling Point (EBP) by the operator and the distillate volume is measured in a temperature-controlled receiver.

For ASTM D1160.
**PETRODIST 400 SERIES**
Combines the best features of Petrodist 100 and 200 series models for testing according to ASTM D2892 (TBP) and D5236 (Potstill) with affordability over purchase of separate units.

**PETRODIST 400 A**  
Automatic Combination-100 S and 200 CC  
Fully automatic operation throughout the distillation. Runs separately or simultaneously with a central computer control, vacuum supply and thermostat system, data storage and evaluation station.

**PETRODIST 400 S**  
Semi-Automatic Combination System-100 S and 200 S  
Central fraction collector is used for both units and cuts are taken automatically according to the pre-selected boiling temperature or when receivers are full.

**PETRODIST 400 CC**  
Fully Automatic Combination-100 CC and 200CC  
Featuring system and safety items for unattended, simultaneous operation of both systems with data evaluation software for a combined TBP-curve.

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**PILODIST 104**  
Versatile Distillation System  
For pure substances and aromatic compounds of high molecular weight, fatty acids, etc. Features two different column types (DN 25), a concentric-tube-column and a wire gauze trickling column. Can be operated with a single final receiver or automatic fraction collector with six receivers.

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**PILODIST 105**  
Versatile Distillation System  
Suitable for solving difficult separation problems for production of pure substances, aromatic compounds of high molecular weight, fatty acids, etc. Designed for automatic operation with an automatic fraction collector with up to nine receivers. Equipped with processor-based distillation control device DCD4001 with heating controller.

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**PILODIST 106**  
Suitable for preparative lab-scale distillations, for the separation of petrochemical products, aromatic compounds, essential oils, flavor aromatics, fatty acids, etc. System features a single, wire gauze trickling column (DN 50) with a packed height of 1000 mm with product circulation and processor-based distillation control device DCD4001 with heating control.
PILODIST 107 Recovery Unit
User-friendly, recovery for extremely pure solvents. Features trouble-free, static all-glass construction and a concentric-tube column for highest separation efficiency and high load ranges. Recovers side products from extractions, washing processes, chemical and biochemical reactions, and chromatographic operations in clinical range.

FilmDist SP 200 Universal Lab-Scale for Shortpath Evaporation
Provides continuous process and transfer of data to production scale facilities. Features a rotary thin film evaporator with thermostat mantle and internal condenser for continuous shortpath distillation or gentle concentration of thermally sensitive products.

PILODIST SP 500 Shortpath Evaporator
Perfect for smaller batches and transfer of data to production scale facilities. Features a rotary thinfilm evaporator with thermostat mantle and internal condenser for continuous shortpath distillation or gentle concentration of thermally sensible products.

FilmDist TF 650 Thinfilm Evaporation
The speedy, rotary thinfilm evaporator with thermostat mantle and external condenser for thinfilm evaporation is designed for continuous operation in lab-scale and pilot-scale applications up to 10L/hour.

PILODIST VLE 110 Vapour-Liquid-Equilibrium
Double-checks phase equilibria for industry research and development, evaluating thermodynamic parameters like pressure, temperature and concentrations and determining the required number of “theoretical plates”. An industry standard