



# OptiDist 2

The Next Generation of the Industry-Leading  
Atmospheric Distillation Benchmark





The OptiDist has long been the industry standard benchmark for atmospheric distillation with over 5,000 instruments deployed globally ensuring precision and reliability of the distillation measurement.

The new PAC OptiDist 2 atmospheric distillation instrument is a ground-up redesign, incorporating all the best features from the OptiDist and updating them for many years of optimal performance and reliability. The redesign centers around the new patent-pending solid-state thermosiphon cooling system, which

achieves extremely fast, uniform, and efficient temperature control of the condenser. Combined with precise heater system control using the unique patented dual optimizer, distillation conditions are precisely monitored and controlled to achieve premium repeatability and precision of the measurement process.



## Key User Benefits

### Outstanding Repeatability & Reproducibility

- Dual optimizer technology enables accurate real-time temperature control for consistent, repeatable results.
- Thermosiphon system provides highly efficient cooling for the condenser system, ensuring optimal performance.

### Unbeatable Uptime & Reliability

- Thermosiphon primary condenser cooling system with no moving parts for long term reliability.
- Efficient thermosiphon system eliminates need for booster heater.
- Modular assembly construction allows for easy and quick maintenance, minimizing downtime and enhancing overall efficiency and productivity.
- Automatic heater lift for reliability and ease of use.
- Automatic heater chamber door for reliability and safety.

### Unequaled Ease of Use

- Fully automated D86 distillation method with intuitive user feedback throughout.
- New user interface with capacitive touch screen display.
- Backwards compatible with OptiDist flasks and volume gauges.
- Highly visible status light to indicate instrument activity and test completion.
- Seamless printer connectivity via USB or network connection.
- Compatible with both IRIS and PACe for lab monitoring.

### Enhanced Safety Assurance

- Automatic fire detection system compatible with CO2 or N2 extinguisher gases.
- VOC extractor system included as standard in all units.
- Automatic QR code recognition of correct heater plate installation for safety and method compliance.
- Automatic flask detection system for tracking and tracing flask usage. Enhances safety by predicting potential flask breakage and reduces the risk of errors and accidents.

“Building on Excellence,  
Elevating the Benchmark  
for Atmospheric Distillation”



# Explore the Features

## Heater

- Bar code tracking of flasks
- QR code plate detection
- Electromechanical lift
- Patented dual optimizer



## Condenser Cooling System

- Patented thermosiphon cooling system
- No moving parts
- Designed for life of the instrument



## Touchscreen Interface

- 10.4" capacitive display
- Redesigned interface for ease of use
- Extended storage
- Enhanced diagnostics
- Extended printer compatibility
- Networkable to IRIS & PACe

## Receiver

- Peltier cooling system for chamber
- Magnetic door sensor
- Improved receiver stand and drip management
- Improved door latch system



## Chassis

- Completely refreshed design
- Extended peripheral support
- Backwards compatible with consumables
- Modular design for ease of servicing and maintenance





# Outstanding Cooling Performance

Introducing the new thermosiphon cooling system for OptiDist 2, designed to deliver outstanding cooling performance with minimal maintenance. This innovative system features a sealed condenser cooling element with no moving parts, utilizing passive convective circulation of the working fluid for enhanced reliability. Secondary cooling is achieved

through efficient and dependable Peltier modules, ensuring consistent performance. The liquid cooling system provides well-balanced cooling and a minimal thermal gradient across the condenser. Additionally, the thermosiphon eliminates the need for a booster heater, making it highly efficient and cost-effective.

## Thermosiphon Design



### Sealed System

Fluid cooling encapsulates the condenser assembly ensuring rapid response to changing distillation conditions.

### No Moving Parts

Ensuring long-term reliability and reduced maintenance.

### Liquid Cooling

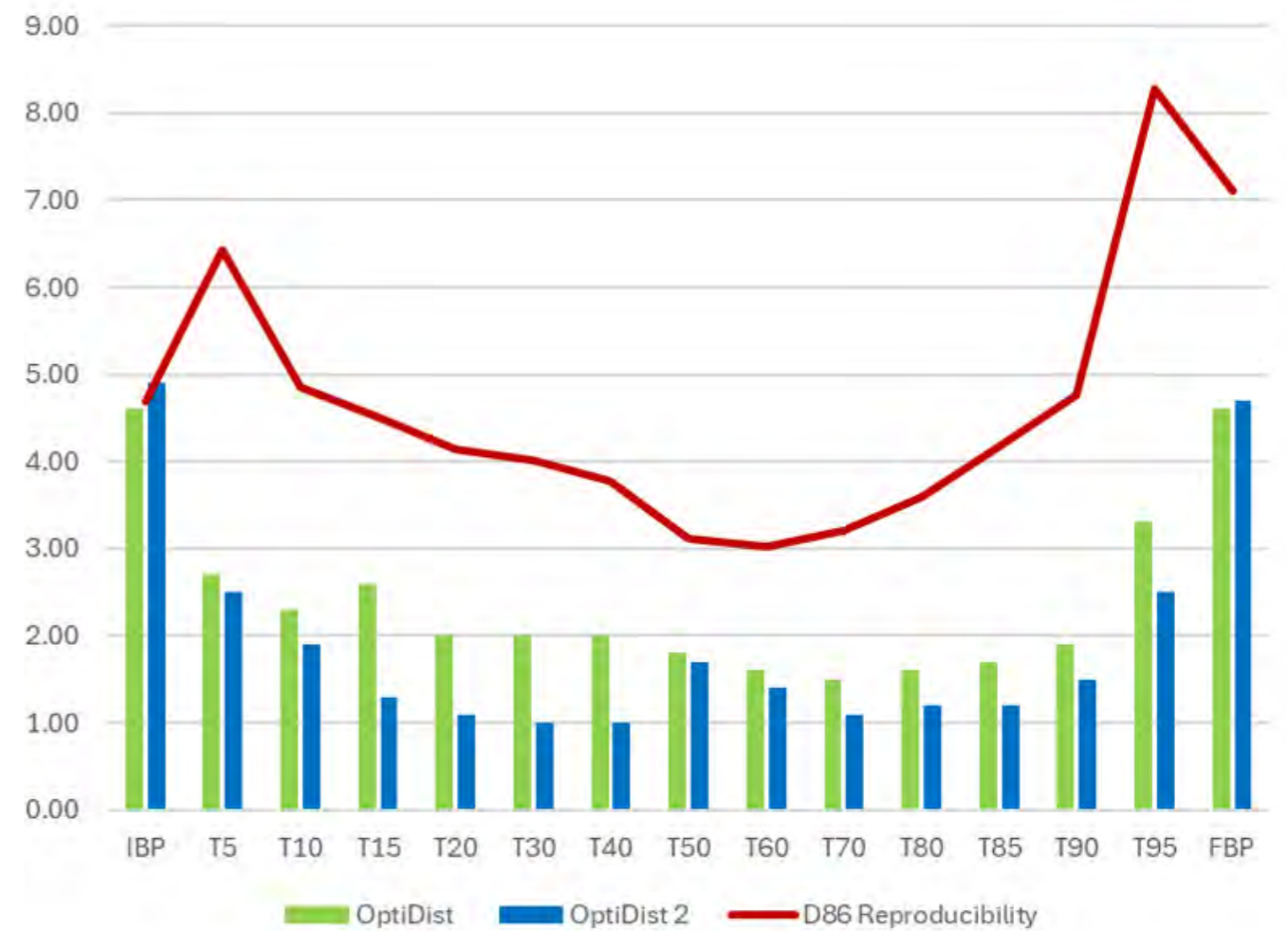
Utilizes passive, convective circulation of the working fluid, ensuring efficient heat transfer.

# OptiDist 2 Precision

Extensive testing has been conducted to illustrate the performance of the OptiDist 2. A wide range of samples were tested following ASTM ILS protocols, demonstrating that the reproducibility of the OptiDist 2 instrument are

equivalent to those of the original OptiDist. This study included ten samples in the gasoline and diesel range, tested across nine customer labs in six countries. The following chart illustrates these results:

## Reproducibility Study



There is exceptional agreement between the two instrument models. Both instruments demonstrated reproducibility that, on average, is less than half of the D86 reproducibility.



# PACe

OptiDist 2 empowers labs by leveraging the power of PACe to enhance productivity and overall throughput.

### Unbeatable Instrument Uptime

Receive real-time alerts from every instrument connected to PACe, to a desktop, tablet, or mobile device. This will allow you to see optimization opportunities in throughput and instrument irregularities for efficient decision-making without manually visiting each instrument.

### Maximize Lab Throughput

Around-the-clock status monitoring to reach the desired annual throughput and to identify hidden instrument capacities.



## Services, Support, and Training

**Our individualized instrument service programs help our customers ensure maximum quality and repeatability while complying with standards and regulatory requirements.**

In addition to service programs, we also offer individual services for preventative maintenance, calibration, and relocation services. Our service repair centers, located around the world, are ISO-9001 accredited. All work is performed by skilled certified service technicians.

PAC offers a wide selection of training and educational programs to support our customers throughout the range of industries that our instruments serve. Our training programs may occur in one of our PAC facilities worldwide or at the customer's facility. We also offer webinars of some of our key technologies online.



# Technical Information

## Equipment Specifications

User Interface	Large TFT-LCD (Thin Film Transistor Liquid Crystal Display) touchscreen with solvent protection
Heating System	Low-mass, low-voltage heating system with automatic positioning
	Unique optimizer function fully automates initial heating parameters and heat regulation
	Heater plate sensor, vapor probe, and centering device
Condenser System	Temperature range 0°C to 60°C
	Constant temperature, ramp temperature, or special programmable temperature profile
	Accuracy: $\pm 0.5^{\circ}\text{C}$ at $25^{\circ}\text{C}$ ( $\pm 0.9^{\circ}\text{F}$ at $77^{\circ}\text{F}$ )
Receiver Chamber	Temperature range 10°C to 60°C
	Constant temperature, ramp temperature, or special programmable temperature profile
	Instant playback on power-up
	100 mL measuring cylinder
	"Measuring cylinder in place" and "door open" sensors
	Measuring instrument: Built-in IC temperature sensor (integrated circuit)
Cooling System	CFC-free cooling unit
	Factory-sealed cooling circuit with 12% ethylene glycol and 88% distilled water as heat exchange fluid
Security	Built-in fire extinguisher with fire sensor
Connectivity	USB A: Optional external printer, barcode scanner, or USB memory device for data transfer and system updates
	RJ45: Ethernet connection
	Hose nozzle. Inlet connection for extinguisher gas source
Optional Equipment	External printer
	Bar code reader
	Automatic dry point kit for 125 mL
	Automatic dry point kit for 200 mL
	Crude oil testing capacity
	CRM reference materials

## Measurement Specifications

Distillation Speed	2 to 10 mL/min, programmable
	Automatically records the distillation rate displayed on the screen during the test
Vapor Temperature	Range: 0°C to 450°C (32°F to 840°F)
	Accuracy: Class A IEC 751 Pt100 sensor
	Built-in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history
Sample Volume	Optional calibration certificate
	Optical measurement system compatible with smoke-producing samples in the receiver
	Range: 0% to 103% of charge volume
Ambient Pressure	Resolution: 0.03 mL (internal)
	Accuracy: $\pm 0.1$ mL
	Integrated pressure sensor
Heating Element Temperature	Range: 70 to 110 kPa (525 to 825 mmHg)
	Calibration: Single point compared to reference barometer
	Thermocouple K

## Test Methods & Certifications

Standard Test Methods	ASTM D86 (group 1, 2, 3, 4), D1078, D850, IP195, IP123, DIN51751, EN ISO3405, JIS K2254, ISO918, D524, D4350
Certifications	Complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules
	Meets the requirements of the European Directives concerning health, hygiene, and safety
	The standards applied are listed in the "CE Declaration of Conformity"



## About PAC

PAC empowers global customers across various industry sectors, enhancing their efficiency through innovative solutions by designing, manufacturing, and marketing advanced lab and online analytical instruments, along with a digital platform for real-time analytics.

With decades of knowledge and expertise, our instruments consistently deliver unmatched performance and value, backed by comprehensive global support consisting of 13 sales and support offices and a network of over 140 distributors, contributing to the safe and sustainable advancement of industries worldwide.

PAC is a part of the Indicor family of companies. Indicor is a family of 15 diversified industrial solutions companies. These companies provide specialized, mission-critical products for manufacturers, and a global portfolio of proven, best-in-class companies for shareholders.





Contact us today to  
learn more about **OptiDist 2**



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