

Opti-Series Nebulizers

Next Generation Performance
in ICP-MS & ICP-OES Workflows

Engineered for performance, precision, and
reliability in high-matrix sample introduction.



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Opti-Series Nebulizers

Engineered for Performance in the Toughest Matrices

OptiMist® nebulizers are precision-engineered to deliver high sensitivity and analytical stability across a wide range of sample types. Their patented non-concentric Improved Dual Channel (IDC) design separates the gas and sample pathways throughout the body of the nebulizer, dramatically reducing the risk of clogging. Aerosol formation occurs externally – on the tip surface – minimizing salt buildup and enhancing long-term reliability.

Built to handle the most challenging matrices, OptiMist® nebulizers are engineered for samples that typically cause clogging and instability. From greases and bio-diesel to brines, precious metals, and pharmaceutical digests, they deliver robust, reproducible performance where conventional nebulizers often fail.

Compatible with all major ICP-OES and ICP-MS platforms, including Agilent, PerkinElmer, Thermo, Spectro, Leeman, Horiba, and Analytik Jena, each OptiMist® nebulizer is packaged with the required fittings and adapters for **plug-and-play** installation.

Optimized for use with cyclonic spray chambers, the Opti-Series supports modern sample introduction standards across high-throughput environmental, industrial, clinical, and research laboratories.

OptiMist® EXTREME

Engineered for the most punishing sample types – the **OptiMist® EXTREME** delivers long-term stability and virtually clog-free performance, even under **high salt** and **high TDS** conditions.



Key Features:

- **Chemical Resilience:** Withstands aggressive reagents including hydrofluoric acid and organic solvents.
- **High Particulate Tolerance:** Handles extreme TDS levels (up to 30%) and complex matrices like metallo-organics, brines, and digests.
- **Improved Dual Channel (IDC) Design:** Patent 11,378,518 – separates gas and sample flow paths for enhanced stability and clog prevention.
- **External Aerosol Formation:** Eliminates internal build-up by forming aerosol at the tip—minimizing salt accumulation.
- **Large Bore Sample Channel (1.0 mm):** The largest ID available, allowing uninterrupted flow of tough samples.
- **Proven Stability:** 6-hour test with 20% NaCl showed negligible drift and excellent precision (low RSDs).

Ideal for: High-throughput environmental, industrial, and petrochemical labs analyzing challenging matrices with ICP-OES.

OptiMist® ULTIMATE

Constructed from ULTEM™ – the most durable engineering plastic in science – the OptiMist® ULTIMATE offers outstanding resistance to aggressive chemicals while maintaining clog-free performance in high-TDS matrices.



Key Features:

- **ULTEM™ Construction:** Engineered from polyetherimide for maximum chemical resistance, including hydrofluoric acid and organic solvents.
- **High Salt / High TDS Tolerance:** Effectively handles demanding matrices like digests, acids, and metallo-organics—up to 30% TDS.
- **Patented Improved Dual Channel (IDC) Design:** Separates gas and sample paths throughout the nebulizer body to enhance performance and minimize drift.
- **External Aerosol Formation:** Minimizes risk of internal clogging by forming the aerosol outside the nebulizer tip.
- **Large Bore Sample Channel (1.0 mm):** Designed to accommodate particulates and viscous samples with virtually no clogging.
- **Validated Performance:** 6-hour 20% NaCl test demonstrated stable signal and excellent RSDs.
- Available in a **quartz version** for laboratories needing to measure Boron.

Ideal for: Labs requiring maximum chemical resistance with low maintenance — including mining, wastewater, and high-throughput industrial applications using ICP-OES.

OptiMist® ION

Designed specifically for ICP-MS, the OptiMist ION® excels in direct analysis of high-particulate, high-matrix samples—delivering clog-free performance and outstanding long-term stability, even with whole blood, digested tissues, and plant digests.



Key Features:

- **Built for ICP-MS:** Optimized for trace-level analysis in clinical, environmental, toxicological, and industrial applications.
- **Patented Improved Dual Channel (IDC) Design:** Separates gas and sample flow paths throughout the nebulizer body for superior stability and minimal drift.
- **Non-Concentric, External Aerosol Formation:** Eliminates internal clogging and supports extended uptime across difficult matrices.
- **Mid-Bore Sample Channel (~0.75 mm):** Balances high throughput and matrix tolerance, ideal for partially digested or viscous samples.
- **Zero Maintenance – 17,000+ Samples Tested:** Demonstrated continuous use with no clogging or cleaning over a year-long test with complex biological and environmental matrices.
- **Stable Signal Over Time:** Maintains calibration and low RSDs during extended runs—even with blood, serum, wood digests, and wastewater.

Ideal for: Clinical, environmental, and academic labs using ICP-MS for trace metals in complex matrices where downtime is not an option..

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OptiMist® VORTEX Flex

Delivering unmatched sensitivity and aerosol efficiency, the OptiMist® VORTEX Flex is ideal for labs that demand the **lowest possible detection limits** – without compromising tolerance to **difficult matrices**.



Key Features:

- **Exceptional Sensitivity:** Boosts ICP-OES signal-to-background ratio by over 50%—ideal for trace-level analysis.
- **Enhanced Efficiency (E²) Treatment:** Proprietary surface modification increases aerosol density for improved precision and signal strength.
- **Patented Improved Dual Channel (IDC) Design:** Separates gas and sample channels for stable operation and minimal drift.
- **Non-Concentric, External Aerosol Formation:** Prevents salt buildup and clogging while enhancing long-term performance.
- **Wide Matrix Compatibility:** Handles everything from clean aqueous samples to high-salt, high-TDS matrices.
- **Low Maintenance:** Designed for high-throughput labs requiring reliable, day-in/day-out performance

Ideal for: Food, pharma, and environmental labs running trace-level ICP-OES analysis with tight detection limit requirements.

OptiMist® 070NS – Oil & Soil Nebulizer

Designed for rugged matrices, the OptiMist® 070NS offers robust performance for laboratories analyzing used oils, soil extracts, and other **difficult environmental or industrial samples** by ICP-OES.



Key Features:

- **Matrix-Ready Design:** Built to handle viscous and particulate-rich matrices common in oil condition monitoring, soil testing, and agronomy labs.
- **Improved Dual Channel (IDC) Architecture:** Separates gas and sample flow paths to enhance precision and resist clogging during continuous operation.
- **External Aerosol Formation:** Minimizes salt or particulate buildup by generating aerosol outside the nebulizer tip.
- **Optimized for Routine QA/QC:** Consistent and reliable performance in high-throughput labs performing wear metals, nutrient, and contamination screening.
- **Compatible with Cyclonic Spray Chambers:** Plug-and-play fittings available for seamless integration with all major ICP-OES models.
- Available in a **quartz version** for laboratories needing to measure Boron.

Ideal for: Petroleum labs conducting wear metal analysis, environmental labs analyzing soil leachates, and agronomy labs running trace metal testing on plant materials.

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Opti-Series Nebulizer Product List

Upgrade your ICP workflows with precision-engineered nebulizers built to outperform in the toughest matrices. From trace-level detection to high-salt, high-TDS tolerance, OptiMist® nebulizers deliver uncompromising reliability, sensitivity, and uptime.

CPI Part No.	Description	Manufacturer	Material
OptiMist® EXTREME			
4060-020218	OptiMist® EXTREME, high particulates/high TDS	Agilent, Analytik Jena, Shimadzu	PEEK
4060-020218	OptiMist® EXTREME, high particulates/high TDS	Perkin Elmer	PEEK
4060-020218	OptiMist® EXTREME, high particulates/high TDS	Spectro	PEEK
4060-020218	OptiMist® EXTREME, high particulates/high TDS	Thermo	PEEK
4060-020218	OptiMist® EXTREME, high particulates/high TDS	-	PEEK
OptiMist® ULTIMATE			
4060-020222	OptiMist® ULTIMATE, high particulates/high TDS	Agilent, Analytik Jena, Shimadzu	ULTEM®
4060-020222	OptiMist® ULTIMATE, high particulates/high TDS	Perkin Elmer	ULTEM®
4060-020222	OptiMist® ULTIMATE, high particulates/high TDS	Spectro	ULTEM®
4060-020222	OptiMist® ULTIMATE, high particulates/high TDS	Thermo	ULTEM®
4060-020222	OptiMist® ULTIMATE, high particulates/high TDS	-	ULTEM®
OptiMist® ION			
4060-020207	OptiMist ION™, low sample uptake rate for ICP-MS	Agilent, Analytik Jena, Shimadzu, Thermo	Glass
4060-020208	OptiMist ION™, low sample uptake rate for ICP-MS	Perkin Elmer	Glass
4060-020209	OptiMist ION™, low sample uptake rate for ICP-MS	Thermo	Glass
OptiMist® Vortex Flex			
4060-020203	OptiMist® Vortex Flex, low detection limits Nebulizer only.	Agilent, Analytik Jena, Shimadzu	Glass
4060-020203-SV	OptiMist® Vortex Flex, low detection limits Includes switching valve.	Agilent, Analytik Jena, Shimadzu	Glass
4060-020204	OptiMist® Vortex Flex, low detection limits Nebulizer only.	Perkin Elmer	Glass
4060-020204-SV	OptiMist® Vortex Flex, low detection limits Includes switching valve.	Perkin Elmer	Glass
4060-020205	OptiMist® Vortex Flex, low detection limits Nebulizer only.	Spectro	Glass
4060-020205-SV	OptiMist® Vortex Flex, low detection limits Includes switching valve.	Spectro	Glass
4060-020206	OptiMist® Vortex Flex, low detection limits Nebulizer only.	Thermo	Glass
4060-020206-SV	OptiMist® Vortex Flex, low detection limits Includes switching valve.	Thermo	Glass

Opti-Series Nebulizer Product List *(continued)*

CPI Part No.	Description	Manufacturer	Material
OptiMist® 070NS			
4060-020210	OptiMist® 070NS, Oil & Soil Includes: nebulizer gas hose 6mm adapter, push-in fitting for nebulizer gas line, white plastic gas hose clamp, sample line adapter (1.3mm OD x 0.75mm ID x 700mm), nebulizer Argon gas flow connection	Perkin Elmer	Glass
4060-020210Q	OptiMist® 070NS, Oil & Soil Includes: nebulizer gas hose 6mm adapter, push-in fitting for nebulizer gas line, white plastic gas hose clamp, sample line adapter (1.3mm OD x 0.75mm ID x 700mm), nebulizer Argon gas flow connection	Perkin Elmer	Quartz
4060-020211	OptiMist® 070NS, Oil & Soil Includes: sample line adapter, push-in fitting for nebulizer gas line, nebulizer Argon flow 4mm adapter, nebulizer spacer	Spectro	Glass
4060-020211Q	OptiMist® 070NS, Oil & Soil Includes: sample line adapter, push-in fitting for nebulizer gas line, nebulizer Argon flow 4mm adapter, nebulizer spacer	Spectro	Quartz
4060-020212	OptiMist® 070NS, Oil & Soil Includes: sample line adapter, push-in fitting for nebulizer gas line	Thermo	Glass
4060-020212Q	OptiMist® 070NS, Oil & Soil Includes: sample line adapter, push-in fitting for nebulizer gas line.	Thermo	Quartz

Mini Argon Humidifier for high TDS, ~100mL



**Have Questions?
We're here to help!**

7:30am - 4:30pm PST Monday - Friday

[Chat Online](#) | (800) 878-7654 | sales@cpinternational.com