



EPOND - ESI

ThermoFinnigan Catalogue





Elemental Scientific ThermoFinnigan Catalog

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ST Nebulizers

ES-4040-YY

PolyPro ST Nebulizer

HF-resistant, high-performance self-aspirating nebulizer with detachable sample capillary. Polypropylene nebulizer body. May be pumped from 0.1 to 3.0 ml/min. Includes one flanged Teflon PFA sample capillary, (See appendix B)



ES-2040-YY

PFA ST Nebulizer

High purity, HF-resistant, high performance self-aspirating nebulizer with detachable sample capillary. All fluoropolymer construction. May be pumped from 0.1 to 2.0 ml/min. Includes one flanged Teflon PFA sample capillary, (See appendix B)



A variety of alternate flanged Teflon sample capillaries and autosampler probes are available for the PolyPro ST Nebulizer and the PFA ST Nebulizer. Sample capillaries are securely attached to the nebulizer using a threaded, zero dead volume flanged fitting. The selection of sample capillaries and sampling probes appears on the following page.

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Sample Capillaries for ST Nebulizers

Part Number	i.d.	Measured self-aspiration rate (@1L/mAr)
ES-2045	0.15 mm	20 μ L/min ■
ES-2043	0.2 mm	50 μ L/min ■
ES-2042	0.25 mm	100 μ L/min ■
ES-2041	0.5 mm	400 μ L/min ■
ES-2044	0.8 mm	700 μ L/min ■



Colored markers indicate internal diameter. It is recommended that integrated capillary nebulizers (not ST-type) be used for flow rates < 100 μ L/min. For peristaltic pumping, either 0.25 mm i.d. (0.1 to 1 ml/min) or 0.5 mm i.d. (0.5 to 3ml/min) is recommended.

Autosampler Probes for ST Nebulizers

Part Number	i.d.	Measured self-aspiration rate (@1L/mAr)
ST-Cetac ASX-100 probes (80 cm)*		
ES-5016-0150-080	0.15 mm i.d.	20 μ L/min ■
ES-5016-0200-080	0.20 mm i.d.	50 μ L/min ■
ES-5016-0250-080	0.25 mm i.d.	100 μ L/min ■
ST-Cetac ASX-500/510 probes (120 cm)*		
ES-5017-0150-120	0.15 mm i.d.	20 μ L/min ■
ES-5017-0200-120	0.2 mm i.d.	50 μ L/min ■
ES-5017-0250-120	0.25 mm i.d.	100 μ L/min ■
ES-5017-0500-120	0.5 mm i.d.	400 μ L/min ■
ES-5017-0800-120	0.8mm i.d.	700 μ L/min ■
ST-Manual sampling probes (80 cm)*		
ES-5017-2150-080	0.15 mm i.d.	20 μ L/min ■
ES-5017-2200-080	0.2 mm i.d.	50 μ L/min ■
ES-5017-2250-080	0.25 mm i.d.	100 μ L/min ■
ES-5017-2500-080	0.5 mm i.d.	400 μ L/min ■
ES-5017-2750-080	0.8 mm i.d.	700 μ L/min ■



*Standard probe lengths indicated by the last three digits of the part number.

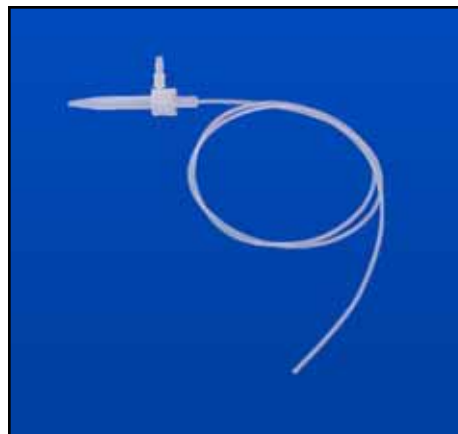
- 80 cm (-080)
- 100 cm (-100)
- 120 cm (-120)
- 150 cm (-150)

Contact ESI for custom length sampling probes.

PFA MicroFlow Nebulizers with Integrated Capillaries

PFA MicroFlow nebulizers are constructed entirely from chemically resistant fluoropolymers, ideal for strong acids, alkalis, organics, high salt solutions, and high solid concentrations. They are resistant to clogging, are reliably self-aspirated or pumped, and produce a fine aerosol for high transport efficiency and high sensitivity.

Part Number	Model	Measured self- aspiration rate (@ 1L/m Ar)
ES-2020-0002	PFA-20	20-35 $\mu\text{L}/\text{min}$
ES-2000-0002	PFA-50	45-65 $\mu\text{L}/\text{min}$
ES-2001-0002	PFA-75	65-95 $\mu\text{L}/\text{min}$
ES-2002-0002	PFA-100	90-150 $\mu\text{L}/\text{min}$
ES-2003-0002	PFA-200	150-250 $\mu\text{L}/\text{min}$
ES-2005-0002	PFA-400	300-400 $\mu\text{L}/\text{min}$



PFA MicroFlow Nebulizers with Integrated Sampling Probes

These nebulizers allow self-aspiration at low sample consumption rates with any autosampler while providing the same benefits of the PFA MicroFlow nebulizer. The integrated sampling probe is constructed by encapsulating a polyimide support between layers of Teflon to provide a chemically resistant probe that is mechanically stable and resilient.

Cetac ASX-100 (80 cm)*

ES-2020-0100-080	PFA-20	20-35 $\mu\text{L}/\text{min}$
ES-2000-0100-080	PFA-50	45-65 $\mu\text{L}/\text{min}$
ES-2001-0100-080	PFA-75	65-95 $\mu\text{L}/\text{min}$
ES-2002-0100-080	PFA-100	90-150 $\mu\text{L}/\text{min}$

Cetac ASX-500/510 (120 cm)*

ES-2002-0500-120	PFA-100	90-150 $\mu\text{L}/\text{min}$
ES-2003-0500-120	PFA-200	150-250 $\mu\text{L}/\text{min}$
ES-2005-0500-120	PFA-400	250-400 $\mu\text{L}/\text{min}$

Manual Sampling Probes (80 cm)*

ES-2020-0200-080	PFA-20	20-35 $\mu\text{L}/\text{min}$
ES-2000-0200-080	PFA-50	45-65 $\mu\text{L}/\text{min}$
ES-2001-0200-080	PFA-75	65-95 $\mu\text{L}/\text{min}$
ES-2002-0200-080	PFA-100	90-150 $\mu\text{L}/\text{min}$
ES-2005-0200-080	PFA-400	300-400 $\mu\text{L}/\text{min}$



*Standard probe lengths indicated by the last three digits of the part number.

- 80 cm (-080)
- 100 cm (-100)
- 120 cm (-120)
- 150 cm (-150)

Contact ESI for custom length sampling probes.

Sampling Probes

Cetac ASX-100 probes (80 cm)*

ES-5006-0150-080	0.15 mm i.d.
ES-5006-0200-080	0.20 mm i.d.
ES-5006-0250-080	0.25 mm i.d.



ASX-100 Probe

Cetac ASX-500/510 probes (120 cm)*

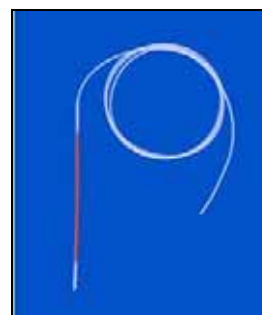
ES-5007-0150-120	0.15 mm i.d.
ES-5007-0200-120	0.2 mm i.d.
ES-5007-0250-120	0.25 mm i.d.
ES-5007-0500-120	0.5 mm i.d.
ES-5007-0800-120	0.8mm i.d.



ASX-500 Probe

Manual Sampling probes (80 cm)*

ES-5007-2150-120	0.15 mm i.d.
ES-5007-2200-120	0.2 mm i.d.
ES-5007-2250-120	0.25 mm i.d.
ES-5007-2500-120	0.5 mm i.d.
ES-5007-2800-120	0.8mm i.d.



Manual sampling probe

*Standard probe lengths indicated by the last three digits of the part number.

- 80 cm (-080)
- 100 cm (-100)
- 120 cm (-120)
- 150 cm (-150)

Contact ESI for custom length sampling probes.

ST Nebulizer and Autosampler Probe Kits for Peristaltic Pumping

When peristaltic pumping a sample, it is important that the entire sample uptake line be of the same internal diameter. These kits combine the entire uptake line with a durable, long life PFA-ST or PolyPro-ST nebulizer and a PFA Teflon® autosampler probe, including all pump tubing and fittings in uniform dimensions for a variety of low, medium, and high uptake rates.

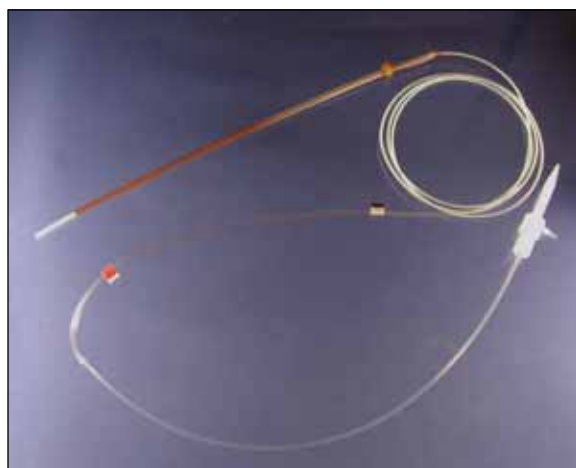
PFA-ST Nebulizer + Autosampler Probe Kit

Nebulizer plus autosampler probe kit includes MicroFlow PFA-ST nebulizer, autosampler probe, peristaltic pump tubing and fittings.

PolyPro-ST Nebulizer + Autosampler Probe Kit

Nebulizer plus autosampler probe kit includes MicroFlow PolyPro-ST nebulizer, autosampler probe, peristaltic pump tubing and fittings.

PFA-ST Kit Part Number	PolyPro-ST Kit Part Number	i.d.
<u>Cetac ASX-100 kits</u>		
ES-2040-0110	ES-4040-0110	0.15 mm
ES-2040-0120	ES-4040-0120	0.2 mm
ES-2040-0130	ES-4040-0130	0.25 mm
<u>Cetac ASX-500/510 kits</u>		
ES-2040-0510	ES-4040-0510	0.15 mm
ES-2040-0520	ES-4040-0520	0.2 mm
ES-2040-0530	ES-4040-0530	0.25 mm
ES-2040-0550	ES-4040-0550	0.5 mm
ES-2040-0580	ES-4040-0580	0.8 mm



Apex

Fully integrated, high sensitivity inlet system for ICP spectroscopy

Apex uses a heated cyclonic spray chamber coupled to a Peltier cooled desolvation system that provides about 10X enhancement in sensitivity using a much smaller sample uptake (300µl/min). It provides ppq BEC's, has a fast rinse-out time, is highly stable, and is compact and easy to use. The standard Apex kit includes:

- Apex High Efficiency Inlet System,
- Two Microflow PFA Nebulizers (See Appendix A),
- Integrated Peristaltic drain pump,
- Connectors to adapt to the ICPMS or ICPAES instrument.

Apex Q - Quartz inlet system

ES-4351-1000-xx for Element 1

ES-4352-1000-xx for Element 2

ES-4353-1000-xx for Neptune

Apex HF - Polypropylene inlet system

ES-4451-1000-xx for Element 1

ES-4452-1000-xx for Element 2

ES-4453-1000-xx for Neptune

Apex IR - Isotope Ratio

ES-4551-1000-xx for Element 1

ES-4552-1000-xx for Element 2

ES-4553-1000-xx for Neptune



The Apex inlet system

Membrane Desolvation Modules for Apex

ES-4599-2000 **ACM Module**

Peltier cooled Nafion microporous fluoropolymer membrane desolvator attaches directly to any Apex for improved desolvation efficiency. The Nafion membrane reduces oxides and interferences without the loss of analytes.



ES-4599-0001 **ApexAreo**

Nafion fluoropolymer membrane desolvation module removes residual solvent vapor in the sample aerosol stream. Similar to the ACM without Peltier-cooling. May be used with any Apex model.



PC³ Peltier Cooler for Cyclonic Spray Chambers

PC³

The PC³ is a small, simple, and robust cooler for ICPMS and ICPAES cyclonic spray chambers. The PC³ cools the outer walls of the cyclonic spray chamber to a constant temperature enhancing long-term signal stability, reducing polyatomic ion interferences, such as oxides, and reducing solvent loading when volatile organic solvents are analyzed.

PC³ Inlet System ES-41zz-debu-aitg-xx
PC³ Peltier Cooler ES-4100



PC³-SSI

The PC³-SSI is an enhanced stability sample introduction system designed for isotope ratio analyses or any ICPMS analysis requiring high precision. The PC³-SSI is a single unit that combines the features of the PC³ cooled cyclonic spray chamber with ESI's Stable Sample Introduction (SSI) spray chamber to improve short-term and long-term stability and isotope ratio precision.

PC³ SSI Inlet System ES-42zz-111u-ait0-xx



Create a part number by selecting the instrument model (zz), spray chamber material (d), auxiliary gas port (e), baffle (b), choose the outlet for the ICP injector (u), electrical outlet configuration (a), injector type (i), torch type (t), choose the mounting bracket (g), and choose the nebulizer configuration (xx). (See Appendix)

zz = instrument

- zz = 51 Finnigan Element 1
- zz = 52 Finnigan Element 2
- zz = 53 Finnigan Neptune

Spray Chamber Options (debu)

d = chamber material (normally 1 or 2)

- d = 1 quartz (High Purity)
- d = 2 polypropylene (HF resistant)
- d = 4 glass

e = auxiliary port (mixed gas & organic solvents)

- e = 0 no aux. port (standard)
- e = 1 threaded aux. port, 1/4-28 (oxygen or make up gas)
- e = 2 aux. port, 2mm x 4 mm

b = baffle type

- b = 0 non-baffled (ICP-AES)
- b = 1 baffled (ICP-MS)

u = outlet connector type

- u = 1 ESI injector connection
- u = 8 12/5 socket connection

a = electrical outlet configuration

- a = 1 North America and Japan
- a = 2 Europe
- a = 3 UK
- a = 4 China
- a = 5 India
- a = 6 Australia

i = injector type

- i = 0 No injector
- i = 1 ESI 1.5mm Quartz
- i = 2 ESI 2mm Quartz
- i = 4 ESI 1.8mm Sapphire
- i = 7 ESI 2mm Platinum
- i = 9 OEM Injector

t = torch type

- t = 0 no torch
- t = 1 OEM Torch
- t = 2 ESI o-ring-free specified
- t = 3 ESI (o-ring specified)
- t = 4 One-piece quartz

g = mounting bracket

- g = 0 no mounting bracket
- g = 1 with mounting bracket

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3100 Series O-ring-free Cyclonic Spray Chambers

ES-31zz-debu

Create a part number by selecting the instrument model (zz), spray chamber material (d), auxiliary gas port (e), baffle (b), and choose the outlet for the ICP injector (u).

The additional price for an auxiliary port and baffle are indicated below.



PolyPro Cyclonic Spray Chamber. Fits any 6mm nebulizer. May be used with PC³.

Spray Chamber Options

d = chamber material (normally 1 or 2)

- d = 1 quartz (High Purity)
- d = 2 polypropylene (HF resistant)
- d = 4 glass

e = auxiliary port (required for Agilent and for organic solvent applications)

- e = 0 no aux. port (standard configuration)
- e = 1 threaded aux. port, 1/4-28 (standard aux. port for oxygen or make up gas)
- e = 2 aux. port, 2mm x 4 mm

b = baffle type

- b = 0 non-baffled (recommended for ICP-AES)
- b = 1 baffled (recommended for ICP-MS)

u = outlet connector type

- u = 1 ESI injector connection
- u = 8 12/5 socket connection

zz = instrument

- zz = 51 Finnigan Element 1
- zz = 52 Finnigan Element 2
- zz = 53 Finnigan Neptune

Note: All 3100 series Cyclonic Spray Chambers will fit the ESI PC³ Peltier Cooler.
3100 Series Cyclonic Spray Chambers may also be used stand-alone.

Endcaps and Spray Chambers

PFA PureCap Endcap

Secure, o-ring free connection to quartz or PFA spray chambers. Second orthogonal gas port for adding an additional or mixed gas to spray chamber. Interfaces with any 6mm nebulizer. Includes addition gas line.

ES-5010-0350 **35mm PFA PureCap Endcap**

ES-5010-0470 **47mm PFA PureCap Endcap**



47mm PFA PureChamber Spray Chamber

Durable, long-life PFA Teflon construction minimizes contamination and chemical compatibility issues. Directly connects to ESI injectors. A 12/5 socket adapter is available for standard quartz torches. All spray chambers include one drain line.

ES-2100-0471 **for Low Flow Nebulizers**

ES-2180-5471 with PureCap endcap

ES-2100-0473 **for High Flow nebulizers**

ES-2180-5473 with PureCap endcap



PFA PureChamber for
Low Flow Nebulizers



PFA PureChamber for
High Flow Nebulizers

ES-2104-0350 **35mm quartz spray chamber**



ES-2104 **35mm water cooled quartz spray chamber**



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Connectors for Spray Chambers and Injectors

ES-5508 Adapts ESI PureChamber PFA spray chamber to injector. Inert and HF resistant.



ES-5510 Adapts ESI spray chambers to 12/5 socket. PFA and quartz construction.



ES-2127-0341 Adapts ESI spray chambers to 12/5 socket,. Inert and HF resistant



ES-5509 Adapts ESI injectors to 12/5 socket. Inert and HF resistant.



O-ring Free Injectors and Precision Torch

Sapphire injectors

ES-1003-1100	1 mm i.d.
ES-1003-1160	1.6 mm i.d.
ES-1003-1180	1.8 mm i.d.

Quartz injectors

ES-1024-1100	1 mm i.d.
ES-1024-1150	1.5 mm i.d.
ES-1024-1180	1.8 mm i.d.

Quartz injectors with 12/5 ball joint

ES-1023-1100	1 mm i.d.
ES-1023-1150	1.5 mm i.d.
ES-1023-1180	1.8 mm i.d.

Platinum injectors

ES-1013-1180	1.8 mm i.d.
ES-1013-1200	2 mm i.d.

O-ring-free precision quartz torch

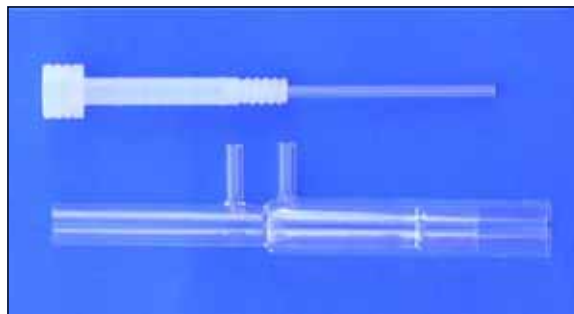
ES-1002-1000



CD-type torch (left) vs.
Precision quartz torch

One-piece quartz torch with 1.5mm i.d. injector

ES-1002-0001



O-ring free Sapphire injector and Precision torch
for ThermoFinnigan ICPMS



Quartz injector with 12/5 ball joint connector



O-ring-free seal

- reduces contamination
- easy to clean
- easy to insert

Precision alignment of torch and
injector eliminates injector wobble
and off-axis deflection.



Standard Injectors and CD-type Torch

Sapphire injectors

ES-1003-0100	1 mm i.d.
ES-1003-0160	1.6 mm i.d.
ES-1003-0180	1.8 mm i.d.

Quartz injectors

ES-1024-0101	1 mm i.d.
ES-1024-0150	1.5 mm i.d.
ES-1024-0180	1.8 mm i.d.

Quartz injectors with 12/5 ball joint adapter

ES-1023-0100	1 mm i.d.
ES-1023-0150	1.5 mm i.d.
ES-1023-0180	1.8 mm i.d.

Platinum injectors

ES-1013-0180	1.8 mm i.d.
ES-1113-1201	2 mm i.d.

CD-type Quartz Torch

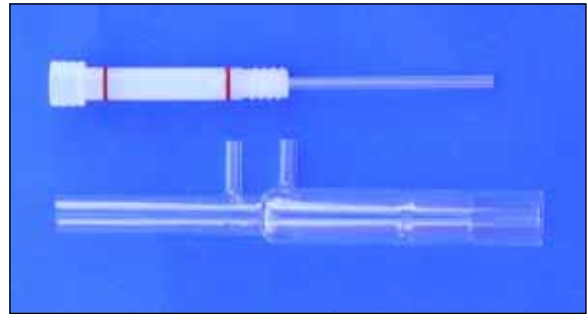
ES-1002	
ES-1004	High stability version

Quartz insulator ring

ES-1001-0002	
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Shield Torch Bonnet

ES-1002-0002	60 mm
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Sapphire injector and CD-type quartz torch for ThermoFinnigan ICPMS



Quartz injector with 12/5 ball joint connector



All standard injectors include a package of ten 12mm Viton o-rings.

Upgrade Kits

PFA Inert Kits

High purity, O-ring free upgrade package. Includes two PFA MicroFlow nebulizers (see Appendix A), PureCap endcap, 47mm PFA spray chamber, adapter, injector, and quartz torch.



O-ring Free PFA Kits with O-ring free injector and precision torch

- ES-2185-1470-XX with 1mm sapphire injector
- ES-2180-1471-XX with 1.8mm sapphire injector
- ES-2185-1476-XX with 1mm organic sapphire injector
- ES-2181-1471-XX with 2mm platinum injector

PFA Kits with standard injector CD-type torch

- ES-2185-0470-XX with 1mm sapphire injector
- ES-2180-0471-XX with 1.8mm sapphire injector
- ES-2185-0476-XX with 1mm organic sapphire injector
- ES-2181-0471-XX with 2mm platinum injector

Basic Quartz Kit

High purity, O-ring free upgrade package. Includes one PFA MicroFlow nebulizer (see Appendix A) PureCap endcap, 35mm Quartz spray chamber, 1.5mm quartz injector with PFA base and quartz torch.



- ES-2187-1350-XX with o-ring free injector and precision torch
- ES-2187-0350-XX with standard injector and CD-type torch
- ES-2186-1350-XX with o-ring free injector and precision torch and water-cooled spray chamber
- ES-2186-0350-XX with standard injector and CD-type torch and water-cooled spray chamber

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Upgrade Kits

Quartz Cyclonic Kit

High purity, O-ring free upgrade package. Includes two PFA MicroFlow nebulizers (see Appendix A), O-ring free Quartz Cyclonic Spray Chamber, connector, 1.5mm Quartz injector, and quartz torch.

ES-2187-1150-XX with o-ring free injector and precision torch

ES-2187-0150-XX with standard injector and CD-type torch

Stable Sample Introduction (SSI) Kit

Enhanced stability sample introduction system for isotope ratio analyses. All-quartz, o-ring-free spray chamber employs an additional mixing chamber that homogenizes the nebulized sample aerosol prior to introduction to the ICPMS. Includes two PFA MicroFlow nebulizers (see Appendix A), quartz dual spray chamber, clamp and fittings.

ES-2101-2101-XX Stable Sample Introduction Kit

ES-2101-2181 Quartz dual cyclonic spray chamber



Laser Ablation Kits

Includes two PFA-20A nebulizers, Quartz dual spray chamber with additional gas port, laser gas line kit, o-ring free quartz injector and two quartz torches.

ES-2185-2101 without sampler and skimmer cones

ES-2185-2103 with Nickel sampler and skimmer cones

ES-2185-2104 with Platinum sampler and skimmer cones

Laser Ablation Interface Kit

Includes two PFA-20-A nebulizers, PFA PureCap endcap, 35mm quartz spray chamber, 1.5mm o-ring free quartz injector and precision quartz torch.

ES-2185-7000

ES-9080 PFA Super Pure Kit for ThermoFinnigan

Includes typical sample introduction components and spares for at least 2 years of operation.

- 8 MicroFlow nebulizers
(2 each PFA-20, PFA-50 PFA-100 and PFA ST)
- 3 PFA spray chambers and PureCap endcaps
- 3 o-ring free sapphire injectors
- 1 o-ring-free Pt injector
- 3 ESI precision quartz torches
- Laser Ablation connector line.



2500 Series Inert Cyclonic Spray Chamber Kits

The 2500 series kit features the ESI Cyclonic Spray Chamber in quartz, polypropylene, or glass, and includes an O-ring-free 1.8 mm sapphire injector with quartz torch and two nebulizers (see Appendix A).

ES-25zz-debu-xx 2500 Series Inert Cyclonic Spray Chamber Kit

The above prices include two PFA MicroFlow nebulizers. Unless otherwise specified, 2500 series kits will include one PFA-100 nebulizer and one PFA-ST nebulizer (xx = 21).



Cyclonic Spray Chamber Kit
for Finnigan Element

Create a part number by selecting the instrument model (zz), spray chamber material (d), auxiliary gas port (e), baffle (b), choose the outlet for the ICP injector (u), and choose the nebulizer combination (xx).

Spray Chamber Options (debu)

d = chamber material (normally 1 or 2)

- d = 1 quartz (High Purity)
- d = 2 polypropylene (HF resistant)
- d = 4 glass

e = auxiliary port

- e = 0 no aux. port (normal configuration)
- e = 1 threaded aux. port, 1/4-28 (for oxygen or make up gas)
- e = 2 aux. port, 2mm x 4 mm

b = baffle type

- b = 0 non-baffled (ICP-AES)
- b = 1 baffled (ICP-MS)

u = outlet connector type

- u = 1 ESI injector connection (straight connection)
- u = 8 12/5 socket connection

zz = zz zz = instrument

- zz = 51 Finnigan Element 1
- zz = 52 Finnigan Element 2
- zz = 53 Finnigan Neptune

ICPMS Cones

Part Number

ES-3000-1801	Nickel Sampler Cone, Cu core
ES-3000-1802	100% Nickel Sampler Cone
ES-3000-1803	Aluminum Sampler Cone
ES-3000-1804	Nickel Skimmer Cone
ES-3000-1805	Aluminum Skimmer cone
ES-3000-1820	Ni X Skimmer cone
ES-3000-1821	Aluminum X Skimmer cone
ES-3000-1850	Nickel accelerator
ES-3000-1806	Platinum Sampler, Cu core 15.2mm Pt/10% Rh insert
ES-3000-1808	Platinum Sampler, Ni base 15.2mm Pt/10% Rh insert
ES-3000-1810	Platinum Skimmer Cone, Cu base 7.6mm Pt/10%Rh insert
ES-3000-1811	Platinum Skimmer Cone, Ni base 7.62mm Pt/10%Rh insert
ES-3000-1807	Platinum Sampler, Cu core 6.35mm Pt insert
ES-3000-1809	Platinum Skimmer Cone, Ni base 6mm Pt insert



Evaporation Tubes and Autosampler Vials

PFA Teflon evaporation tube for MODBLOCK

- ES-7210 35mm round-bottom evaporation tube
(6 per pack)
- ES-7633 PFA press fit cap for 35mm evaporation tube
(6 per pack)
- ES-7211 Press fit cap with purge ports
(6 per Pack)



Teflon Autosampler Vials for small volume sample analysis

compatible with ASX-100 24 position and GFAA instruments

- ES-7220-0100 1ml Teflon PFA Vials (10 pack)
- ES-7220-0200 2ml Teflon PFA Vials (10 pack)
- ES-7220-0400 4ml Teflon PFA Vials (10 pack)
- ES-7220-0024 Press-On Cap for autosampler vials (10 pack)



Teflon Autosampler Vials for ASX-500/510 60 position rack

- ES-7220-1500 15ml Teflon PFA Vials (10 pack)
- ES-7220-2000 20ml Teflon PFA Vials (10 pack)

Teflon Vials with Septa

- ES-7222-0500 5ml PFA vials with Teflon laminated septa
(10 per pack)
- ES-7222-0501 Replacement Teflon laminated septa (
30 per package)



ES-7221-9010 50 mL Solvent Waste Trap Bottle

All fluoropolymer-wetted trap avoids peristaltic pumping of aggressive organic solvents. Includes a set of 4 piece PharMed peristaltic pump tubing (grey/grey).



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Pre-Cleaned Pipette Tips for Eppendorf type Pipettors

100 µl Pipette Tips

- ES-7000-0101 Quantity of 10
- ES-7000-0111 Quantity of 100

1000 µl Pipette Tips

- ES-7000-1001 Quantity of 10
- ES-7000-1011 Quantity of 100



Tools

ES-2999-1000 Quartz Straightening Tool

Used to straighten curled uptake capillaries. Simply insert the capillary into the tool and place it over direct heat. Cool and remove the straightened capillary.



ES-2046-0001 Obstruction Removal Kit for ST type Nebulizers

Designed specifically for PFA-ST and PolyPro-ST nebulizers to remove clogs. Includes one guide, 10 pieces of fused silica and instructions. For use with ST type nebulizers only.



ES-2046-0003 Replacement guide for kit ES-2046-0001

ES-2046-0002 10 piece Fused Silica Refill for Obstruction Removal Kit

ES-2010 Silica 50µm i.d. x 650mm

ES-2012 Silica 75µm i.d. x 650mm

Appendices

Appendix A

For alternate nebulizer combinations with the Apex, PC³, and Upgrade Kits please use the following reference table

xx = nebulizer options

xx = 10	PFA-20	PFA-20	
xx = 11	PFA-20	PFA-50	
xx = 12	PFA-20	PFA-100	
xx = 13	PFA-20	PFA-400	
xx = 14	PFA-20	PFA-ST	
xx = 15	PFA-50	PFA-50	
xx = 16	PFA-50	PFA-100	
xx = 17	PFA-50	PFA-400	
xx = 18	PFA-50	PFA-ST	
xx = 19	PFA-100	PFA-100	Standard for ICPMS system upgrade kits
xx = 20	PFA-100	PFA-400	
xx = 21	PFA-100	PFA-ST	Standard for Apex and PC ³ kits
xx = 22	PFA-400	PFA-400	
xx = 23	PFA-400	PFA-ST	
xx = 24	PFA-ST	PFA-ST	Standard for ICPOES system upgrade kits
xx = 25	PFA-20		
xx = 26	PFA-50		
xx = 27	PFA-100		
xx = 28	PFA-400		
xx = 29	PFA-ST		
xx = 40	PolyPro-ST	PolyPro-ST	
xx = 41	PolyPro-ST		

For example: If the part number is ES-4300-1002-XX, to specify two PFA-100 nebulizers, replace XX at the end of a part number with 19. The resulting part number would be ES-4300-1002-19.

Appendix B

For alternate capillary combinations with the PFA-ST or PolyPro-ST nebulizers please use the following reference table

yy = capillary combinations

yy = 10	20 µL/min	20 µL/min	
yy = 11	20 µL/min	50 µL/min	
yy = 12	20 µL/min	100 µL/min	
yy = 13	20 µL/min	400 µL/min	
yy = 14	20 µL/min	700 µL/min	
yy = 15	50 µL/min	50 µL/min	
yy = 16	50 µL/min	100 µL/min	
yy = 17	50 µL/min	400 µL/min	
yy = 18	50 µL/min	700 µL/min	
yy = 19	100 µL/min	100 µL/min	
yy = 20	100 µL/min	400 µL/min	
yy = 21	100 µL/min	700 µL/min	
yy = 22	400 µL/min	400 µL/min	
yy = 23	400 µL/min	700 µL/min	
yy = 24	700 µL/min	700 µL/min	
yy = 25	20 µL/min		
yy = 26	50 µL/min		
yy = 27	100 µL/min		
yy = 28	400 µL/min		Standard if no other combination specified
yy = 29	700 µL/min		