



# Elemental Scientific

## Agilent Catalog



Elemental Scientific  
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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 $\mu$ L/min <span style="color:red">■</span>
ES-2043	0.2 mm	50 $\mu$ L/min <span style="color:purple">■</span>
ES-2042	0.25 mm	100 $\mu$ L/min <span style="color:green">■</span>
ES-2041	0.5 mm	400 $\mu$ L/min <span style="color:orange">■</span>
ES-2044	0.8 mm	700 $\mu$ L/min <span style="color:blue">■</span>



Colored markers indicate internal diameter. It is recommended that integrated capillary nebulizers (not ST-type) be used for flow rates < 100  $\mu$ 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)
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### ST-Agilent IAS probes (80 cm)\*

ES-5016-1301-080	0.15 mm i.d.	
ES-5016-1303-080	0.3 mm i.d.	
ES-5016-1305-080	0.5 mm i.d.	
ES-5016-1308-080	0.8 mm i.d.	

### ST-Cetac ASX-100 probes (80 cm)\*

ES-5016-0150-080	0.15 mm i.d.	20 $\mu$ L/min <span style="color:red">■</span>
ES-5016-0200-080	0.20 mm i.d.	50 $\mu$ L/min <span style="color:purple">■</span>
ES-5016-0250-080	0.25 mm i.d.	100 $\mu$ L/min <span style="color:green">■</span>

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

ES-5017-0150-120	0.15 mm i.d.	20 $\mu$ L/min <span style="color:red">■</span>
ES-5017-0200-120	0.2 mm i.d.	50 $\mu$ L/min <span style="color:purple">■</span>
ES-5017-0250-120	0.25 mm i.d.	100 $\mu$ L/min <span style="color:green">■</span>
ES-5017-0500-120	0.5 mm i.d.	400 $\mu$ L/min <span style="color:orange">■</span>
ES-5017-0800-120	0.8mm i.d.	700 $\mu$ L/min <span style="color:blue">■</span>

### ST-Manual sampling probes (80 cm)\*

ES-5017-2150-080	0.15 mm i.d.	20 $\mu$ L/min <span style="color:red">■</span>
ES-5017-2200-080	0.2 mm i.d.	50 $\mu$ L/min <span style="color:purple">■</span>
ES-5017-2250-080	0.25 mm i.d.	100 $\mu$ L/min <span style="color:green">■</span>
ES-5017-2500-080	0.5 mm i.d.	400 $\mu$ L/min <span style="color:orange">■</span>
ES-5017-2750-080	0.8 mm i.d.	700 $\mu$ L/min <span style="color:blue">■</span>



\*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.

### Agilent IAS (80 cm)\*

ES-2020-0700-080	PFA-20	20-35 $\mu\text{L}/\text{min}$
ES-2000-0700-080	PFA-50	45-65 $\mu\text{L}/\text{min}$
ES-2001-0700-080	PFA-75	65-95 $\mu\text{L}/\text{min}$
ES-2002-0700-080	PFA-100	90-150 $\mu\text{L}/\text{min}$
ES-2005-0700-080	PFA-400	300-400 $\mu\text{L}/\text{min}$

### 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

### Agilent IAS probes (80 cm)\*

ES-5006-1301-080	0.15 mm i.d.
ES-5006-1303-080	0.3 mm i.d.
ES-5006-1305-080	0.5 mm i.d.
ES-5006-1308-080	0.8 mm i.d.



Agilent IAS probe

### 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.

\*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.

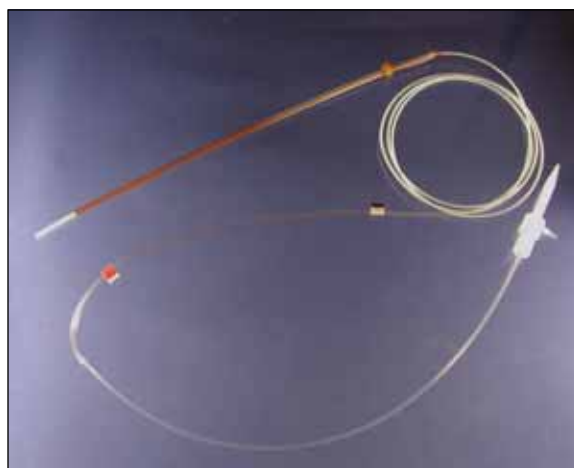
### **PFA-ST Nebulizer + Autosampler Probe Kit**

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.

<b>PFA-ST Kit Part Number</b>	<b>PolyPro-ST Kit Part Number</b>	<b>i.d.</b>
<u>Agilent IAS kits</u>		
ES-2040-0710	ES-4040-0710	0.15 mm
ES-2040-0730	ES-4040-0730	0.3 mm
ES-2040-0750	ES-4040-0750	0.5 mm
ES-2040-0780	ES-4040-0780	0.8 mm
<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



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## 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-4361-1000-xx for HP 4500

ES-4362-1000-xx for Agilent 7500

### Apex HF - Polypropylene inlet system

ES-4461-1000-xx for HP 4500

ES-4462-1000-xx for Agilent 7500

### Apex IR - Isotope Ratio

ES-4561-1000-xx for HP 4500

ES-4562-1000-xx for Agilent 7500



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.



## PC<sup>3</sup> Peltier Cooler for Cyclonic Spray Chambers

### PC<sup>3</sup>

The PC<sup>3</sup> is a small, simple, and robust cooler for ICPMS and ICPAES cyclonic spray chambers. The PC<sup>3</sup> 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.

**PC<sup>3</sup> Inlet System**                    ES-41zz-debu-aitg-xx  
**PC<sup>3</sup> Peltier Cooler**                    ES-4100



### PC<sup>3</sup>-SSI

The PC<sup>3</sup>-SSI is an enhanced stability sample introduction system designed for isotope ratio analyses or any ICPMS analysis requiring high precision. The PC<sup>3</sup>-SSI is a single unit that combines the features of the PC<sup>3</sup> 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.

**PC<sup>3</sup> 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 = 61 Agilent 4500
- zz = 62 Agilent 7500

#### 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 PC<sup>3</sup>.

### 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 = 61 Agilent 4500
- zz = 62 Agilent 7500

Note: All 3100 series Cyclonic Spray Chambers will fit the ESI PC<sup>3</sup> Peltier Cooler.  
3100 Series Cyclonic Spray Chambers may also be used stand-alone.





## Injectors and Torches

### **O-ring-free injectors for Agilent ICPMS**

#### **Quartz injectors**

ES-1323-0100	1mm i.d.	environmental
ES-1323-0150	1.5 mm i.d.	standard
ES-1323-0200	2mm i.d.	organics
ES-1323-0250	2.5mm i.d.	volatile organics



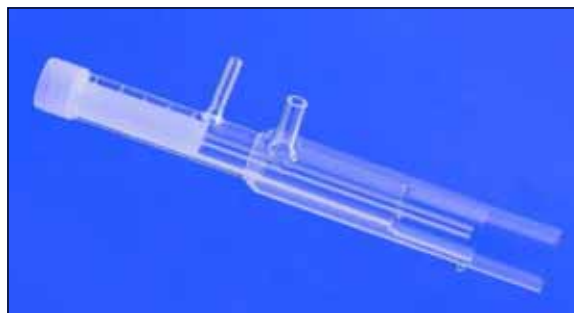
O-ring free Sapphire Injector for Agilent ICPMS

#### **Sapphire injectors**

ES-1303-0103	1 mm i.d.
ES-1303-0150	1.5 mm i.d.
ES-1303-0160	1.6 mm i.d.
ES-1303-0180	1.8 mm i.d.

#### **Platinum injectors**

ES-1313-0150	1.5mm i.d.
ES-1313-0180	1.8mm i.d.
ES-1313-0200	2.0 mm i.d.
ES-1313-0250	2.5 mm i.d.



Precision Quartz torch for Agilent 7500 shown with o-ring free injector

#### **O-ring-free precision quartz torch**

ES-1302-4500	for HP 4500
ES-1302-7500	for Agilent 7500

#### **Shield Torch Bonnet**

ES-1320-7500	for Agilent 7500
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#### 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.

#### **One piece quartz torch**

##### **with 1.5 mm i.d. organic injector**

ES-1302-4510	for HP 4500
ES-1302-7510	for Agilent 7500

##### **with 2.5 mm i.d. aqueous injector**

ES-1302-4511	for HP 4500
ES-1302-7511	for Agilent 7500



One-Piece quartz torch for Agilent 7500

email : sales @ e-pond.biz

tel. +41 21 921 29 41

## 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.

### **PFA Kits for HP 4500**

- ES-2160-4500-XX with 1.8mm sapphire injector
- ES-2160-4505-XX with 1.6mm organic sapphire injector
- ES-2161-4505-XX with 1.5mm platinum injector
- ES-2161-4500-XX with 2mm platinum injector
- ES-2161-4506-XX with 2mm organic platinum injector
- ES-2165-4500-XX with 1.5mm organic quartz injector

### **PFA Kits for Agilent 7500**

- ES-2160-7500-XX with 1.8mm sapphire injector
- ES-2160-7505-XX with 1.6mm organic sapphire injector
- ES-2161-7505-XX with 1.5mm platinum injector
- ES-2161-7500-XX with 2mm platinum injector
- ES-2161-7506-XX with 2mm organic platinum injector
- ES-2165-7500-XX with 1.5mm organic quartz injector



### **Polypropylene Kit**

High purity, O-ring free upgrade package. Includes two PFA MicroFlow nebulizers (user specified), PureCap endcap, 35mm polypropylene spray chamber, connector, 1.5mm Quartz o-ring free injector, and precision quartz torch.

- ES-2163-4500 for HP 4500
- ES-2163-7500 for Agilent 7500



### **Basic Quartz Kit**

High purity, O-ring free upgrade package. Includes one PFA MicroFlow nebulizer (user specified) PureCap endcap, 35mm Quartz spray chamber, Quartz connector and One Piece Quartz Torch

### **Basic Quartz Kits for HP 4500**

- ES-2162-4500 with 1.5mm i.d. Organic injector
- ES-2162-4511 with 2.5mm i.d. Aqueous injector

### **Basic Quartz Kits for Agilent 7500**

- ES-2162-7500 with 1.5mm i.d. Organic injector
- ES-2162-7511 with 2.5mm i.d. Aqueous injector



## 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 o-ring free injector, and precision quartz torch.

ES-2164-4500 for HP 4500  
ES-2164-7500 for Agilent 7500



### **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-2101-4500-XX Stable Sample Introduction Kit for HP 4500  
ES-2101-7500-XX Stable Sample Introduction Kit for Agilent 7500  
ES-2101-2161 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.

#### **Laser Ablation Kits for HP 4500**

ES-2165-2451 without sampler and skimmer cones  
ES-2165-2453 with Nickel sampler and skimmer cones  
ES-2165-2454 with Platinum sampler and skimmer cones

#### **Laser Ablation Kits for Agilent 7500**

ES-2165-2751 without sampler and skimmer cones  
ES-2165-2753 with Nickel sampler and skimmer cones  
ES-2165-2754 with Platinum sampler and skimmer cones

### **PFA Super Pure Kit for Agilent**

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.

ES-9081-4500 for HP 4500  
ES-9081-7500 for Agilent 7500



## **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**



Cyclonic Spray Chamber Kit  
for Finnigan Element

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).

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 = instrument**

- zz = 61 Agilent 4500
- zz = 62 Agilent 7500

## ICPMS Cones

### **Part Number**

ES-3000-1601 25mm insert Nickel Sampler Cone

ES-3000-1603 Nickel Skimmer Cone

ES-3000-1606 10mm Insert Platinum Sampler Cone

ES-3000-1607 18mm Insert Platinum Sampler Cone

ES-3000-1608 7.2mm Insert Platinum Skimmer Cone

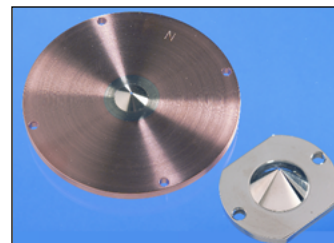
ES-3000-1650 Platinum Shield Plate for 4500

ES-3000-1604 Nickel Skimmer Cone for 7500c

ES-3000-1609 Platinum Skimmer Cone for 7500c

ES-3000-1602 Nickel Sampler Cone for T-Mode

ES-3000-1605 Nickel Skimmer Cone for T-Mode



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## 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).



## Pre-Cleaned Pipette Tips for Eppendorf type Pipetters

### **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 50um i.d. x 650mm
- ES-2012 Silica 75um i.d. x 650mm

## Appendices

### Appendix A

For alternate nebulizer combinations with the Apex, PC<sup>3</sup>, 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 <sup>3</sup> kits
xx = 22	PFA-400	PFA-400	
xx = 23	PFA-400	PFA-ST	
xx = 24	PFA-ST	PFA-ST	
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		