

# ATOMIC SPECTROSCOPY

PerkinElmer is the world leader in atomic spectroscopy solutions for atomic absorption (AA), inductively coupled plasma optical emission spectroscopy (ICP-OES) and inductively coupled plasma mass spectrometry (ICP-MS). With instruments that are the industry standard worldwide, PerkinElmer accessories, consumables, methods and application support meet the most demanding requirements and are the preferred choice in thousands of laboratories globally.

We invest heavily in testing and validating our complete portfolio of solutions to ensure that you receive accurate, repeatable results, on-time, every time throughout the lifetime of your instrument.

From Lumina hollow cathode lamps that allow automatic setup and provide long lamp lifetime to our pure standards that have been analyzed and certified to yield reliable, accurate results, you'll be able to relax knowing you have the best. We also offer a complete portfolio of specialized consumables that deliver reliable performance, control operating costs and maximize the uptime of your instrument.

When you order our precision-designed, genuine Atomic Spectroscopy PerkinElmer consumables and supplies, you'll get the results you need - accurately and on time.

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## MEINHARD® NEBULIZERS

The MEINHARD® concentric glass nebulizers reflect exacting standards in design and manufacturing. They provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%).

Type	Uptake Rate	Part No.
Type A3	3 mL/min	00472020
Type C1	1 mL/min	00472022
Type K3	3 mL/min	N0681574
Type K1*	1 mL/min	N0777707
Liquid-End Connector Kit, 4 mm		N0777414
Nebulizer Clip for Meinhard Nebulizers		N0777460

\*Standard with Optima 8x00 instrument.

### End Cap for Concentric Glass Nebulizers

ICP Model	Part No.
Optima 2x00/3x00/4x00/5x00/7x00/8x00	N0680504



## PEEK Mira Mist® Nebulizer

Description	Uptake Rate	Part No.
PEEK Mira Mist Excellent mist, and can handle high level of particulates in sample.	0.2 to 2.5 mL/min	N0775330
Teflon Mira Mist For samples with high HF, Sulphuric, and some other solvents that attack Peek.	0.2 to 2.5 mL/min	N0777031
Ari Mist Very Low Sample Flow	0.050 to 1.0 mL/min	N0777032
T2100 For high levels of undissolved solids such as oil samples, geologic samples, and slurries.	0.5 to 3.0 mL/min	N0777033

### Mira Mist Spares

Description	Pkg.	Part No.
0.5 meters 0.44" OD x .018" ID	1	N0777111
0.5 meters 0.44" OD x .018" ID	10	N0777112
2 mm gas line with upchurch fittings	1	N0777113
Mira Mist Quick Release	1	N0777114
1/4" Adapter	1	N0777115
0.44" OD x .018" ID polyethylene tubing 3M	1	N0777116
0.44" OD x .018" ID polyethylene tubing 30M	1	N0777117

# CONCENTRIC NEBULIZERS FOR A WIDE VARIETY OF APPLICATIONS



## MICROMIST™ NEBULIZERS

The MicroMist micro-uptake glass concentric nebulizer offers high performance for limited sample volumes. MicroMists with sample uptakes 0.2 – 0.6 mL/min are fitted with a UniFit connector with 1.3 mm o.d. x 0.50 mm i.d. x 700 mm long sample tubing. MicroMists with sample uptakes 0.05 – 0.1 mL/min are fitted a UniFit connector with 1.3 mm o.d. x 0.25 mm i.d. x 700 mm long sample tubing.

For Optima 2x00/3x00 XL/3x00 DV/3000 SCX/4x00/5x00/7x00/8x00\*\*

Ar Flow Rate	Uptake Rate	Part No.
0.7 L/min	0.05 mL/min	N0775349
0.7 L/min	0.1 mL/min	N0775348
0.7 L/min	0.2 mL/min	N0775347
0.7 L/min	0.6 mL/min	N0775346

\*\*Requires Quick Disconnect part no. N0770336.

## SEASPRAY™ NEBULIZERS

The SeaSpray concentric nebulizer is ideal for samples with high dissolved solids and offers outstanding nebulization efficiency for trace level analyses. It offers freedom from clogging while nebulizing solutions to the limit of solubility of most mineral salts and conferring significant sensitivity gains.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Ar Flow Rate	Uptake Rate	Part No.
0.7 L/min	2 mL/min	N0775345

For Optima 3000/3000 SCR/3x00 RL

Ar Flow Rate	Uptake Rate	Part No.
1.0 L/min	2 mL/min	N0775340

### Conikal™ Nebulizer

Ideal for samples containing only moderate concentrations of dissolved salts, no particulates, and no hydrofluoric acid.



Uptake Rate	Part No.
2 mL/min	N0777487

### Slurry™ Nebulizer

Ideal for the analysis of used engine oils for wear metals. A sample which consists of small particulates in liquid matrix is a slurry and is suited to this nebulizer.



Uptake Rate	Part No.
4 mL/min	N0777488

### Ceramic VeeSpray™ Nebulizer



The Ceramic VeeSpray nebulizer is made from alumina ceramic, making it ideal for HF analyses. It provides reproducible performance when working with samples containing large particulates.

Uptake Rate	Part No.
0.6 - 3.0 mL/min	N0777489

### PolyCon™ Nebulizer

For routine high precision analyses involving samples digested in HF and are not high in dissolved solids.



- Features and Benefits**
- Material: HF Resistant Polyimide
  - High physical reproducibility

Uptake Rate	Part No.
2 mL/min	N0777490



### DuraMist™ Nebulizer

The DuraMist concentric nebulizer is an economical nebulizer for high precision analyses involving samples digested in HF. The DuraMist nebulizer is recommended for samples containing up to 5% HF. For samples with higher concentrations of HF, the OpalMist PFA nebulizer is recommended.

**Features and Benefits**

- Material: HF Resistant PEEK
- Low RSD's due to concentric geometry Air Flow Rate

Uptake Rate	Part No.
0.7L/min 0.4 mL/min	N0777713
0.7L/min 1.0 mL/min	N0777714

### OpalMist™ Nebulizer

For high precision analyses requiring the highest chemical resistancy of HF, alkalis and organics. The OpalMist is capable of aspirating high concentrations of dissolved solids without clogging. An ideal nebulizer to handle geochemical samples which are typically dissolved in HF and are high in dissolved solids.



Uptake Rate	Part No.
0.1 mL/min	N0777486
0.4 mL/min	N0777485



### The Eluo™ Nebulizer Cleaner

The Eluo is designated to efficiently deliver a cleanser through the nebulizer capillary to dislodge particle build-up and thoroughly clean the nebulizer. One simple action does it all. No more messy procedures, waiting overnight or shattered nebulizers in ultrasonic baths.

Description	Part No.
For MicroMist, SeaSpray, OpalMist, PolyCon, DuraMist and Meinhard Nebulizers	N0777711
For OpalMist and PolyCon Nebulizers	N0775358

## Sample Tube Connectors for MicroMist and SeaSpray Nebulizers

Description	Pkg.	Part No.
<b>UniFit</b>		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777514</b>
0.50 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777513</b>
0.75 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777512</b>
UniFit-EzyFit Sample Tube	6	<b>N0777061</b>
<b>EzyFit</b>		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777437</b>
0.50 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777436</b>
0.75 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777435</b>
0.25 mm ID x 1/16" OD x 700 mm long	10	<b>N0777464</b>
0.50 mm ID x 1/16" OD x 700 mm long	10	<b>N0777463</b>
0.50 mm ID x 1/16" OD x 700 mm long Twin	6	<b>N0777462</b>
UniFit-EzyFit Sample Tube	6	<b>N0777061</b>

## HIGH EFFICIENCY MICROFLOW NEBULIZERS

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.



### PFA-ST Nebulizer

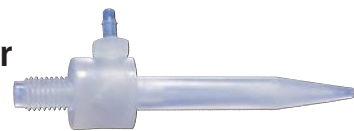
The PFA-ST Nebulizer features the same high purity, HF resistance, and high performance of the PFA MicroFlow nebulizers, along with an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the diameter of the external capillary or probe.

#### Features and Benefits

- Exchangeable uptake capillaries allow one nebulizer to be used at different self-aspiration rates from 20µL/min to 700µL/min
- All Teflon® construction
- Chemically resistant - ideal for strong acids, alkalis, organics
- Can be pumped from < 0.1 mL/min to 3.0 mL/min

Description	Part No.
PFA-ST Nebulizer	<b>N0777049</b>

### PolyPro-ST Nebulizer



The PolyPro-ST Nebulizer is a low cost HF resistant alternative to the PFA nebulizers but has the same high efficiency aerosol generation. It is a robust nebulizer that can self aspirate with an exchangeable external sample uptake capillary or be used with a peristaltic pump.

Description	Part No.
PolyPro-ST Nebulizer	<b>N0777219</b>

### PFA-ST3 MicroFlow Nebulizer



The PFA-ST3 MicroFlow Nebulizer is designated for superior clog resistance and higher sensitivity compared to the standard PFA nebulizer.

Description	Part No.
PFA-ST3 MicroFlow Nebulizer	<b>N0777676</b>

### PFA Nebulizer Obstruction Removal Kit



While naturally resistant to obstructions, PFA nebulizers may occasionally require maintenance. Use this kit to safely remove obstructions in all PFA-ST nebulizers for long-term high performance.

Description	Part No.
Nebulizer Obstruction Removal Kit	<b>N8145236</b>

### Sample Capillaries for ST Nebulizers

I.D.	Self-aspiration rate I.D. (@1L/m Ar)	Part No.
0.15 mm	20 µL/min (red)	<b>N8122382</b>
0.2 mm	50 µL/min (purple)	<b>N8145135</b>
0.25 mm	100 µL/min (green)	<b>N8122383</b>
0.3 mm	200 µL/min (yellow)	<b>N8145136</b>
0.5 mm	400 µL/min (orange)	<b>N8122384</b>
0.8 mm	700 µL/min (blue)	<b>N8145137</b>
1.0 mm	1 mL/min (gray)	<b>N8145138</b>

### Argon Humidifier with Bypass

The Argon Humidifier is commonly used in ICP analyses of samples with very high dissolved solids concentration. Helping to prevent salt build-up inside the sample introduction system, the Argon Humidifier allows uninterrupted and maintenance-free operation. The Argon Humidifier combines ease of operation, high performance and safety.



Description	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0775331</b>



### GemCone™ Low-Flow Nebulizers

Low-flow GemCones permit lower nebulizer gas flow rates, useful for spectral lines with high excitation energies and for providing a more robust plasma. GemCone Nebulizers require an end cap for use with Scott Spray Chambers.

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770358</b>

### GemCone High Dissolved Solids Nebulizer



High solids GemCones are for samples with high dissolved solids (up to 20%). This conespray nebulizer allows you to analyze samples with higher solids concentration than is possible with a Cross-Flow nebulizer. GemCone nebulizers require an end cap for use with Scott Spray Chambers.

Description	Part No.
GemCone High Dissolved Solids Nebulizer	<b>N0690670</b>

### GemCone Nebulizer Accessories

ICP Model	Part No.
GemCone Sample Capillary Adapter	<b>N0371505</b>
End Cap for GemCone Nebulizers For Optima 2x00/3x00/4x00/5x00/7x00/8x00	<b>N0680504</b>
Quick Disconnect Tubing For Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770336</b>



### GemTip Cross-Flow II Nebulizers

Excellent general purpose nebulizer for the analysis of strong mineral acids (including HF) and samples with less than 5% dissolved solids. It can routinely handle 50% (v/v) solutions of HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>PO<sub>4</sub>, 20% (v/v) HF and 30% (v/v) NaOH. Up to 20% NaCl can be aspirated by the nebulizer for 1 hour without clogging. Uses chemically resistant GemTips made of sapphire and ruby in a chemically resistant end cap.

ICP Model	Part No.
Optima 8x00	<b>N0780546</b>
Optima 2x00/4x00/5x00/7x00	<b>N0770546</b>

### GemTip Cross-Flow II Nebulizer and End Cap Retrofit Kit

This kit includes the GemTip Cross-Flow II Nebulizer, end cap assembly and the fittings required to install the nebulizer for the first time on the Plasma 40/400, Plasma 1000/2000 and Optima™ 3x00 instruments.

Description	Part No.
GemTip Cross-Flow II Nebulizer and End Cap Retrofit Kit	<b>N0680610</b>

### GemTip Cross-Flow II Nebulizer Tip Kits



The Tip Kit includes a clear sapphire sample tip and a red ruby argon tip. The tips are constructed of PEEK with the gem inserts noted for maximum corrosion resistance.

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00	<b>N0690676</b>
Optima 8x00	<b>N0780676</b>
O-Ring Kit for GemTip Cross-Flow Nebulizers	<b>N9300067</b>



Standard Cyclonic  
Part No. N0776052



Teflon HF Resistant  
Part No. N0777496

## Cyclonic Spray Chambers

The spray chamber is an integral part of the sample introduction system responsible for filtering the sample mist to permit the appropriate droplet size distribution to reach the plasma.

### Save Time and Expense

- Decreased sample introduction system installation and optimization time due to the preset nature of the spray chamber/nebulizer combination
- More samples per hour due to minimal dead volume and efficient draining

### Unique Design Characteristics

- The nebulizer port is oversized so that sample solution cannot build up around the nebulizer as it will in other cyclonic designs. This translates to less carryover, faster washout times and greater productivity from your Optima
- Each spray chamber incorporates a precisely-machined ridge along the inside top of the spray chamber. Both the angle and depth of the ridge are critical to performance. The result is efficient draining of sample waste and the elimination of large droplets being swept into the plasma. This eliminates the periodic “spiking” that adversely affects precision and fosters faster washout times

Standard and O-Ring Free glass cyclonic spray chambers can be used with either GemCone or concentric glass nebulizers. HF resistant cyclonic spray chambers should be used with GemCone, SeaSpray or MicroMist nebulizers.

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00/8x00	Standard	<b>N0776052</b>
2x00/4x00/5x00/7x00/8x00	O-Ring Free	<b>N0775351</b>
2x00/4x00/5x00/7x00/8x00	HF Resistant	<b>N0777496</b>

# MAXIMUM SENSITIVITY AND EFFICIENCY



Cinnabar Spray Chamber  
Part No. N0777494

## Cinnabar™ 20mL Glass Cyclonic Spray Chamber

The Cinnabar spray chamber is a mini-cyclonic spray chamber which gives good sensitivity at very low uptakes. The Cinnabar’s design and low volume is ideal for the reduction of memory and matrix effects and very fast washout. Volume 20mL.

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00/8x00	O-Ring Free	<b>N0777494</b>



Spray Chamber Adapter  
Part No. N0770614

## Accessories and Drain Parts

Description.	Part No.
Cyclonic Spray Chamber Adapter	<b>N0770614</b>
Drain Adapter Assembly Includes the spray chamber fitting and tubing to pump out the waste solution from the spray chamber (does not include the peristaltic pump tubing)	<b>N0770613</b>
Carboy, 15 L	<b>09904991</b>
Drain Cap Assembly	<b>N0690271</b>



UniFit  
Part No. N0774080

## Connectors and Spares

Description	Pkg.	Part No.
0.75 mm ID x 1/16" OD x 700 mm long	3	<b>N0774080</b>
0.75 mm ID x 1.3 mm OD x 700 mm long	3	<b>N0774077</b>
Nebulizer Pressure Hose Clips	10	<b>N0773197</b>
EzyLok Connector for Jacketed Spray Chamber	4	<b>N0774101</b>
EzyLok Kit for Nebulizer Gas Side Arm Includes: EzyLok Connector for 4mm Tubing, EzyLok 6mm Hose Adaptor, Hose Clip	1	<b>N0777413</b>
Helix Locking Screw	1	<b>N0777438</b>
Helix Seal	4	<b>N0777439</b>



**Baffled Cyclonic Spray Chamber**  
Part No. N0776053

## Baffled Cyclonic Spray Chambers

The Baffled Cyclonic Spray Chamber features a central transfer tube which acts as a secondary particle separator, helping to separate larger aerosol particles from the sample. This reduces solvent load in the plasma without compromising detection limits.

### Features and Benefits

- The distance between the bottom of the baffle and the chamber wall is carefully controlled so that droplets cannot form on the bottom of the baffle. The advantage is smooth draining and improved precision
- The baffle is cut at a sharp angle so that a large cross-section of the spray chamber is sampled as opposed to a straight cut which would have a very small sampling cross-section. The advantage is more representative sampling and reduced matrix effect

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00 DV/8x00	Standard	<b>N0776053</b>
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free	<b>N0775352</b>
2x00/4x00/5x00/7x00 DV/8x00 20mL	O-Ring Free	<b>N0777495</b>
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free, Water-Cooled	<b>N0774100</b>
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	Standard	<b>N0776090</b>
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	O-Ring Free	<b>N0775355</b>
4300V/5300V/7300V	Standard	<b>N0771501</b>
4300V/5300V/7300V	O-Ring Free	<b>N0775356</b>

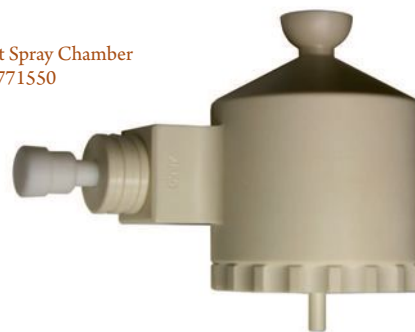


## Metal Ball Joint Clip

Used to connect spray chamber and torch. Includes tension screw for 7300V instrument.

Description	Part No.
Metal Ball Joint Clip	<b>N0773114</b>

**HF Resistant Spray Chamber**  
Part No. N0771550



## HF Resistant Spray Chambers

ICP Model	Type	Part No.
4300/5300/7300V TC44, 44mL	Standard	<b>N0771550</b>
4300/5300/7300V TFE Teflon, 50mL	O-Ring Free	<b>N0777497</b>
2x00/4x00/5x00/7x00 DV/8x00 TFE Teflon, 50mL	O-Ring Free	<b>N0777496</b>

## Spray Chamber Connectors

Description	Part No.
Nebulizer Adaptor 16/6 for Standard Spray Chambers	<b>N0776006</b>
O-Ring Set for Nebulizer Adaptor 16/6	<b>N0776007</b>
Helix Locking Screw for O-Ring Free Spray Chambers	<b>N0777438</b>
Helix Seal for Locking Screw qty.4	<b>N0777439</b>



**Scott Spray Chamber**

## Scott Spray Chambers

The Scott Spray Chamber is made from corrosion-resistant material, which is inert to most mineral acids including HF, aqua regia and all organic solvents normally used in ICP analyses. The Scott-type design minimizes pulsations from the peristaltic pump. The Type II, two-piece design ensures leak-free performance. The removable inner tube allows the chamber to be easily disassembled for cleaning.

ICP Model	Part No.
2x00/4x00/5x00/7x00/8x00	<b>N0770357</b>
3000/3000 SCR/3x00 RL	<b>N0690640</b>
3x00 DV/XL/3000 SCX	<b>N0690720</b>



## Quick-Change Torch Module with Cyclonic Spray Chamber and Concentric Nebulizer

Complete torch and sample introduction module including complete Single-Slot Demountable Torch, mounting block, 2 mm Alumina Injector, Cyclonic Spray Chamber and MEINHARD® Concentric Nebulizer.

ICP Model	Part No.
Optima 8x00	<b>N0780607</b>
Optima 2x00/4x00/5x00/7x00	<b>N0770607</b>

### Mounting Block

Mounting block only. Does not include torch, injector, spray chamber or nebulizer.

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770600</b>

### Quick-Change Torch Module for HF Analysis

Description	ICP Model	Part No.
HF-Resistant Analysis Includes GemCone High Dissolved Solids Nebulizer, Alumina 2.0 mm Injector, Quartz 3-Slot Torch, HF-Resistant Baffled Cyclonic Spray Chamber	Optima 4300V/5300V/7300V	<b>N0770911</b>

### Quick-Change Torch Module for Oil Analysis

Description	ICP Model	Part No.
Used Oil Analysis Includes GemCone Nebulizer, Alumina 1.2 mm Injector, Quartz 3-Slot Torch, Baffled Cyclonic Spray Chamber	Optima 4300V/5300V/7300V	<b>N0770910</b>

# QUICK-CHANGE FOR MAXIMUM EFFICIENCY



## Quick-Change Torch Module with Scott Spray Chamber and GemTip Cross-Flow II Nebulizer

Complete torch and sample introduction module including Demountable Single-Slot Torch, mounting block, 2 mm Alumina Injector, Scott Spray Chamber and GemTip Cross-Flow II Nebulizer. Useful when a separate sample introduction is required for running different sample types.

ICP Model	Part No.
Optima 8x00	<b>N0780606</b>
Optima 2x00/4x00/5x00/7x00 DV	<b>N0770606</b>
Optima 3000/3000 SCR/3x00 RL	<b>N0690610</b>
Optima 3x00 DV	<b>N0690812</b>
Optima 3x00 XL/3000 SCX	<b>N0690712</b>

### Quick-Change Torch Module Support Stand

A free-standing support stand to hold your spare Quick-Change Torch Module or as a means of conveniently holding your module when working inside the sample compartment.



ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00 DV/8x00	<b>N0770609</b>



# OPTIMA™ ICP-OES SAMPLE INTRODUCTION KITS



Description	Part No.
<b>Cyclonic/Concentric Kit Optima 8x00</b>	<b>N0780617</b>
1 Slot Quartz Torch	<b>N0780130</b>
2.0 mm i.d. Alumina Injector	<b>N0781014</b>
Glass Cyclonic Spray Chamber	<b>N0776052</b>
Meinhard® Type K1 Nebulizer	<b>N0777707</b>
Quartz Torch Copper Ignitor Tape – Qty. 50 pcs.	<b>N0781097</b>

Description	Part No.
<b>Cyclonic/Concentric Kit Optima 2x00/4x00/5x00/7x00 DV</b>	<b>N0770730</b>
1 Slot Quartz Torch	<b>N0770338</b>
Quartz Bonnet	<b>N0775289</b>
2.0 mm i.d. Alumina Injector	<b>N0775177</b>
Glass Cyclonic Spray Chamber	<b>N0776052</b>
Meinhard® Type C High Dissolved Solids Nebulizer	<b>00472022</b>
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	<b>N0775297</b>



Description	Part No.
<b>Scott/Cross-Flow II Kit Optima 8x00</b>	<b>N0780616</b>
1 Slot Quartz Torch	<b>N0780130</b>
2.0 mm i.d. Alumina Injector	<b>N0781014</b>
Scott Spray Chamber	<b>N0770357</b>
GemTip™ Cross-Flow II Nebulizer	<b>N0780546</b>
Quartz Torch Copper Ignitor Tape – Qty. 50 pcs.	<b>N0781097</b>

Description	Part No.
<b>Scott/Cross-Flow Kit Optima 2x00/4x00/5x00/7x00 DV</b>	<b>N0770731</b>
1 Slot Quartz Torch	<b>N0770338</b>
Quartz Bonnet	<b>N0775289</b>
2.0 mm i.d. Alumina Injector	<b>N0775177</b>
Scott Spray Chamber	<b>N0770357</b>
GemTip™ Cross-Flow II Nebulizer	<b>N0770546</b>
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	<b>N0775297</b>

Description	Qty	Part No.
<b>Organics Kit Optima 8x00</b>		<b>N0780608</b>
3 Slot Quartz Torch	2	<b>N0780132</b>
1.2 mm i.d. Alumina Injector	2	<b>N0781007</b>
Baffled Cyclonic Spray Chamber 4 mm	1	<b>N0776090</b>
Gemcone™ Low-Flow Nebulizer	1	<b>N0770358</b>
Cyclonic Spray Chamber Adapter	1	<b>N0770614</b>
Injector Adapter Washer	1	<b>N0776014</b>
Injector Adapter	1	<b>N0776091</b>
Injector Adapter Nut	1	<b>N0776025</b>
O-Ring	1	<b>09902207</b>
O-Ring 8.74 ID 1.78 WD	2	<b>09921028</b>

Description	Qty	Part No.
<b>Organics Kit Optima 2x00/4x00/5x00/7x00 DV</b>		<b>N0770420</b>
3 Slot Quartz Torch	1	<b>N0772005</b>
1.2 mm i.d. Alumina Injector	1	<b>N0776093</b>
Baffled Cyclonic Spray Chamber 4 mm	1	<b>N0776090</b>
Gemcone™ Low-Flow Nebulizer	1	<b>N0770358</b>
Cyclonic Spray Chamber Adapter	1	<b>N0770614</b>
Injector Adapter Washer	1	<b>N0776014</b>
Injector Adapter Nut	1	<b>N0776025</b>
Injector Adapter	1	<b>N0776091</b>
O-Ring	1	<b>09902207</b>
O-Ring 8.74 ID 1.78 WD	2	<b>09921028</b>

Description	Part No.
<b>Organics Kit Optima 4300 V/5300 V/7300 V</b>	<b>N0770732</b>
3 Slot Quartz Torch	<b>N0771500</b>
Quartz Bonnet	<b>N0775289</b>
1.2 mm i.d. Alumina Injector	<b>N0771531</b>
Baffled Cyclonic Spray Chamber	<b>N0771501</b>
GemCone™ Low-Flow Nebulizer	<b>N0770358</b>
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	<b>N0775297</b>

# TORCHES AND TORCH ACCESSORIES

## DEMOUNTABLE QUARTZ TORCHES

Demountable design using one-piece quartz tubing for plasma and auxiliary gas flow. Torches without slots are recommended for organic solvents. 1-slot torches are the standard torch for aqueous solutions. 3-slot torches are typically used for organic analysis.

ICP Model	Number of Slots	Part No.
Optima 8x00	0	<b>N0780133</b>
Optima 8x00 (Standard)	1	<b>N0780130</b>
Optima 8x00	3	<b>N0780132</b>
Optima 2x00/4x00/5x00/7x00 DV	0	<b>N0770343</b>
Optima 2x00/4x00/5x00/7x00 DV (short ver.)	0	<b>N0770344</b>
Optima 2x00/4x00/5x00/7x00 DV	1	<b>N0770338</b>
Optima 2x00/4x00/5x00/7x00 DV	3	<b>N0772005</b>
Optima 4300V/5300V/7300V	3	<b>N0771500</b>
Optima 4300V/5300V/7300V ABC Torch Kit	3	<b>N0774075</b>
Optima 3x00 DV	1	<b>N0691662</b>
Optima 3000 SCX/3x00 XL	0	<b>N0695379</b>
Optima 3000/3000 SCR/3x00 RL	1	<b>N0690568</b>
Optima 3000/3000 SCR/3x00 RL	3	<b>N0681690</b>

## Copper Ignitor Tape

ICP Model	Qty.	Part No.
Optima 8x00	50	<b>N0781097</b>
Optima 2x00/4x00/5x00/7x00	120	<b>N0775297</b>

## Torch Bonnets

The torch bonnet is used as a spacer between the torch and RF load coil.



ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00	<b>N0775289</b>
Optima 3000/3000 SCR/3x00 RL (for instruments manufactured BEFORE 9/21/94)	<b>N0695295</b>
Optima 3000/3000 SCR/3x00 RL (for instruments manufactured AFTER 9/21/94)	<b>N0695456</b>
Optima 3X00 XL/3x00 DV	<b>N0691664</b>

## Torch O-Rings

ICP Model	Dimensions	Part No.
Optima 8x00 Complete O-Ring Kit		<b>N0780437</b>
Optima 2x00/4x00/5x00/7x00 DV Complete O-Ring Kit		<b>N0770437</b>
Optima 4300V/5300V/7300V Complete O-Ring Kit		<b>N0770916</b>
Optima 3x00 XL/3x00 DV/3000 SCX	0.239 i.d., 0.070 w.d.	<b>09902006</b>
Optima 3x00 XL/3x00 DV/3000 SCX	0.364 i.d., 0.070 w.d.	<b>09902015</b>
Optima 3x00 XL/3x00 DV/3000 SCX	8.74 i.d., 1.78 w.d.	<b>09921028</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V (Inside)	0.239 i.d., 0.070 w.d.	<b>09902207</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V (Outside)	0.301 i.d., 0.070 w.d.	<b>09902247</b>
Optima 4300V/5300V/7300V (For Ball Joint)	0.301 i.d., 0.070 w.d.	<b>09926070</b>


Optima 8x00  
Flat Plate Torch  
Part No. N0780130



D-Torch  
Part No. N0777051

## Ceramic D-Torch™

The ceramic outer tube\* is of particular benefit for the analysis of wear metals in engine oils, where quartz outer tubes often suffer from short lifetime. It is also beneficial for Si determinations, where quartz outer tubes may produce high background signals.

ICP Model	Description	Part No.
2x00/4x00/5x00/7x00	DV D-Torch with Quartz Outer Tube	<b>N0777508</b>
2x00/4x00/5x00/7x00	DV Base and Inner Tube	<b>N0777509</b>
2x00/4x00/5x00/7x00	DV Quartz Outer Tube	<b>N0777510</b>
4300/5300/7300V	Torch Adapter with Auxiliary Port	<b>N0774070</b>
4300/5300/7300V	D-Torch with Quartz Outer Tube	<b>N0777051</b>
4300/5300/7300V	Quartz Outer Tube	<b>N0777053</b>
4300/5300/7300V	Ceramic Outer Tube	<b>N0777052</b>
4300/5300/7300V	Base and Inner Tube	<b>N0777054</b>
	 Retaining Ring for Outer Tube	<b>N0777055</b>
	O-Ring Kit	<b>N0777715</b>

\* For V instrument only.

## FULL SELECTION OF INJECTORS AND ADAPTERS



### Quartz Injectors

#### Features and Benefits

- Quartz injectors are designed for organic solvents and non-HF matrices



### ALUMINA INJECTORS

Alumina injectors are corrosion-resistant to all mineral acids including HF and aqua regia. They are also used with less volatile organic solvents, e.g., xylene. The 2.0 mm i.d. Alumina injector is shipped standard with all PerkinElmer ICP-OES instruments. A variety of sizes are available as an alternative to the standard injector.

#### Alumina Injectors

ICP Model	Dimensions	Part No.
Optima 8x00 Alumina Injector	0.80 mm i.d.	<b>N0781009</b>
Optima 8x00 Alumina Injector	1.2 mm i.d.	<b>N0781015</b>
Optima 8x00 Alumina Injector (1.2 mm entire length of tube)	1.2 mm i.d.	<b>N0781007</b>
Optima 8x00 Alumina Injector	2.0 mm i.d.	<b>N0781014</b>
Optima 2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	<b>N0775227</b>
Optima 2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	<b>N0775228</b>
Optima 2x00/4x00/5x00/7x00 DV (1.2 mm entire length of tube)	1.2 mm i.d.	<b>N0776093</b>
Optima 2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	<b>N0775177</b>
Optima 4300V/5300V/7300V	1.2 mm i.d.	<b>N0771531</b>
Optima 3000/3000 SCR/3x00 RL	0.85 mm i.d.	<b>N0582186</b>
Optima 3000/3000 SCR/3x00 RL	1.5 mm i.d.	<b>N0582185</b>
Optima 3000/3000 SCR/3x00 RL	2.0 mm i.d.	<b>N0582184</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	<b>N0695362</b>



### Sapphire Injectors

#### Features and Benefits

- Sapphire injectors are ideal for silicon applications

ICP Model	Dimensions	Part No.
Optima 8x00	2.0 mm i.d.	<b>N0781008</b>
Optima 2x00/4x00/5x00/7x00 DV Sapphire in PFA base, (connects directly to ESI spray chambers)	1.8 mm i.d.	<b>N0777044</b>
Optima 2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	<b>N0775247</b>
Optima 3000/3000 SCR/3x00 RL	2.0 mm i.d.	<b>N0695495</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	<b>N0695494</b>

### Injector Support Adapters

ICP Model	Spray Chamber	Part No.
Optima 2x00/4x00/5x00/7x00 DV 8x00	All	<b>N0770603</b>
Optima 4300V/5300V/7300V (bottom)	Cyclonic	<b>N0771526</b>
Optima 4300V/5300V/7300V (top)	Cyclonic	<b>N0771527</b>

### Injector Support Adapter O-Ring Kits

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00 DV/8x00	<b>N0770438</b>
Optima 3000/3000 SCR/3X00 RL	<b>N0690269</b>
Optima 3x00 XL/3x00 DV/3000 SCX	<b>N0690769</b>

### ESI FAST Injectors for Optima 8x00

Description	Part No.
1.5 mm Sapphire injector	<b>N0782004</b>
1.8 mm Sapphire injector	<b>N0782005</b>
1.8 mm Sapphire injector for Optima 8000 Series with adapter for 7x00	<b>N0782006</b>
1 mm Quartz injector	<b>N0782007</b>
1.5 mm Quartz injector	<b>N0782008</b>
2 mm Quartz injector	<b>N0782009</b>
2.5 mm Quartz injector	<b>N0782010</b>

## GENUINE SAMPLE INTRODUCTION SUPPLIES

### RF LOAD COILS\*

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00 DV	<b>N0775300</b>
Optima 4300V/5300V/7300V	<b>N0771536</b>
Optima 3x00 XL/3x00 DV	<b>N0690772</b>
Optima 3000/3000 SCR/3x00 RL (For instruments manufactured BEFORE 9/21/94)	<b>N0690572</b>
Optima 3000/3000 SCR/3x00 RL (For instruments manufactured AFTER 9/21/94)	<b>N0690668</b>

\* Installation by PerkinElmer Service is required, but not included.

### Purge Extension Windows

The Axial View Purge Extension Window is a replaceable quartz window that slides into the purge extension between the torch and the optics. The Radial View Purge Extension Window Tube is a replaceable quartz tube that slides into the mount between the torch and the optics for the radial view.



ICP Model	View	Part No.
Optima 2x00/7000/8000	DV Axial	<b>09992731</b>
Optima 2x00/7000/8000	DV Radial	<b>N0690672</b>
Optima 3x00/4x00/5x00/7100/ 7200/7300 DV/8300	DV Axial	<b>N0771116</b>
Optima 5x00/7100/ 7200/7300 DV/8300	DV Radial	<b>N0770944</b>
Optima 3x00 DV (tube)	DV Axial	<b>N0691678</b>
Optima 3x00 DV (long tube) (38 mm/1.5 in)	DV Radial	<b>N0691689</b>
Optima 3000 SCX/3x00 XL	Axial	<b>09992731</b>
Optima 3000/3000 SCR/3x00 RL 4300V/5300V/7300V	Radial	<b>N0581497</b>
Optima 4x00 DV/5x00 DV**	DV Radial	<b>N0770322</b>

\*\* Pre November 2004



### RF Load Coil Accessories

Description	Part No.
Igniter Spark Gap Assembly for Type II Demountable Torch	<b>N0680275</b>
Nylon Igniter Standoff	<b>09989859</b>

### Purge Component Replacement Parts

For Optima 5x00/7100/7200/7300 DV/8300

Description	Part No.
O-Ring (for Dual View Radial Purge Tube)	<b>09200064</b>
O-Ring (for Dual View Axial Purge Window)	<b>09902143</b>
O-Ring (for Torch Clamp on Vertical Torch Module)	<b>09902155</b>
DV Axial Window Cap	<b>N0773084</b>
DV Axial Window Holder	<b>N0773090</b>

For Optima 2100/7000/8000 DV

Description	Part No.
O-Ring (for Dual View Radial Purge Tube)	<b>09921036</b>
O-Ring (for Dual View Axial Purge Window)	<b>09921062</b>
Purge Outlet O-Ring	<b>09921057</b>



### Ceramic Purge Extension

ICP Model	Part No.
Optima 3000/3000 SCR/ 3x00 RL/4300V/5300V/7300V	<b>N0581455</b>

### Ceramic Interface Cone

The Ceramic Interface Cone includes the Ceramic Cone, the Purge Window (09992731) and the Clamp. The Ceramic Cone is used between the plasma and the spectrometer.

ICP Model	Part No.
Optima 3x00 XL/3000 SCX	<b>N0690666</b>



## Oil-Free Air Compressors for Optima Instruments

PerkinElmer is expanding its product portfolio in response to customer requests for an industrial quiet oil-free compressor, a must for dependable and clean air supply. Each compressor comes assembled on an internally and externally coated air tank and includes a self-purging regenerative dryer with aftercooler. One version includes a sound enclosure and has a sound level of less than 60 dB. Models in 115 V - 60 Hz and 230 V - 60 Hz are equipped with ASME® rated pressure tanks. Line Pressure Regulator with gauge and Line Ball Valve are standard on all units.



## Specifications

Horse Power	1.5 Hp
Output CFM	6.0 CFM
Output L.	170 L. Min
Max Pressure PSI	120 PSI
Max Pressure Bar	8 bar
Operating Pressure PSI	90-120 PSI
Operating Pressure Bar	6-8 bar
Noise Level	75 dB/A, with Enclosure 55 dB/A
Tank Size Gal.	13 Gallons
Tank Size L	50 Liters
Dimensions	16 x 26 x 35 / with Enclosure 29 x 23 x 30
Weight	119 Lbs. / with Enclosure 207 Lbs.
Packed Dimensions	33 x 28 x 43 / with Enclosure 33 x 28 x 39
Packed Weight	135 Lbs. / with Enclosure 264 Lbs.

## Compressors

Description	115V/60Hz	220V/50Hz	220V/60Hz
Compressor	<b>N0777602</b>	<b>N0777603</b>	<b>N0777604</b>
Compressor with Enclosure	<b>N0777605</b>	<b>N0777606</b>	<b>N0777607</b>

Product meets both U.S. and Canadian CSA standards. ASME® Certified tank.  
Please note: Enclosure cannot be sold separately.  
Tested and approved.

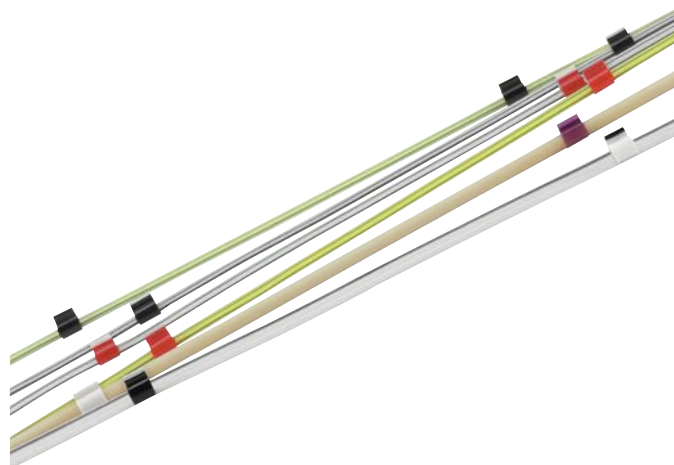
## Replacement parts

Description	Part No.
Replacement Air Intake Filter	<b>N0777608</b>
Micron Dryer Filter Element	<b>N0777609</b>
Replacement Piston Assembly	<b>N0777610</b>
Replacement Reed Valve	<b>N0777611</b>
Replacement Head Gasket	<b>N0777612</b>

## ENSURE INSTRUMENT REPRODUCIBILITY

### Pump Tubing

PerkinElmer offers a wide range of high-quality peristaltic pump tubing for all of your Atomic Spectroscopy applications. Remember to replace your tubing frequently and always keep spares on hand.



#### 2-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Part No.
<b>Standard PVC (Pkg. 12)</b>		
0.19	Orange - Red	N0695476
0.25	Orange - Blue	N0773117
0.38	Orange - Green	N0777110
0.64	Orange - White	N8122012
0.76	Black - Black	09908587
1.14	Red - Red	09908585
1.42	Yellow - Yellow	N0777521
1.52	Yellow - Blue	09923536
1.85	Green - Green	N0777518
2.06	Purple - Purple	N0777561
<b>Flared PVC (Pkg. 12)</b>		
0.19	Orange - Red	N0773111
0.25	Orange - Blue	N0773112
0.38	Orange - Green	N0777042
0.44	Green - Yellow	N0773113
0.51	Orange - Yellow	N0777476
0.64	Orange - White	N0777711
0.76	Black - Black	N0777043
<b>Solvent Flex (Pkg. 12)</b>		
0.38	Orange - Green	N8145211
0.76	Black - Black	00473550
1.14	Red - Red	09923037
2.79	Purple - White	02508080

i.d. (mm)	Stop Colors	Part No.
<b>Viton® (Pkg. 12)</b>		
0.51	Orange - Yellow	N0777446
0.76	Black - Black	N0773118
1.02	White - White	N0777442
1.14	Red - Red	N0773115
1.30	Gray - Gray	N0777445
1.65	Blue - Blue	N0777447
<b>Santoprene® (Pkg. 12)</b>		
1.14	Red - Red	N0773119
1.30	Gray - Gray	N0777444
1.85	Green - Green	N0773116
<b>Silicone (Pkg. 6)</b>		
0.76	Black - Black	00473552
1.02	White - White	N0777441
1.14	Red - Red	N0691595
1.30	Gray - Gray	N0777443
2.79	Purple - White	09923448

#### 3-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Part No.
<b>Standard PVC (Pkg. 12)</b>		
0.76	Black - Black	B0506058
1.14	Red - Red	B0193160
1.52	Yellow - Blue	B0193161
2.06	Purple - Purple	B0199034
3.18	Black - White	B0508310



# CLEAN, RELIABLE, TEMPERATURE CONTROLLED FLUID

## POLYSCIENCE® WHISPERCOOL™ REFRIGERATED CHILLER

The PolyScience® WhisperCool™ Refrigerated Chiller is designed to deliver quiet and reliable performance over a broad range of operating temperatures and conditions. Extremely dependable and energy efficient, it features a -10 to 40 °C operating temperature range, built-in process and equipment protection, and highly intuitive user interface. This chiller is designed for use on both ICP-OES and ICP-MS instruments.

### Key Advantages

- 50% quieter operation than comparable models
- 2900 watts (9889 BTU/hour) cooling capacity
- Built-in temperature, pressure, and flow rate alarms

### Chiller Coolant Mix

Non-glycol coolant, which is made up of five half gallon bottles of distilled water and includes an additive to control black algae and other resistant strains.

Description	Part No.
Chiller Coolant Mix	<b>N0776099</b>

Part No.	N0772046	N0772045
Electrical Requirements	208-230 V, 60 Hz, 12.2 A	240 V, 50 Hz, 12.2 A
Operating Temperature Range	-10 to 40 °C	
Temperature Stability	±0.1 °C (±1.8 °F)	
Cooling Capacity at 20 °C	2900 Watts (9889 BTU/hr)	
at 10 °C	1925 Watts (6574 BTU/hr)	
at 0 °C	1000 Watts (3410 BTU/hr)	
Compressor	1.0 HP	
Reservoir Capacity	4.2 L	
Pump Type	Turbine	
Maximum Pump Pressure	90 PSI	
Maximum Pump Flow	13.2 LPM	
Replacement Air Filter	<b>N0777095</b> (Air Filter with Frame, 13x14")	
Chiller Coolant Mix	<b>N0776099</b> (Five Half-gallon Bottles)	

### Coolant Fluid

1 liter bottle. It is essential that this chiller coolant be used with ELAN 9000/6xX00/DRC/NexION series instruments. Also suitable for organics chillers.

Description	Part No.
ELAN Coolant Fluid	<b>WE016558</b>

### Heat Exchanger System

Cooling systems for the ELAN 9000/DRC II/e/NexION systems. Air cooled recirculator without refrigeration. Not to be placed in areas with temperatures above 30 °C (86 °F). Requires the use of Coolant Fluid (WE016558).

ICP-MS Power Requirement	Part No.
120 V, 60 Hz	<b>N8122248</b>
220/250 V, 50/60 Hz	<b>N8122247</b>

### Chillers/Recirculating Water Cooling Systems

ICP Model	Power Requirement	Operating Temp.	Flow Rate	Part No.
Optima/ELAN/NexION	208 – 230 V, 60 Hz, 8 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	<b>N0772046</b>
Optima/ELAN/NexION	240 V, 50 Hz, 8.5 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	<b>N0772045</b>