



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

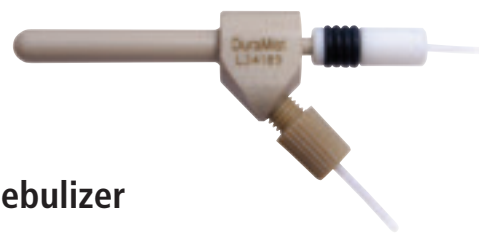
For routine high precision analyses involving samples digested in HF and are not high in dissolved solids.



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.

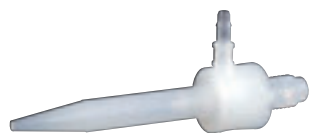
Description	Part No.
For MicroMist, SeaSpray, OpalMist, PolyCon, DuraMist and Meinhard Nebulizers	N0777711
For OpalMist and PolyCon Nebulizers	N0775358

Sample Tube Connectors for MicroMist and SeaSpray Nebulizers

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

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

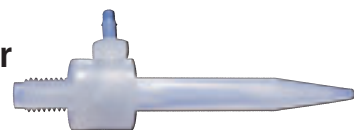
The PFA-ST Nebulizer features the same high purity, HF resistance, and high performance of the PFA MicroFlow nebulizers, along with an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the diameter of the external capillary or probe.

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	N0777049

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	N0777219

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	N0777676

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	N8145236

Sample Capillaries for ST Nebulizers

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

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	N0775331



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	N0770358

GemCone High Dissolved Solids Nebulizer

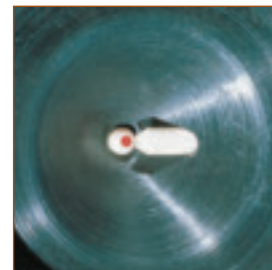


High solids GemCones are for samples with high dissolved solids (up to 20%). This conespray nebulizer allows you to analyze samples with higher solids concentration than is possible with a Cross-Flow nebulizer. GemCone nebulizers require an end cap for use with Scott Spray Chambers.

Description	Part No.
GemCone High Dissolved Solids Nebulizer	N0690670

GemCone Nebulizer Accessories

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



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, HNO₃, H₂SO₄, H₂PO₄, 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	N0780546
Optima 2x00/4x00/5x00/7x00	N0770546

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	N0680610

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	N0690676
Optima 8x00	N0780676
O-Ring Kit for GemTip Cross-Flow Nebulizers	N9300067



Standard Cyclonic
Part No. N0776052



Teflon HF Resistant
Part No. N077496

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	N0776052
2x00/4x00/5x00/7x00/8x00	O-Ring Free	N0775351
2x00/4x00/5x00/7x00/8x00	HF Resistant	N077496

MAXIMUM SENSITIVITY AND EFFICIENCY



Cinnabar Spray Chamber
Part No. N077494

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	N077494



Spray Chamber Adapter
Part No. N0770614

Accessories and Drain Parts

Description.	Part No.
Cyclonic Spray Chamber Adapter	N0770614
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)	N0770613
Carboy, 15 L	09904991
Drain Cap Assembly	N0690271



UniFit
Part No. N0774080

Connectors and Spares

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



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	N0776053
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free	N0775352
2x00/4x00/5x00/7x00 DV/8x00 20mL	O-Ring Free	N0777495
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free, Water-Cooled	N0774100
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	Standard	N0776090
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	O-Ring Free	N0775355
4300V/5300V/7300V	Standard	N0771501
4300V/5300V/7300V	O-Ring Free	N0775356

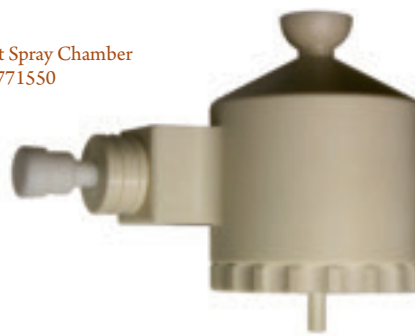


Metal Ball Joint Clip

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

Description	Part No.
Metal Ball Joint Clip	N0773114

HF Resistant Spray Chamber
Part No. N0771550



HF Resistant Spray Chambers

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

Spray Chamber Connectors

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



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	N0770357
3000/3000 SCR/3x00 RL	N0690640
3x00 DV/XL/3000 SCX	N0690720



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	N0780607
Optima 2x00/4x00/5x00/7x00	N0770607

Mounting Block

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

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

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	N0770911

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	N0770910

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	N0780606
Optima 2x00/4x00/5x00/7x00 DV	N0770606
Optima 3000/3000 SCR/3x00 RL	N0690610
Optima 3x00 DV	N0690812
Optima 3x00 XL/3000 SCX	N0690712

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	N0770609

OPTIMA™ ICP-OES SAMPLE INTRODUCTION KITS



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

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



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

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

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

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

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

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	N0780133
Optima 8x00 (Standard)	1	N0780130
Optima 8x00	3	N0780132
Optima 2x00/4x00/5x00/7x00 DV	0	N0770343
Optima 2x00/4x00/5x00/7x00 DV (short ver.)	0	N0770344
Optima 2x00/4x00/5x00/7x00 DV	1	N0770338
Optima 2x00/4x00/5x00/7x00 DV	3	N0772005
Optima 4300V/5300V/7300V	3	N0771500
Optima 4300V/5300V/7300V ABC Torch Kit	3	N0774075
Optima 3x00 DV	1	N0691662
Optima 3000 SCX/3x00 XL	0	N0695379
Optima 3000/3000 SCR/3x00 RL	1	N0690568
Optima 3000/3000 SCR/3x00 RL	3	N0681690

Copper Ignitor Tape

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

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	N0775289
Optima 3000/3000 SCR/3x00 RL (for instruments manufactured BEFORE 9/21/94)	N0695295
Optima 3000/3000 SCR/3x00 RL (for instruments manufactured AFTER 9/21/94)	N0695456
Optima 3X00 XL/3x00 DV	N0691664

Torch O-Rings

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



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	N0777508
2x00/4x00/5x00/7x00	DV Base and Inner Tube	N0777509
2x00/4x00/5x00/7x00	DV Quartz Outer Tube	N0777510
4300/5300/7300V	Torch Adapter with Auxiliary Port	N0774070
4300/5300/7300V	D-Torch with Quartz Outer Tube	N0777051
4300/5300/7300V	Quartz Outer Tube	N0777053
4300/5300/7300V	Ceramic Outer Tube	N0777052
4300/5300/7300V	Base and Inner Tube	N0777054
	 Retaining Ring for Outer Tube	N0777055
	 O-Ring Kit	N0777715

* 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

ICP Model	Dimensions	Part No.
Optima 8x00	0.80 mm i.d.	N0781018
Optima 8x00	1.2 mm i.d.	N0781019
Optima 8x00 (1.2 mm entire length of tube)	1.2 mm i.d.	N0781013
Optima 8x00	1.6 mm i.d.	N0781016
Optima 8x00	2.0 mm i.d.	N0781050
Optima 8x00	3.0 mm i.d.	N0781017
Optima 2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	N0775225
Optima 2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	N0775226
Optima 2x00/4x00/5x00/7x00 DV	1.6 mm i.d.	N0775223
Optima 2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	N0775014
Optima 2x00/4x00/5x00/7x00 DV	3.0 mm i.d.	N0775224
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	0.8 mm i.d.	N0695461
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	1.2 mm i.d.	N0695460
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	1.6 mm i.d.	N0695449
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	N0695442



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.	N0781009
Optima 8x00 Alumina Injector	1.2 mm i.d.	N0781015
Optima 8x00 Alumina Injector (1.2 mm entire length of tube)	1.2 mm i.d.	N0781007
Optima 8x00 Alumina Injector	2.0 mm i.d.	N0781014
Optima 2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	N0775227
Optima 2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	N0775228
Optima 2x00/4x00/5x00/7x00 DV (1.2 mm entire length of tube)	1.2 mm i.d.	N0776093
Optima 2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	N0775177
Optima 4300V/5300V/7300V	1.2 mm i.d.	N0771531
Optima 3000/3000 SCR/3x00 RL	0.85 mm i.d.	N0582186
Optima 3000/3000 SCR/3x00 RL	1.5 mm i.d.	N0582185
Optima 3000/3000 SCR/3x00 RL	2.0 mm i.d.	N0582184
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	N0695362

Injector Support Adapters

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

Injector Support Adapter O-Ring Kits

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

ESI FAST Injectors for Optima 8x00

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

Sapphire Injectors

Features and Benefits

- Sapphire injectors are ideal for silicon applications

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

GENUINE SAMPLE INTRODUCTION SUPPLIES

RF LOAD COILS*

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

* 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	09992731
Optima 2x00/7000/8000	DV Radial	N0690672
Optima 3x00/4x00/5x00/7100/ 7200/7300 DV/8300	DV Axial	N0771116
Optima 5x00/7100/ 7200/7300 DV/8300	DV Radial	N0770944
Optima 3x00 DV (tube)	DV Axial	N0691678
Optima 3x00 DV (long tube) (38 mm/1.5 in)	DV Radial	N0691689
Optima 3000 SCX/3x00 XL	Axial	09992731
Optima 3000/3000 SCR/3x00 RL 4300V/5300V/7300V	Radial	N0581497
Optima 4x00 DV/5x00 DV**	DV Radial	N0770322

** Pre November 2004



RF Load Coil Accessories

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

Purge Component Replacement Parts

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

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

For Optima 2100/7000/8000 DV

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



Ceramic Purge Extension

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

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	N0690666



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	N0777602	N0777603	N0777604
Compressor with Enclosure	N0777605	N0777606	N0777607

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	N0777608
Micron Dryer Filter Element	N0777609
Replacement Piston Assembly	N0777610
Replacement Reed Valve	N0777611
Replacement Head Gasket	N0777612

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.
Standard PVC (Pkg. 12)		
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
Flared PVC (Pkg. 12)		
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
Solvent Flex (Pkg. 12)		
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.
Viton® (Pkg. 12)		
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
Santoprene® (Pkg. 12)		
1.14	Red - Red	N0773119
1.30	Gray - Gray	N0777444
1.85	Green - Green	N0773116
Silicone (Pkg. 6)		
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.
Standard PVC (Pkg. 12)		
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	N0776099

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	N0777095 (Air Filter with Frame, 13x14")	
Chiller Coolant Mix	N0776099 (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	WE016558

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	N8122248
220/250 V, 50/60 Hz	N8122247

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	N0772046
Optima/ELAN/NexION	240 V, 50 Hz, 8.5 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	N0772045