

## SEASPRAY<sup>®</sup> 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. Includes UniFit Connector with 0.75 mm ID x 1.3mm OD x 700 mm long tubing (N0777512) and EzyLok Connector Kit (N0777413). Material: Borosilicate glass.

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<sup>™</sup> Nebulizer

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

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

Uptake Rate	Part No.
2 mL/min	N0777487

## Slurry<sup>™</sup> 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. Material: Borosilicate glass.

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

Uptake Rate	Part No.
4 mL/min	N0777488

## Ceramic VeeSpray<sup>™</sup> 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. Material: 99.8% Alumina Ceramic.

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

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

## PolyCon<sup>™</sup> Nebulizer

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

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

Uptake Rate	Part No.
2 mL/min	N0777490

## DuraMist<sup>™</sup> Nebulizer

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

Material: HF Resistant PEEK

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

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

## OpalMist<sup>™</sup> 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. Material: PFA.

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

AR Flow Rate	Uptake Rate	Part No.
0.7 L/min	0.6 mL/min	N0777735
0.7 L/min	0.05 mL/min	N0777738
0.7 L/min	0.1 mL/min	N0777737
0.7 L/min	0.2 mL/min	N0777736
0.7 L/min	2 mL/min	N0777734

## The Eluo<sup>™</sup> 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 Newer OpalMist, PolyCon, DuraMist, Meinhard, other Glass Nebulizers.	N0777712
For OLD style OpalMist or PolyCon Nebulizers	N0775358

## Connectors for MicroMist and SeaSpray Nebulizers



Description	Pkg.	Part No.
UniFit		
0.25 mm ID x 1.3 mm OD x 700 mm long	10	N0777514
0.50 mm ID x 1.3 mm OD x 700 mm long	10	N0777513
0.75 mm ID x 1.3 mm OD x 700 mm long	10	N0777512
1.30 mm OD X 0.75 mm ID x 700 mm long	3	N0774077
1/16 inch OD x 0.25 mm ID x 700 mm	10	N0777845
1/16 inch OD x 0.50 mm ID x 700 mm	10	N0777846
1/16 inch OD x 0.75 mm ID x 700 mm	10	N0777847
1/16 inch OD X 0.75 mm ID x 700 mm long	3	N0774080
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

## EzyLok Kit for Nebulizer Gas Side Arm



Description	Part No.
EzyLok Kit - Includes: EzyLok Connector for 4mm Tubing, EzyLok 6mm Hose Adaptor, Nebulizer Hose Clip	N0777413



Description	Part No.
Nebulizer Pressure Hose Clips (standard)	N0773197
Nebulizer Clip for Meinhard Nebulizers	N0777460

## 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

# HIGH EFFICIENCY MICROFLOW NEBULIZERS

MicroFlow nebulizers are resistant to clogging, reliably self-aspirated or pumped to produce a fine aerosol for high transport efficiency and high sensitivity.

## PFA-ST Nebulizer

The PFA-ST MicroFlow nebulizer is made from high purity, HF resistant PFA. It has an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the diameter of the external capillary or probe.



### Features:

- Chemically resistant—ideal for strong acids, alkalis and organics
- Can be pumped from < 0.1 mL/min to 3.0 mL/min
- Direct analysis of volatile and non-volatile organic solvents

Description	Part No.
PFA-ST Nebulizer	N0777049

## PolyPro-ST Nebulizer

The PolyPro-ST Nebulizer is an 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 Nebulizer

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



Description	Part No.
PFA-ST3 Nebulizer	N0777676

## 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



## 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.
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

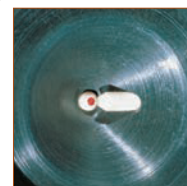
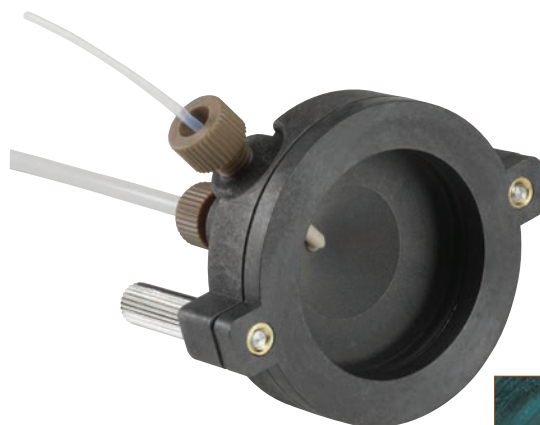
Cross-Flow nebulizer. GemCone nebulizers require an end cap for use with Scott Spray Chambers.

Description	Part No.
GemCone High Dissolved Solids Nebulizer	N0690670



## GemCone Nebulizer Accessories

Description	Part No.
GemCone Sample Capillary Adapter	N0371505
End Cap for GemCone Nebulizers	N0680504
Quick Disconnect Tubing with Swagelock	N0770336
Quick Disconnect Tubing without Swagelock	N0770610
Capillary Tubing (10 ft.)	09908265
PTFE Capillary Tubing (1 FT.)	09985708



## 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.
8x00	N0780546
2x00/4x00/5x00/7x00	N0770546

## 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.
8x00	N0780676
2x00/4x00/5x00/7x00	N0690676
O-Ring for GemTip II Tips qty. 1	09921045

## 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.



ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	N0775331

# SPRAY CHAMBERS



Standard Cyclonic  
Spray Chamber  
Part No. N0776052

Cyclonic  
O-Ring Free  
Part No. N0775351

Cinnabar Spray  
Chamber  
Part No. N0777494

## 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	O-Ring Free with Easy-Seal Threaded	N0772017

\*Standard Cyclonic Spray Chamber (N0776052) with Adapter (N0770614): Spray Chamber Kit with Mount Part No. N0770605

See Sample Introduction Kits for complete spares kits.

## MAXIMUM SENSITIVITY AND EFFICIENCY

### 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 20 mL.

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



Part No. N0770600 Part No. N0770614

## Accessories and Drain Parts

Description.	Part No.
Cyclonic Spray Chamber Adapter	N0770614
Mounting Block only	N0770600
Drain Adapter Assembly for Scott Spray Chamber 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



Part No. N0777438

Part No. N0777439

## Connectors and Spares

Description	Pkg.	Part No.
EzyLok Connector for Jacketed Spray Chamber	4	N0774101
Helix Locking Screw	1	N0777438
Helix Seal	4	N0777439
Nebulizer Adaptor Plug 16/6 for N0776052 Spray Chamber		N0776006
O-Ring Set for Nebulizer Adaptor Plug 16/6		N0776007
O-ring kit for Tracey TFE Spray Chamber (N0777496) with Helix		N0777844





Oxygen Port Spray Chamber  
Part No. N077731

## 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 for O-Ring Free Analysis (4 mm baffle)	Standard	N0776090
2x00/4x00/5x00/7x00 DV/8x00 for O-Ring Free Analysis (4 mm baffle)	O-Ring Free	N0775355
2x00/4x00/5x00/7x00 DV/8x00 for O-Ring Free Analysis (4 mm baffle) with Oxygen Port	O-Ring Free	N0777731
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 4300V/5300V/  
7300V instrument.

Description	Part No.
Metal Ball Joint Clip	N0773114

HF Spray  
Chamber  
Part No.  
N0777497



HF Spray  
Chamber  
Part No.  
N0777496



## HF Resistant Spray Chambers

ICP Model	Type	Part No.
4300/5300/7300V TFE PTFE, 50mL	O-Ring Free	N0777497
2x00/4x00/5x00/7x00 DV/8x00 TFE PTFE, 50mL	O-Ring Free	N0777496
O-ring kit for N0777496 Spray Chamber		N0777844



Scott Spray Chamber  
Part No. N0770357

## 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

See Sample Introduction Kits for complete spares kits.



## 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.
8x00	N0780607
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.
8x00	N0780606
2x00/4x00/5x00/7x00 DV	N0770606
3000/3000 SCR/3x00 RL	N0690610
3x00 DV	N0690812
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.
2x00/4x00/5x00/7x00 DV/8x00	N0770609

# OPTIMA™ ICP-OES SAMPLE INTRODUCTION KITS



Description	Part No.
Cyclonic/Concentric Kit 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 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 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 II Kit 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 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
Gemcon 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 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
Gemcon 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 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
GemCon Low-Flow Nebulizer	N0770358
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	N0775297

Description	Qty	Part No.
DV Oxygen Addition Kit 2x00/4x00/5x00/7x00/8x00 DV		N0770689
Baffled Cyclonic Spray Chamber 4mm for Oils w/Oxygen Port	1	N0777731
Tygon Tubing	25 ft.	02506516
Insert	4	09903094
Tube Fitting	2	09903150
Mass Flow Controller	1	N0772006
Adapter for Cyclonic Spray Chamber	1	N0770614

Description	Qty	Part No.
V Oxygen Addition Kit 4300 V/5300 V/7300 V		N0770965
Torch Adapter with auxiliary oxygen port	1	N0774070
Tygon Tubing Per l/0.3M	25 ft.	02506516
Insert	4	09903094
Tube Fitting	2	09903150
Mass Flow Controller	1	N0772006

# TORCHES AND TORCH ACCESSORIES

Flat Plate Torch  
Part No. N0780130



## 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.
8x00	0	N0780133
8x00 (Standard)	1	N0780130
8x00	3	N0780132
2x00/4x00/5x00/7x00 DV	0	N0770343
2x00/4x00/5x00/7x00 DV (short ver.)	0	N0770344
2x00/4x00/5x00/7x00 DV	1	N0770338
2x00/4x00/5x00/7x00 DV	3	N0772005
2x00/4x00/5x00/7x00 DV Organics Torch	3	N0772008
4300V/5300V/7300V	3	N0771500
7300 V Organics Torch	3	N0771561
3x00 DV	1	N0691662
3000 SCX/3x00 XL	0	N0695379
3000/3000 SCR/3x00 RL	1	N0690568
3000/3000 SCR/3x00 RL	3	N0681690

## Torch Bonnets

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



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



## Torch O-Rings

ICP Model	Dimensions	Part No.
8x00 Complete O-Ring Kit Includes: 09200078 (1), 09902131 (1), 09902223 (2), 09921061 (1), 09921062 (1)		N0780437
2x00/4x00/5x00/7x00 DV Complete O-Ring Kit Includes: 09902045 (1), 09902131 (1), 09902223 (2), 09921061 (1), 09921062 (1)		N0770437
4300V/5300V/7300V Complete O-Ring Kit		N0770916
2x00/4x00/5x00/7x00 DV/8x00 (Viton)	1.171 i.d., 0.139 w.d.	09902131
2x00/4x00/5x00/7x00 DV/8x00 (Viton)	0.799 i.d., 0.103 w.d.	09902223
2x00/4x00/5x00/7x00 DV/8x00	1.109 i.d., 0.139 w.d.	09921061
2x00/4x00/5x00/7x00 DV/8x00	1.046 i.d., 0.139 w.d.	09921062
2x00/4x00/5x00/7x00 DV/8x00	0.801 i.d., 0.070 w.d.	09902045
4300V/5300V/7300V (For Ball Joint)	0.301 i.d., 0.070 w.d.	09926070
3x00 XL/3x00 DV/3000 SCX	0.239 i.d., 0.070 w.d.	09902006
3x00 XL/3x00 DV/3000 SCX	0.364 i.d., 0.070 w.d.	09902015
3x00 XL/3x00 DV/3000 SCX	8.74 i.d., 1.78 w.d.	09921028
3x00 XL/3x00 DV/3000 SCX/4300V/5300/7300V (Inside)	0.239 i.d., 0.070 w.d.	09902207
3x00 XL/3x00 DV/3000 SCX/4300V/5300/7300V (Outside)	0.301 i.d., 0.070 w.d.	09902247
All, O-Ring Lube	2 grams	09200078

## Copper Ignitor Tape



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

\*Ignitor tape for Quartz and HybridXLT Torch.

# EXPECT MORE FROM YOUR TORCH

ONLY FROM PERKINELMER!

## Ceramic Quartz Torch

PerkinElmer's HybridXLT™ torch is the latest addition to the family of PerkinElmer genuine sample introduction components. The new ceramic/quartz hybrid design provides the highest performance for your Optima® ICP-OES 8x00 spectrometer. Available only from PerkinElmer, this new torch has an extended lifetime of up to 10x your current quartz torch, increasing instrument uptime and decreasing maintenance costs.

### Features and Benefits

- Extended Torch Lifetime – up to 10x improvement
- Viewable plasma compared to a full ceramic design
- Ideal for all sample types, except organic solvents
- Increased instrument uptime
- Lower cost per analysis
- Exclusive patented design
- Lower cost than full ceramic torches

ICP Model	Number of slots	Part No.
8x00	1	N0780128



### CeramicD-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.

### D-Torch

Part No. N0777840

Ceramic Outer Tube  
Part No. N0777880



### Features and Benefits

- Analysis of high-matrix solutions (i.e. fusion samples, samples with high- dissolved solids, samples with high-acid content) which can cause early devitrification or sample deposition when using quartz

### Ceramic D-Torch™ and Replacement Parts

ICP Model	Description	Part No.
 8x00	D-Torch Assembly including Quartz Outer Tube	N0777840
 8x00	Ceramic Outer Tube (optional)	N0777880
 8x00	Base and Inner Tube	N0777841
 8x00	Quartz Outer Tube	N0777842
 2x00/4x00/5x00/7x00*	DV D-Torch Quartz including 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	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
	Copper Tape for D-Torch Outer Tube	N0777843
 2x00/4x00/5x00/7x00/8x00	O-Ring Kit	N0777715
 4300/5300/7300V	Torch Adapter with Auxiliary Port	N0774070

\*Ceramic outer tube is not available for this model.



## FULL SELECTION OF INJECTORS AND ADAPTERS



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



### Sapphire Injectors

#### Features and Benefits

- Sapphire injectors are ideal for silicon applications

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

### Quartz Injectors



#### Features and Benefits

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

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

### Injector Support Adapters

ICP Model	Spray Chamber	Part No.
2x00/4x00/5x00/7x00 DV 8x00	All	N0770603
2x00/4x00/5x00/7x00 DV 8x00*	All	N0776091
4300V/5300V/7300V (bottom)	Cyclonic	N0771526
4300V/5300V/7300V (top)	Cyclonic	N0771527

\*For 1.2 mm entire length injectors N0776093 and N0781007

### Injector Support Adapter O-Ring Kits

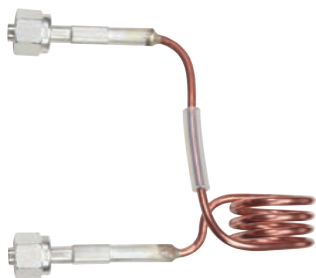
ICP Model	Part No.
2x00/4x00/5x00/7x00 DV/8x00	N0770438
3000/3000 SCR/3x00 RL	N0690269
3x00 XL/3x00 DV/3000 SCX	N0690769

### ESI 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

# GENUINE SAMPLE INTRODUCTION SUPPLIES



## RF LOAD COILS\*

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

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

## 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 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

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

Radial Window  
Part No. N0581497

Axial Window  
Part No. 09992731



## 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.
2x00/7000/8000	DV Axial	09992731
2x00/7000/8000	DV Radial	N0690672
2X00 (long tube)	Radial	B0810377
3x00/4x00/5x00/7100/ 7200/7300 DV/8300	DV Axial	N0771116
5x00/7100/ 7200/7300 DV/8300	DV Radial	N0770944
3x00 DV (tube)	DV Axial	N0691678
3x00 DV (long tube) (38 mm/1.5 in)	DV Radial	N0691689
3000 SCX/3x00 XL	Axial	09992731
3000/3000 SCR/3x00 RL 4300V/5300V/7300V	Radial	N0581497
4x00 DV/5x00 DV**	DV Radial	N0770322

\*\* Pre November 2004



## Ceramic Purge Extension

ICP Model	Part No.
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.
3x00 XL/3000 SCX	N0690666

# QUIET AND OIL-FREE

## ICP-OES OIL-LESS AIR COMPRESSORS

PerkinElmer is expanding its product portfolio to include an industrial grade quiet oil-less compressor for dependable, clean and dry air supply. Each compressor comes assembled on an internally and externally coated air tank and includes optional self-purging regenerative air dryer with aftercooler and 5 micron particle filters. One version includes a silencing cabinet resulting in a compressor operating at a very quiet noise level of less than 60dB. All models are equipped with ASME rated pressure tanks and safety valves, line pressure regulator, gauges, and line ball valve for a complete turn key compressor station.



Specifications		
Horse Power		1.5 HP
Output CFM/Output L.		6.0 CFM/170 L/min
Max Pressure PSI/Max Pressure Bar		120 PSI/8 bar
Noise Level		72 dB/A, with Enclosure 55 dB/A
Tank Size Gal./Tank Size L		13 Gallons/50 Liters
Dimensions	without Enclosure with Enclosure	25" x 18" x 29" 29" x 23" x 32"
Weight	without Enclosure with Enclosure	97 Lbs. 207 Lbs.
Packed Dimensions	without Enclosure with Enclosure	28" x 21" x 29" 33" x 28" x 39"

### Compressors

Description	115V/60Hz	220V/50Hz	220V/60Hz
Air Compressor	N0777881	N0777882	N0777883
Air Compressor with Dryer	N0777602	N0777603	N0777604
Air Compressor with Dryer in Silencing Cabinet	N0777605	N0777606	N0777607

Product meets both U.S. and Canadian CSA standards. <sup>ASME</sup> tank.  
Please note: Silencing cabinet cannot be sold separately.

### 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



# INSTRUMENT BENCHES AND ACCESSORY CARTS



Optima  
Advanced Bench



Optima  
Basic Bench



NexION Bench with  
Optional Monitor Arm

## A CUSTOMIZED APPROACH

Lab space is precious and it can be a challenge to find room for a new instrument or accessory. To make the transition easier, we've customized every bench we offer for your instrument and accessory configuration, enabling you to use your lab space to its full potential. Whether you're making room for a new instrument or replacing an old system, we have a bench solution for you.

## Ordering Information

Dimensions (Depth x Width x Height)	Description	Product Line	Part No.
30" x 60" x 34"	PinAAcle Bench	AA	N0777783
30" x 60" x 35"	Optima Basic Bench	ICP-OES	N0773106
33" x 21"	Large Shelf for Optima Basic Bench (Shelf Only)	ICP-OES	N0777930
30" x 60" x 35"	Optima Advanced Bench	ICP-OES	N0771725
30" x 60" x 29"	NexION Bench with Vacuum Pump Dolly	ICP-MS	N8141230
	NexION Vacuum Pump Dolly Only	ICP-MS	N8121069
26"	Monitor Arm for Optima Advanced or NexION Bench	ICP-OES/ICP-MS	N0771726
32" x 30" x 29"	Titan MPS Bench	AA/ICP-OES/ICP-MS	N0777900
16" x 19" x 34"	Accessory Cart	Various	N0777784
16" x 22" x 34"	Accessory Cart	Various	N0777785

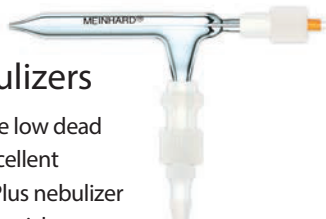


## Meinhard Nebulizers

The MEINHARD<sup>®</sup> Concentric Nebulizer reflects exacting standards in design and manufacturing. Its advantages include simplicity of design and operation, reproducible and self-aligning aerosol, and close fabrication control. They provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%). MEINHARD<sup>®</sup> Nebulizers are self-aspirating and not to be used with solutions containing hydrofluoric acid. Nebulizers require an end cap (N0680504) for use with Scott Spray Chambers.

Type	Material	AR Flow Rate	Uptake Rate	Part No.
Type C3	Glass	1.0 L/min	3 mL/min	N8102011
Type K3	Glass	1.0 L/min	3 mL/min	N0681574
Type A3	Quartz	1.0 L/min	3 mL/min	WE024371
Type A0.5 (NexION)	Quartz	1.0 L/min	0.5 mL/min	N8145011
Type C0.5 (NexION)	Glass	1.0 L/min	0.5 mL/min	N8145012

\*Liquid Connector WE024372 not included with Meinhard nebulizers.



## MEINHARD<sup>®</sup> Plus Nebulizers

MEINHARD<sup>®</sup> Plus Nebulizers provide low dead volume and high sensitivity with excellent detection limits and washout. Each Plus nebulizer includes the FitKit+ gas and sample quick connect fittings. The connections are made with high-purity PFA, minimizing the chance of contamination during backflow events. The gas connection fits snugly over the maria on the sidearm of the nebulizer.

Description	Material	AR Flow Rate	Uptake Rate	Part No.
SilQ+ Ultra-high Purity	Quartz	1.0 L/min	0.5 mL/min	N8122460
TQ+ High Sensitivity	Quartz	1.0 L/min	0.5 mL/min	N8122461
TQ+ High Sensitivity	Quartz	1.0 L/min (30 psi)	0.5 mL/min	N8142098
TR+ High Sensitivity	Glass	1.0 L/min	0.5 mL/min	N8122462

\*Includes FG Gas Quick Connect (N8121036) and F2 Quick Connect (N8121039) with 0.5 mm i.d. (orange marker) capillary, 70 cm.












## Liquid Connector



Low dead volume PEEK connector for use with MEINHARD<sup>®</sup> Concentric Nebulizers. Requires 0.062 in (1.59 mm) o.d. tubing (WE024375). Standard on ELAN DRCs. Not required for PFA PTFE Nebulizers.

ICP-MS Model	Part No.
ELAN (solution fitting, 0.7 mm ETFE)	WE024372
NexION (solution fitting, 0.5 mm PTFE)	N8145016

## Connectors and Nebulizer Spares

Description	Part No.
 Nebulizer Clip for Meinhard Nebulizers	N0777460
 Nebulizer Liquid Connector Kit 4 mm (solution fitting, 0.5 mm PTFE with adapter) (NexION)	N8145016
 PFA FG Gas Quick Connect	N8121036
 F2 Standard Integrated Capillary (0.5 mm i.d. orange 70 cm long)	N8121039
 F0 Encapsulated Micro Tubing (0.25 mm i.d. green 70 cm long)	N8121038
 F1 Detachable Capillary (0.80 mm i.d. blue 70 cm long)	N8121037
 Spray Chamber Drain Fitting	N8145015
 Male Barb CTFE Fitting (Part of N8145016)	N8145017
 Female Barb CTFE Fitting (Part of N8145016)	N8145018
 PTFE Sample Capillary 0.062 o.d. x 0.020 i.d.	WE024375
 Liquid-End Nebulizer Connector (ELAN)	WE024372

## End Cap for Concentric Nebulizers

End cap to fit any concentric nebulizer onto a Scott Spray Chamber.



Description	Part No.
End Cap for Concentric Nebulizers	N0680504

## GemClean Cross-Flow II Nebulizer

Complete chemically inert Cross-Flow II nebulizer assembly for ICP-MS. Specially processed to reduce BEC levels below 1 ppb. Contains an end cap with a GemTip clear sapphire sample tip and a GemTip red ruby argon tip optimized for ICP-MS.



Description	Part No.
GemClean Cross-Flow II Nebulizer	N8120516

## Cross-Flow Replacement GemTips and Spares

Includes a clear sapphire sample tip and a red ruby argon tip optimized for ICP-MS. The tips are constructed of PEEK for maximum corrosion resistance. Used in all GemClean Cross-Flow II nebulizers produced after September, 1998.



Description	Part No.
Cross-Flow II Replacement GemTips	N8120515
Cross-Flow II Nebulizer Argon Ferrule	09920515
Cross-Flow II Nebulizer Ferrule Kit*	N0680612
Cross-Flow II Nebulizer End Cap	N8122239
Cross-Flow II Nebulizer Sample Ferrule	09920518
GemTip II O-Ring	09921045
End Cap O-Ring	09902033
Sample Tubing	09985708
Argon Tubing	09985723

\*Includes 09920515 and 09920518.