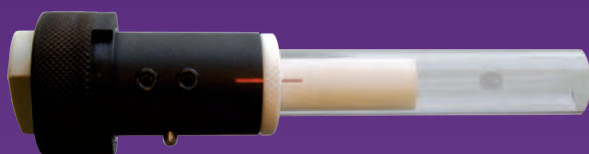


# ICP-OES/ICP-MS SUPPLIES & ACCESSORIES

torches



coils



spray  
chambers



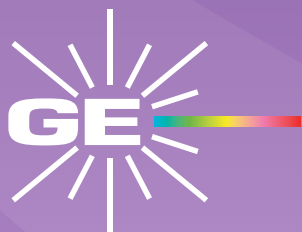
cones



nebulizers



accessories



**GLASS EXPANSION**

Quality By Design

Issue 8



# GLASS EXPANSION

Quality By Design

Dear ICP Analyst,

As you may already know, Glass Expansion has been designing and manufacturing high quality sample introduction components for ICP optical emission and mass spectrometers since the early 1980's. Today we support both new and old instruments from all ICP manufacturers, covering over 50 different ICP-OES and ICP-MS models.

In order to help you to keep your inventory cost down, Glass Expansion keeps a full inventory of products for fast delivery. Our staff has the depth of technical experience to help you solve the most demanding analytical challenges. We also have a fully functional analytical laboratory equipped with several ICP-OES systems from the top manufacturers as well as a high end ICP-MS instrument

We can provide you with the best solution for your sample introduction needs using only the highest quality products backed by our full refund guarantee. Indeed most instrument manufacturers are already using Glass Expansion products and that means you probably are too. When you purchase from Glass Expansion, you assure yourself of the highest level of personal attention, expert technical support, and the highest value.

This catalog showcases the latest developments in ICP-OES and ICP-MS sample introduction components and accessories, color-coded and customized for each manufacturer's specific model.

For up to date pricing, please go to our web site at [www.geicp.com](http://www.geicp.com) and, if you wish, you can place your orders on-line.

We also have a worldwide network of distributors who can supply local support. Please see our web site or contact us for details of your closest distributor.

Sincerely,

Jost Kaiser

**CEO**  
Glass Expansion

# CONTENTS

<b>GENERAL INFORMATION</b>	<b>2</b>	<b>RF COILS</b>	<b>14</b>
<b>NEBULIZERS</b>	<b>3</b>	<b>ACCESSORIES</b>	<b>15</b>
Glass Expansion Nebulizer Part Numbers	3	Assist	15
Learn about Glass Expansion Nebulizers	3	IsoMist	16
LC Interface for Speciation Measurements	5	TruFlo	17
Nebulizers for Aqueous and Organics Analyses	6	Niagara II	18
Nebulizers for HF Analyses	7	Niagara Plus	19
Nebulizer Selection Guide	8	Other Accessories	20
<b>SPRAY CHAMBERS</b>	<b>9</b>	<b>APPLICATION PAGES</b>	<b>22</b>
Spray Chamber Selection Guide	11	<b>FITTINGS, CONNECTORS &amp; TUBING</b>	<b>90</b>
Nebulizer Adaptors for Spray Chambers	12	<b>STANDARD PERISTALTIC PUMP TUBING</b>	<b>92</b>
<b>TORCHES</b>	<b>13</b>	<b>CONTOUR FLARED END PERISTALTIC PUMP TUBING</b>	<b>94</b>

## Application Packages

For each model, the recommended sample introduction products for the most common applications are shown. If your application is not shown, please contact enquiries@geicp.com and we will recommend the most appropriate system. The application packages are followed by a complete list of sample introduction products for the particular model.

Manufacturer	Instrument type	Models	Torch Arrangement	Page
Agilent (HP)	ICP-MS	7500	Axial	22
Agilent (HP)	ICP-MS	7700	Axial	27
Agilent (Varian)	ICP-OES	700-ES Series Axial, Vista Axial	Axial	32
Agilent (Varian)	ICP-OES	700-ES Series Radial, Vista Radial	Radial	37
Jobin Yvon (Horiba)	ICP-OES	24, 38 & 138 Series, Ultima, Activa	Radial	42
PerkinElmer	ICP-MS	Elan 6000, 9000	Axial	46
PerkinElmer	ICP-MS	NexION 300	Axial	52
PerkinElmer	ICP-OES	Optima 2000/4000/5000/7000 DV Series	Axial	58
PerkinElmer	ICP-OES	Optima 4300V, 5300V, 7300V	Radial	63
Shimadzu	ICP-OES/MS	1000, 5000, 7000, 8000 & 9000	Radial	68
Spectro (Ametek)	ICP-OES	EOP (Modula, CIROS, Genesis, ARCOS)	Axial	72
Spectro (Ametek)	ICP-OES	SOP (Modula, CIROS, Genesis, ARCOS)	Radial	75
Thermo (TJA)	ICP-OES	iCAP 6000 Duo	Axial	78
Thermo (TJA)	ICP-OES	iCAP 6000 Radial	Radial	82
Thermo (VG)	ICP-MS	X Series	Axial	86

## Trademarks\*

Trademarks of Glass Expansion are as follows:

Conikal	U-Series	Cinnabar	Capricorn	PuraFlex	Glass Expansion
SeaSpray	UniFit	Twister	Helix	D-Torch	Glass Expansion
MicroMist	OpalMist	Twinnabar	VitriCone	TruFlo	logo
Slurry	EzyFit	ABC Torch	Niagara	DuraMist	
VeeSpray	EzyLok	GazFit	Trident	Assist	
PolyCon	Tracey	Eluo	IsoMist	Contour	

\*All company names listed are registered tradenames and all instrument brand/model names are the property of the respective companies listed.

# GENERAL INFORMATION

## Glass Expansion Warranty

All Glass Expansion products are supplied with our NO-RISK GUARANTEE. If the performance of the product is unsatisfactory or if it is unsuitable in any way, we will provide a credit or refund, provided it is returned in original condition within 14 days of receipt\*.

We warrant that all of our products are free from defects in material and workmanship and meet applicable specifications. We agree to repair or replace, at our option, a product that, under proper and normal use, proves to be defective within 12 months of the delivery. We may, at our option, use refurbished items that are equivalent to new in performance. Repaired or replaced products are warranted for the balance of the original warranty period.

This warranty does not include consumable items that, by their nature, may not function for 12 months. Such items include nebulizers, spray chambers, torches, tubing, valves, RF coils, cones and components of these items. Other items made from glass, quartz, or ceramic are also not included in the 12 month warranty. The consumable items listed here are warranted only that they are free from defects in material and workmanship and meet applicable specifications on delivery.

This warranty does not cover defects resulting from improper or inadequate use, installation, maintenance or repair. We also do not accept liability for consequential damage of any kind arising from the use of our products. It is the purchaser's responsibility to ensure that our products are used only by qualified persons who are properly trained in the appropriate laboratory procedures and that the products are safely stored, handled and used. We assume no liability for any injury to personnel or damage to equipment arising from the handling or use of our products.

\* This guarantee does not apply to products that are not listed in our catalog, since these may be for obsolete models. For example, we have now standardised our production on nebulizers with the EzyLok argon connector and spray chambers with the Helix nebulizer interface, and these are what we hold in stock. We will still accept orders for nebulizers without the EzyLok and spray chambers without Helix, but these now need to be specially made. Since they cannot be returned to stock, we will not accept return of these products unless they are faulty. If they are faulty, they can still be returned for replacement or refund.

## Webshop – Order your supplies online

You can purchase Glass Expansion products online. We hold most products in stock ready for immediate dispatch and delivery to most countries takes 2-4 days. If you are not sure which part you need, click PRODUCTS then "Products to suit your ICP". If you know the part number you require, you can click on SHOPPING CART and enter the part number and your country. For full details, you can view the "ordering instructions" on the SHOPPING CART page. Even if you do not wish to order online you will be able to access the current Glass Expansion prices.

## Online Newsletter for ICP Users

The Glass Expansion newsletter is designed for users of ICP-OES and ICP-MS. It covers applications information, operational hints, product design issues, news on new Glass Expansion products and relevant information from the major ICP equipment manufacturers. Each issue of the newsletter is posted on the Glass Expansion website. Subscription is free and subscribers are sent a website link by email whenever a new issue is posted.

To see previous issues, go to our website at [www.geicp.com](http://www.geicp.com), click on NEWS and then on "Glass Expansion Newsletter".

To subscribe to the newsletter, click on CONTACT US, fill in your details and tick the GE Newsletter box. Alternatively, you can send an email requesting a subscription to [enquiries@geicp.com](mailto:enquiries@geicp.com). If there are any topics you would like to see covered in future issues we would welcome your feedback.

# NEWS

Glass Expansion Newsletter | June 2010 | Issue 22

## APPLICATION SPOTLIGHT

### DEALING WITH HIGH SALT MATRICES

**Introduction**

In the very first issue of this newsletter in 2003, we focused on the analysis of high salt samples by ICP spectrometry. Since that time, there have been significant enhancements to both the spectrometers and the sample introduction systems that accompany them and so it is worthwhile to review this very common application. The challenges created by high salt samples are numerous.

- Elevated background levels for ICP-OES
- Space/charge interferences for ICP-MS
- Polyspectral spectral interferences for ICP-MS
- Matrix suppressions in general
- Easily ionizable element interferences for ICP-OES
- Dehydration of quartz components
- Salt deposits in nebulizers and injectors
- Reduced lifetimes of consumables
- Carryover and memory effects

In 2003, it was generally recommended not to exceed 0.1 or 0.2% total dissolved solids (TDS) on an ICP-MS. Now much higher concentrations are routinely analyzed, an indication of the evolution of ICP-MS. In this article, we will examine the challenges listed above with an eye toward describing the best solutions.

**Elevated background levels for ICP-OES**

From an accuracy standpoint, one of the most significant features provided by array detectors is the improved background correction afforded by the simultaneous measurement of both signal and background intensities. Previously with PMT based sequential spectrometers, not only did the spectrometer measure the analyte intensities sequentially but also the background correction point for each analyte was measured at a different time than the analyte intensity itself.

GE NEWS

**JAIMA Show 2010**

A full range of Glass Expansion products will be on display at the JAIMA Show, Tokyo, Japan, September 1 to 3, 2010 and Glass Expansion specialists will be on hand to assist you.

**JAIMA EXPO-2010**

**Applications Notes**

To assist you with your applications, we have added a new Applications Notes section to our website. [Click here](#) to see the first Applications Notes. We will be adding more over time.

**IN THIS ISSUE:**

- Application Spotlight 1-3
- GE News 1
- New Products 4
- Instrument News 5
- From Park/Elmer
- From Spectro
- From Teledyne Leeman Labs
- From Thermo Fisher Scientific

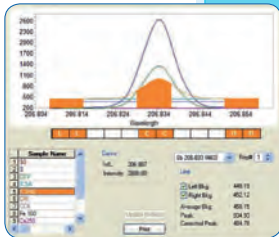



Figure 1: Effect of a complex matrix on an arbitrary peak at 206.833nm.



GLASS EXPANSION  
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[www.geicp.com](http://www.geicp.com) page 1



# GLASS EXPANSION NEBULIZER PART NUMBERS

## U-Series glass concentric, DuraMist, OpalMist, PolyCon and VeeSpray nebulizers

**ARG** - **yy** - **ZZ** **nnn**

- ARG** argon gas operated nebulizer
- yy** the argon flow in L/min eg. 07=0.7L/min
- ZZ** nebulizer model type:  
 UC = Conikal U-Series nebulizer  
 US = Slurry U-Series nebulizer  
 USS = Seaspray U-Series nebulizer  
 UM = MicroMist U-Series nebulizer  
 CV = Ceramic VeeSpray v-groove nebulizer  
 DM = DuraMist HF resistant nebulizer  
 CP = PolyCon Polyimide HF resistant nebulizer  
 PFA = OpalMist PFA HF resistant nebulizer
- nnn** aspirated uptake at nominal argon flow, in mL/min  
 eg. UC2 = 2mL/min, UM04 = 0.4mL/min, CP005 = 0.05mL/min

## LEARN ABOUT GLASS EXPANSION NEBULIZERS

Our glass concentric nebulizers are available in three styles – the latest U-Series, the earlier nebulizer with EzyFit sample connector and the original nebulizer with standard connection. All three styles have Glass Expansion's unique VitriCone construction.

### U-Series Glass Concentric Nebulizers

The U-Series is our latest design and it has a UniFit sample connector which slides easily over the sample arm. The benefits of the U-Series nebulizer are:

- Resists blockage: The sample channel is uniform from the entry point to the tip, so there is nowhere for particulates to be trapped.
- Fast washout: Since there is nowhere for sample to be trapped, the fastest possible washout and highest sample throughput is achieved.
- Simple to use: Our proprietary UniFit connector slides easily over the sample arm and creates an excellent seal.
- Full length VitriCone construction: With the VitriCone design, the sample channel is constructed from heavy glass capillary which is machined to very high tolerances.



SeaSpray, MicroMist, Conikal and Slurry U-Series nebulizers are available to suit all common models of ICP-OES and ICP-MS. Each U-Series nebulizer is supplied with a UniFit sample connector.

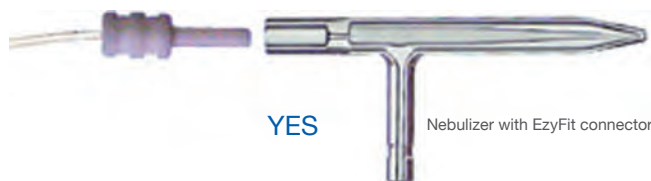
U-Series nebulizers can be identified by the letter 'U' in the part number, eg. ARG-07-USS2 or ARG-1-UM04.



All glass concentric nebulizers in this catalog are U-Series nebulizers.

### Nebulizer with EzyFit connector

The EzyFit is a sample connector which slides into the nebulizer sample arm. It provides lower dead volume and faster washout times than earlier designs but is not quite as effective as the newer U-Series.



The SeaSpray, MicroMist, Conikal and Slurry nebulizers are available with EzyFit connection. They can be identified by the letter "F" in the part number, eg. AR30-07-FSS2E or AR30-1-FM04E

### Nebulizer with standard connection

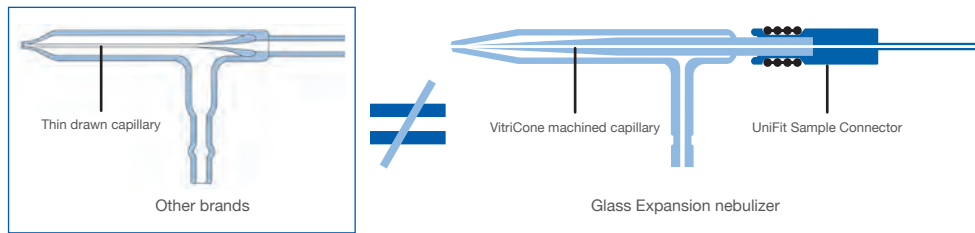
This is the original design and is now very rarely used. It is not supplied with a sample connector and it is not compatible with either the EzyFit or UniFit connectors. The connector must be supplied by the user. This nebulizer design has a larger dead volume and longer washout time compared with the newer designs, so it is not generally recommended.



# LEARN ABOUT GLASS EXPANSION NEBULIZERS

## All ICP Nebulizers are NOT created equal

Only Glass Expansion nebulizers include the unique VitriCone construction.



With some brands of glass concentric nebulizers, the sample channel is constructed from drawn out capillary tubing. The problems with this type of construction are:

- The tube is tapered, encouraging salt deposition as the tube narrows.
- The tubing is very fragile and easily broken.
- The tubing can vibrate under the influence of the high speed argon flow, leading to poor precision.
- It is very difficult to reproduce the same performance with different nebulizers.

All Glass Expansion concentric glass nebulizers use the unique VitriCone construction for the sample channel. With the VitriCone design, the sample channel is constructed from heavy glass capillary which is machined to very high tolerances. The benefits of the VitriCone construction are:

- The sample channel is guaranteed uniform and thus resistant to clogging.
- The rugged precision machined capillary resists vibration and delivers the best possible precision.
- The industry's tightest tolerances ensure that each nebulizer will perform to the same high standards as the previous one.

## The EzyLok argon connector

The EzyLok is the easy, safe and effective way to connect argon supply tubes to your nebulizer

Features:

- Promotes user safety
- Stiffening of argon supply tube is no longer a problem
- Eliminates bonding of argon supply tube to nebulizer side arm
- Can be used with 4mm nylon tubing or standard 6mm soft tubing

The EzyLok connection is made with our specially formed nebulizer side arm, which allows it to be pushed and locked securely into the popular 'One Touch Fitting' which incorporates a flexible O-Ring seal. To disconnect the nebulizer, simply push on the release button located at the top of the fitting.

The EzyLok connection also improves safety by preventing broken nebulizer side arms. When argon supply tubes made from all or part silicon are used, they tend to bond strongly to the nebulizer glass side arm. Usually ICP users remove the bonded tubing by cutting it away bit by bit with a sharp blade ... a very hazardous operation! The EzyLok easily connects and disconnects the argon supply tube to the nebulizer side arm.



## The EzyLok Kit:

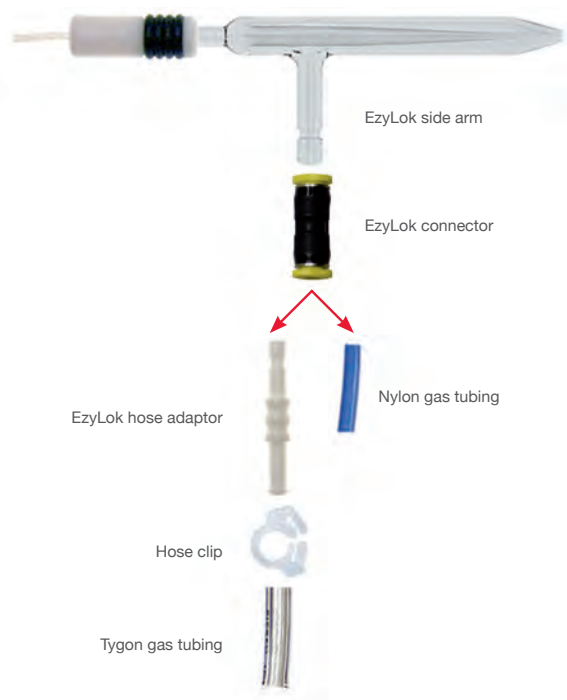
The EL-1 EzyLok Kit comprises:

- 1 x EzyLok Connector for 4mm Tubing
- 1 x EzyLok 6mm hose adaptor
- 1 x Hose Clip

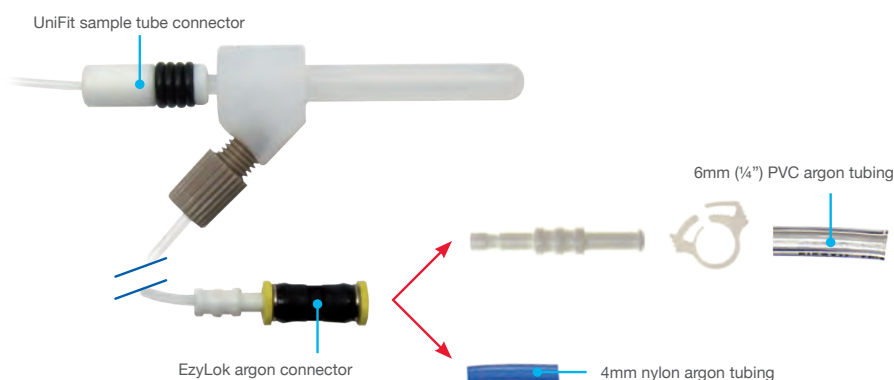
All nebulizers in this catalog are supplied with the EL-1 EzyLok Kit.



## Argon connection for glass nebulizers



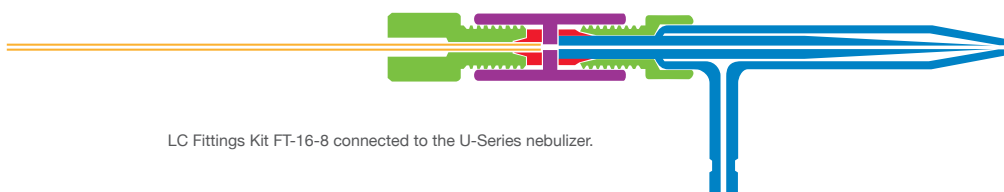
## Argon connection for OpalMist, PolyCon and DuraMist nebulizers



## LC INTERFACE FOR SPECIATION MEASUREMENTS

The chemical effect of some elements varies dramatically depending on the species present. Therefore the concentration of each species needs to be determined rather than the total concentration of each element. In order to measure the concentration of different species, they must first be separated using chromatography – most commonly LC – and then detected using ICP-MS or ICP-OES.

The LC Fittings Kit, part number FT-16-8, allows quick and easy connection to any U-Series nebulizer. And the LC Fittings Kit can be configured to interface to all common LC outputs.



LC Fittings Kit FT-16-8 connected to the U-Series nebulizer.

# NEBULIZERS FOR AQUEOUS AND ORGANICS ANALYSES

## SeaSpray – The High Performance Nebulizer

The SeaSpray glass concentric nebulizer offers outstanding nebulization efficiency for trace level analyses. It offers the highest sensitivity and freedom from clogging while nebulizing solutions with high salt levels.

- Material: Borosilicate glass
- High physical reproducibility ~ 1%
- High TDS tolerance, typically up to 20%
- High tolerance to particulates, typically up to 75µm
- Low RSDs due to highly accurate construction
- Standard available uptake: 0.4mL/min and 2mL/min

SeaSpray U-Series nebulizers with sample uptake 2mL/min are supplied with:  
1 x NFT-075 UniFit connector (sample tube 0.75mm ID x 1.3mm OD x 700mm long).

SeaSpray U-series nebulizers with sample uptake 0.4mL/min are supplied with:  
1 x NFT-050 UniFit connector (sample tube 0.5mm ID x 1.3mm OD x 700mm long).



SeaSpray U-Series nebulizer with UniFit sample connector and EzyLok side arm.

## MicroMist – The Low Uptake Nebulizer for all ICPs

The MicroMist micro-uptake glass concentric nebulizer offers high performance for limited sample volumes. It also reduces matrix effects when used with Glass Expansion's Cinnabar spray chamber.

- Material: Borosilicate glass
- High physical reproducibility ~ 1%
- TDS tolerance, typically up to 15%
- Low RSDs due to highly accurate construction
- Standard available uptake: 0.05, 0.1, 0.2, 0.4 & 0.6mL/min

MicroMist U-Series nebulizers with sample uptakes 0.2 – 0.6mL/min are fitted with:  
1 x NFT-050 UniFit connector (1.3mm OD x 0.50mm ID x 700mm long sample tubing).

MicroMist U-Series nebulizers with sample uptakes 0.05 – 0.1mL/min are fitted with:  
1 x NFT-025 UniFit connector (1.3mm OD x 0.25mm ID x 700mm long sample tubing).



MicroMist U-Series nebulizer with UniFit sample connector and EzyLok side arm.

## Conikal – An Economical Option

The Conikal concentric nebulizer gives reproducible results for routine ICP analyses.

- Material: Borosilicate glass
- High physical reproducibility ~ 1%
- TDS tolerance, typically up to 5%
- High tolerance to particulates, typically up to 75µm
- Low RSDs due to highly accurate construction
- Standard available uptakes 1 & 2mL/min

Conikal U-Series nebulizers with sample uptake 2mL/min are supplied with:  
1 x NFT-075 UniFit connector (sample tube 0.75mm ID x 1.3mm OD x 700mm long).

Conikal U-Series nebulizers with sample uptake 1mL/min are supplied with:  
1 x NFT-050 UniFit connector (sample tube 0.5mm ID x 1.3mm OD x 700mm long).



Conikal U-Series nebulizer with UniFit sample connector and EzyLok side arm.

## Slurry – For Slurries or Suspensions

The Slurry glass concentric nebulizer is ideal for specialised applications requiring the aspiration of slurries or suspensions. Its capillary bore is 50% larger than standard concentrics. This reduces the possibility of particle blockage, while giving excellent signal stability.

- Material: Borosilicate glass
- High physical reproducibility ~ 1%
- TDS tolerance, typically ~1%
- High tolerance to particulates, typically up to 150µm
- Low RSDs due to highly accurate construction
- Slurry nebulizers have a natural liquid uptake of 4mL/min but operate best between 1.5 and 2.5mL/min

All Slurry U-Series nebulizers listed in this catalog are supplied with:  
1 x NFT-075 UniFit connector (sample tube 0.75mm ID x 1.3mm OD x 700mm long).



Slurry U-Series nebulizer with UniFit sample connector and EzyLok side arm.



# NEBULIZERS FOR HF ANALYSES

## DuraMist – For Routine High Precision HF Analyses

The DuraMist concentric nebulizer is the most economical nebulizer for high precision analyses involving samples digested in HF.\*

- Material: HF Resistant PEEK
- High physical reproducibility ~ 2%
- High tolerance to particulates, up to 75µm depending on uptake
- High TDS tolerance, typically up to 20%
- Low RSDs due to concentric geometry
- Uses only standard ICP argon supply pressures
- Standard 6mm size fits standard cyclonic spray chambers. Adaptors are available for Scott type spray chambers
- Standard available uptakes: 0.4 and 1.0mL/min



\* The DuraMist is recommended for samples containing up to 5% HF. For samples with higher concentrations of HF, we recommend the OpalMist PFA nebulizer.

DuraMists with sample uptakes 0.4 and 1.0mL/min are supplied with 1 x NFT-050, UniFit Connector with 1.3mm OD x 0.50mm ID x 700mm long sample tubing.

## PolyCon – For Routine High Precision HF Analyses

The PolyCon concentric nebulizer is for ICP-OES analyses involving samples digested in HF.

- Material: HF Resistant Polyimide
- High physical reproducibility ~ 2%
- High tolerance to particulates, up to 75µm depending on uptake
- TDS tolerance, typically up to 5%
- Low RSDs due to concentric geometry
- Uses only standard ICP argon supply pressures
- Standard 6mm size fits standard cyclonic spray chambers. Adaptors are available for Scott type spray chambers
- Standard available uptakes: 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, & 2 mL/min



PolyCons with sample uptakes 0.05 – 0.1mL/min are supplied with 1.3mm OD x 0.25mm ID x 700mm long sample tubing.

PolyCons with sample uptakes 0.2 – 0.8mL/min are supplied with 1.3mm OD x 0.50mm ID x 700mm long sample tubing.

PolyCons with sample uptake 2 mL/min are supplied with 1.3mm OD x 0.75mm ID x 700mm long sample tubing.

## OpalMist – Ideal For ICP-MS

The OpalMist PFA concentric nebulizer is the nebulizer of choice for ICP-MS analyses requiring exceptional purity or chemical resistance to HF, alkalis and organics. It also provides excellent results for trace analyses and freedom from clogging with high salt concentration.

- Material: PFA
- High physical reproducibility ~ 3%
- Strong and consistent self-aspiration
- High tolerance to particulates, up to 75µm depending on uptake
- High TDS tolerance, typically up to 30%
- Low RSDs due to concentric geometry
- Uses only standard ICP argon supply pressures
- Standard 6mm size fits standard cyclonic spray chambers. Adaptors are available for Scott type spray chambers
- Standard available uptakes: 0.05, 0.1, 0.2, 0.4, 0.6, 0.8 & 2mL/min



OpalMists with sample uptakes 0.05 – 0.1mL/min are supplied with 1.3mm OD x 0.25mm ID x 700mm long sample tubing.

OpalMists with sample uptakes 0.2 – 0.8mL/min are supplied with 1.3mm OD x 0.50mm ID x 700mm long sample tubing.

OpalMists with sample uptake 2mL/min are supplied with 1.3mm OD x 0.75mm ID x 700mm long sample tubing.

## Ceramic VeeSpray – Handles High Particle and TDS Loads Best

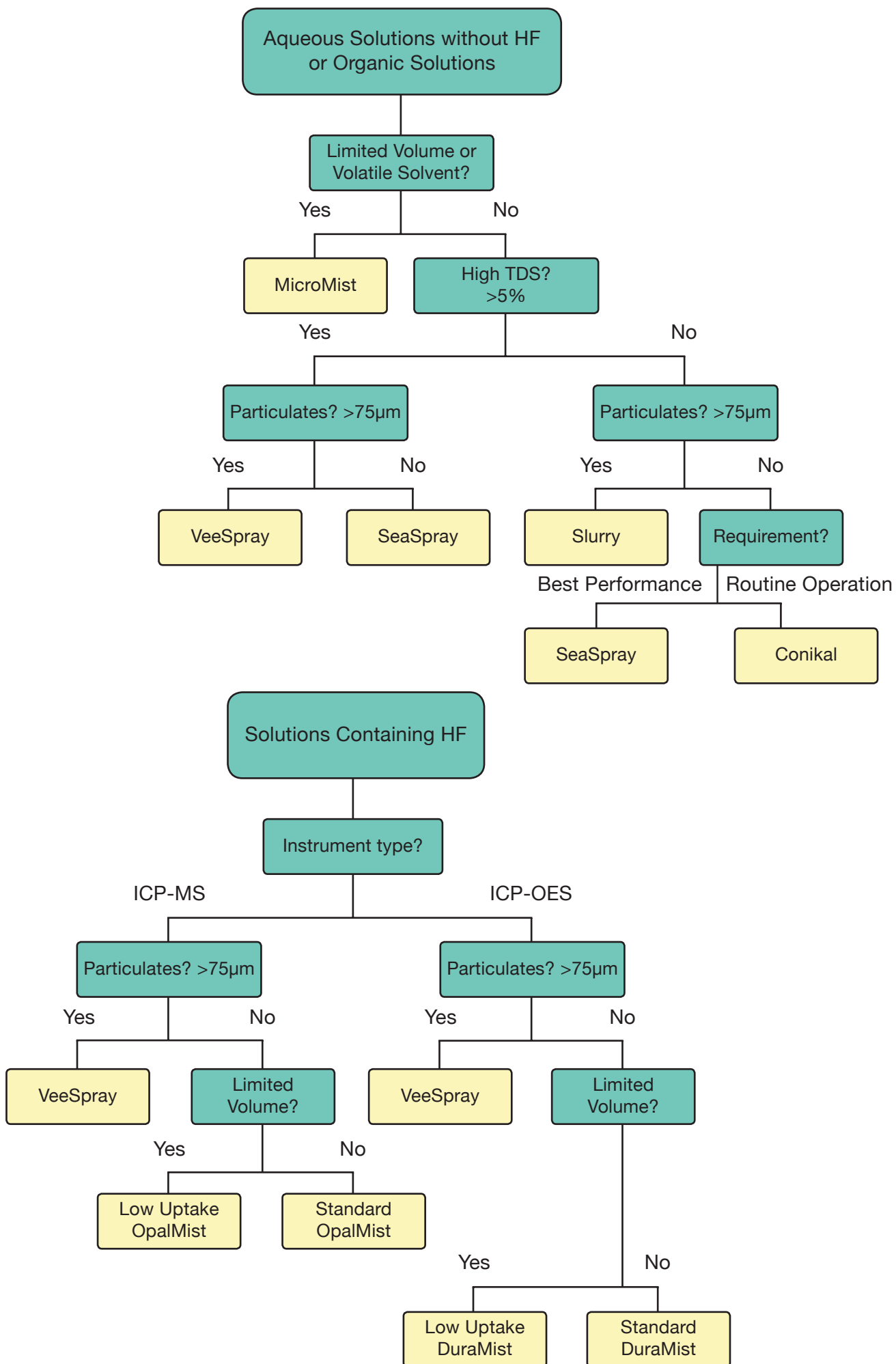
The Ceramic VeeSpray nebulizer is made from alumina ceramic, making it ideal for HF analyses. It provides reproducible performance when working with samples containing large particulates. It has the same 6mm diameter as the standard concentric nebulizer and the alumina material makes it the most robust and abrasion resistant ICP nebulizer.

- Material: 99.8% Alumina Ceramic
- High physical reproducibility ~ 1%
- TDS tolerance, typically up to 30%
- High tolerance to particulates, typically up to 300µm
- Must be pumped – does not self aspirate
- Design uptake range: 0.6 – 3mL/min. Operates best between 1.5 and 2.5mL/min

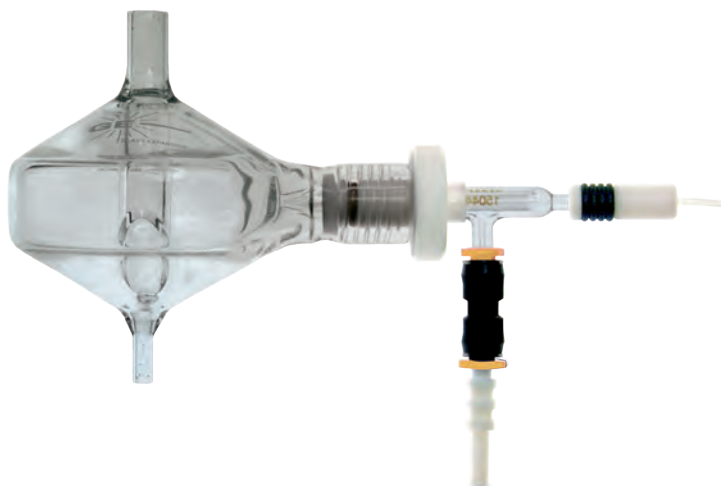


All Ceramic VeeSpray nebulizers listed in this catalog are supplied with 1.6mm OD x 0.75mm ID x 700mm long sample tubing.

# NEBULIZER SELECTION GUIDE



# SPRAY CHAMBERS – HIGHEST QUALITY, UNIFORMITY AND EFFECTIVENESS



## Helix – The Modern Interface Between Nebulizer and Spray Chamber

Most ICP spectrometers rely on an O-Ring seal between the nebulizer and the spray chamber. This design may result in extended washout times due to dead volume around the seal. The Helix eliminates dead volume, resulting in faster washout times and higher sample throughput. Also, even the most chemically resistant O-Rings are prone to wear and tear and require regular replacement. They also tend to bond to a glass nebulizer, making the nebulizer difficult to remove. To eliminate all of these problems, Glass Expansion has developed Helix – the user friendly nebulizer/spray chamber interface.

- Faster washout times due to elimination of dead volume around the nebulizer seal
- No O-Rings to replace
- Totally inert – impervious to organic solvents and strong acids
- Smooth nebulizer insertion and removal
- Special release/lock mechanism seals the chamber
- Positive stop to ensure correct nebulizer position

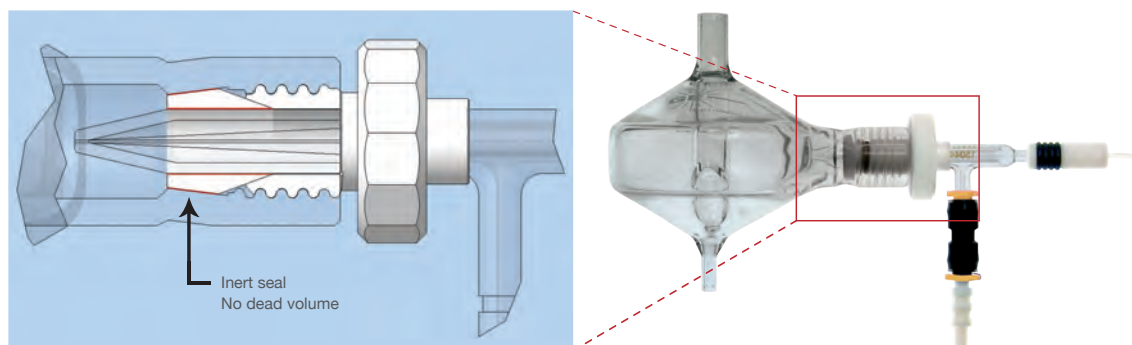
Helix fittings can only be used with Glass Expansion spray chambers incorporating the Helix side arm. They cannot be used with spray chambers designed with an O-Ring seal.

Part numbers for Helix glass spray chambers can be identified by the letters HE at the end, as in 20-809-0224HE. All of the glass spray chambers in this catalog are supplied with Helix. All of the PTFE and PFA spray chambers in this catalog are supplied with a Helix. They do not have the HE suffix since they are not available without Helix.

## The Secrets of the Glass Expansion Spray Chamber

Only Glass Expansion spray chambers provide all of these benefits:

- Cyclonic design for best sensitivity and precision
- Helix nebulizer interface
- Minimal dead volume for reduced carryover, faster washout and higher sample throughput
- Precise ridge on wall for efficient drainage
- Convenient UniFit drain connector



## Tracey Cyclonic – An Industry Standard

The Tracey cyclonic spray chamber is Glass Expansion's standard glass cyclonic spray chamber. It gives the best sensitivity and lowest memory effects for standard ICP analyses.

- Material: Borosilicate glass
- Volume: 50mL
- High sensitivity and reduced matrix effects
- Physical reproducibility ~1%
- Faster washout than older coaxial chamber designs
- Low RSDs due to highly accurate construction
- Application uptake range 0.2 to 3.0mL/min

### HF resistant Tracey TFE spray chamber

Made from HF resistant PTFE, the Tracey TFE spray chamber is ideal for use with the PolyCon, OpalMist, DuraMist or Ceramic VeeSpray nebulizers. Volume 50mL.

### Tracey PFA44 spray chamber

The Tracey PFA44 spray chamber is made from high purity PFA and is ideal for ultra-trace ICP-MS analyses where ultra-pure sample introduction components are required. Volume 44mL.



Tracey spray chamber  
P/N 20-809-0224HE shown.



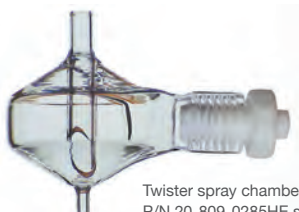
Tracey TFE spray chamber  
P/N 20-809-2506 shown.

The interior of both the Tracey TFE and Tracey PFA44 has the proprietary Stediflow surface treatment which improves the wettability of the surface and ensures efficient drainage. Without the Stediflow treatment, droplets tend to form on the surface and degrade both sensitivity and precision.

## Twister Cyclonic – Reduces Solvent Load

The Twister cyclonic spray chamber features a central transfer tube which acts as a secondary particle separator helping separate larger aerosol particles from the sample. This reduces solvent load in the plasma without compromising detection limits.

- Material: Borosilicate glass
- Volume: 50mL
- Physical reproducibility ~1%
- Low RSDs due to highly accurate construction
- Application uptake range 0.2 to 3.0 mL/min
- Produces smaller mean droplet size



Twister spray chamber  
P/N 20-809-0285HE shown.

## Cinnabar Cyclonic – The Low-Volume Spray Chamber for All ICPs

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 are ideal for the reduction of memory and matrix effects and very fast washout.

- Material: Borosilicate glass
- Volume: 20mL
- Physical reproducibility ~1%
- Matrix effects 5 times lower than with coaxial chambers
- Low RSDs due to highly accurate construction
- Application uptake range ~20 to 400  $\mu$ L/min
- Ideal for use with MicroMist nebulizers

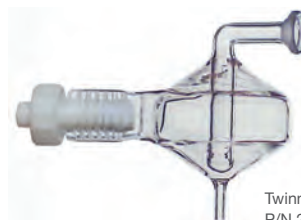


Cinnabar spray chamber  
P/N 20-809-0164HE shown.

## Twinnabar Cyclonic – Low Volume, Low Solvent Load

The Twinnabar spray chamber is a low volume spray chamber with a central transfer tube (or baffle), combining the benefits of the Twister and the Cinnabar. It combines excellent precision with a very fast washout.

- Material: Borosilicate glass
- Volume: 20mL
- Physical reproducibility ~1%
- Low RSDs due to highly accurate construction
- Application uptake range 20 to 400  $\mu$ L/min

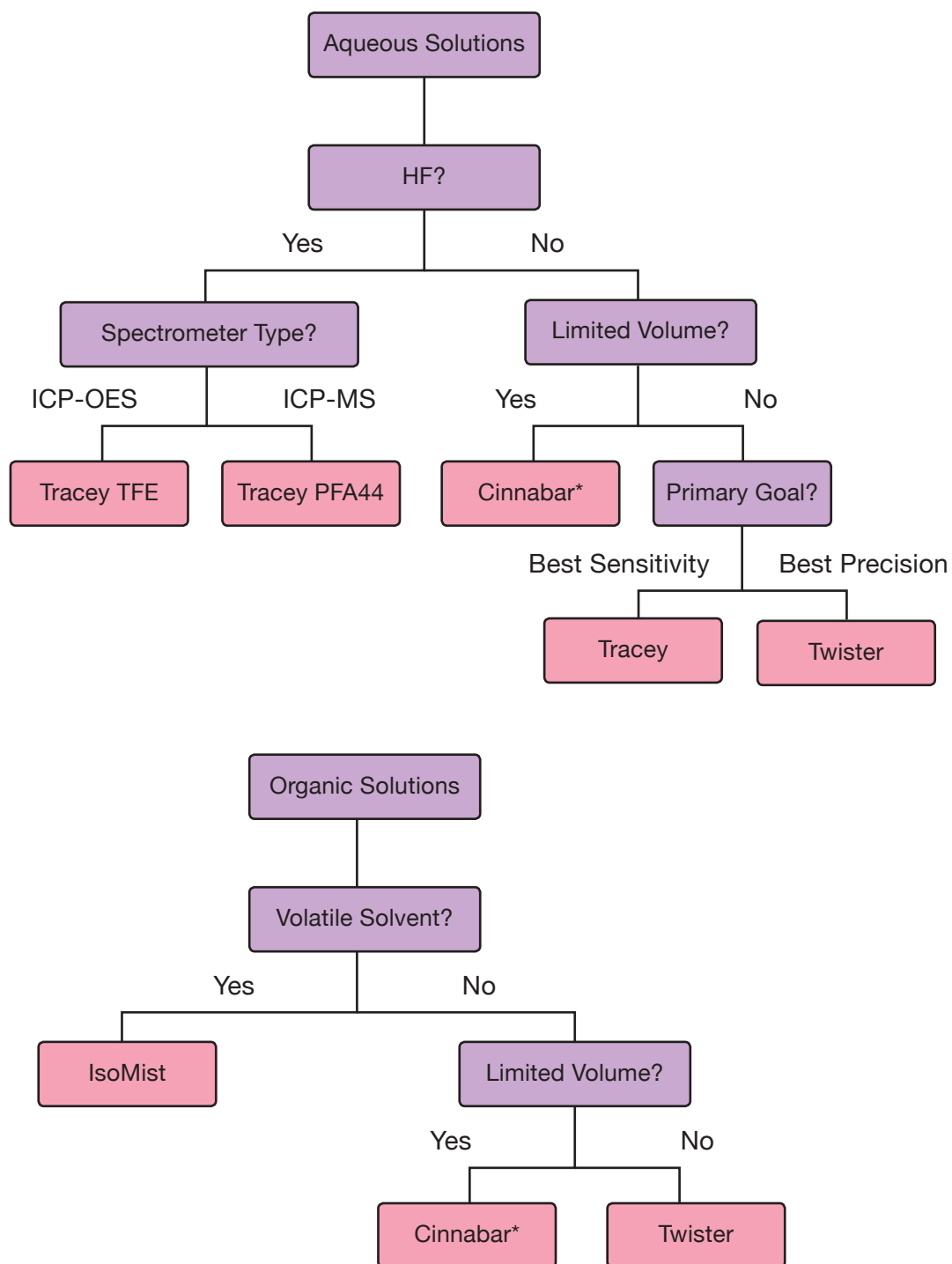


Twinnabar spray chamber  
P/N 20-809-0261HE shown.

## UniFit Drain Connector

For your convenience and safety, each Glass Expansion spray chamber with standard 4mm drain tube is supplied with a UniFit connector P/N UFT-075. The UniFit connector efficiently connects a 0.75mm ID x 1.3mm OD drain tube to the spray chamber.





\*The Cinnabar spray chambers also provide a faster washout.

# NEBULIZER ADAPTORS FOR SPRAY CHAMBERS

## Replacement Parts for Spray Chambers with Helix

All glass spray chambers with HE at the end of the part number and all Tracey TFE and Tracey PFA44 HF-resistant spray chambers are supplied with Helix. Replacement Helix Seals P/N 70-100-0237 (pack of 4) and Helix Locking Screw P/N 70-100-0152 are available.



Twister spray chamber with Helix  
P/N 20-809-0285HE shown.



Tracey TFE spray chamber with  
Helix P/N 20-809-2506 shown.



Helix Seal  
P/N 70-100-0237.



Helix Locking Screw  
P/N 70-100-0152.

## Replacement Nebulizer Adaptors for Glass Spray Chambers with O-Ring Seal

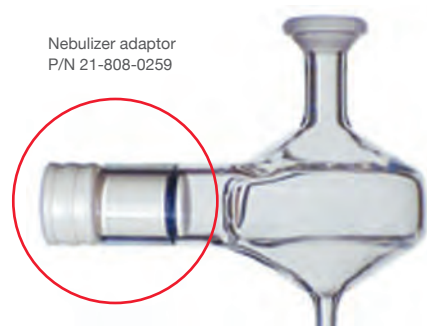
Glass Tracey and Twister spray chambers with O-Ring seal come standard with nebulizer adaptor P/N 21-808-0256.

Glass Cinnabar and Twinnabar spray chambers with O-Ring seal come standard with nebulizer adaptor P/N 21-808-0259.



Nebulizer adaptor  
P/N 21-808-0256

Tracey spray chamber  
P/N 20-809-0224 shown.



Nebulizer adaptor  
P/N 21-808-0259

Cinnabar spray chamber  
P/N 20-809-0164 shown.

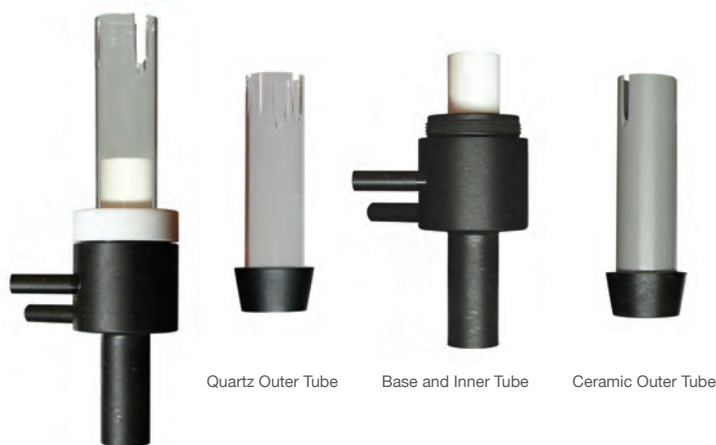
## D-Torch\* Demountable Torch

The D-Torch is a revolutionary new demountable torch design. It provides the benefits of a fully demountable torch at a significantly lower cost. Interchangeable outer tubes made of quartz or ceramic are available. The quartz tube is ideal for most aqueous applications and, since the outer tube is usually the first to wear, you can make a significant saving by replacing just the outer tube rather than the whole torch. The ceramic outer tube is of particular benefit for the analysis of samples with high salt content or wear metals in engine oils, where quartz outer tubes often suffer from short lifetime. The ceramic outer tube has a much longer lifetime, greatly reducing interruptions and downtime due to torch failure. The D-Torch uses the same mounting system as the standard fixed torch so there is no additional cost or complexity to install it.

- Demountable outer tube – why replace the entire torch when just the outer tube wears?
- Interchangeable quartz and ceramic outer tubes.
- Much lower cost than other demountable torches.
- Interchangeable injectors for aqueous, organics, high dissolved solids or HF applications.

Please contact enquiries@geicp.com for information on the availability of the D-Torch for your ICP.

\* The D-Torch is covered by US Patent 7,847,210 B2



## Semi Demountable Torches

- Highly accurate construction
- Lower running costs than 1-piece torches

Usually comprises a quartz torch body, a torch adaptor, an injector and GazFit connectors. All these parts are replaceable, making the semi demountable torch more cost effective than the fixed quartz torch.

Essentially the design of the torch for standard analyses and HF analyses is the same, with the exception of the injector material. The torch for aqueous and organics analyses comes with a quartz injector, while the torch for HF analyses comes with an alumina injector. Hence simply interchange between quartz and alumina injectors for appropriate analyses. Several internal diameters for both quartz and alumina injectors are available.

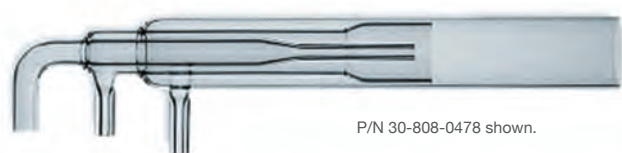
## Fixed Quartz Torches (One Piece)

- Precise quartz construction
- Wide range held in stock
- High dimensional accuracy
- Supported by Glass Expansion expertise

## GazFit Connectors

Now there's a better way to connect argon tubes. GazFit connectors provide reliable attachment of argon tubes without adhesion. Available to suit torches with 4mm, 5mm, 6mm and 8mm OD side arms.

Note: GazFit connectors are only suitable for torches with tolerances of no more than +/- 0.15mm on the diameter of the side arms. All Glass Expansion torches meet this specification.



# RF COILS – MORE EFFICIENT ENERGY TRANSFER

## Why Change Your RF Coil?

- Regular replacement of corroded coils reduces the load on the RF generating system.
- Changing corroded coils increases energy transfer, resulting in a more robust plasma and generally higher analytical line intensities.



P/N 70-900-1000G shown.

## Advantages of Glass Expansion RF Coils

- High quality and consistent plating of our coils promotes extended coil life.
- Each coil is supplied on a plastic former ensuring correct dimensions and easier installation.
- Each coil is supplied in a special protective container to ensure correct dimensions are maintained, and the coil arrives corrosion free.
- Correct alignment of the RF Coil with respect to the torch body reduces devitrification of the outer tube.
- Reusable alignment tools ensure correct installation every time. Our CD with Do-it-yourself instructions saves time.

## The Role of the RF Coil

The RF Coil is a critical component in the electrical system used to generate an argon plasma. There are three factors affecting the role of the RF Coil in transferring energy:

- Concentricity and alignment – these are very important in producing a correctly shaped plasma. The Glass Expansion RF Coil installation tools make this possible every time.
- Correct dimensions – being part of the RF system, the coil dimensions are important in the tuning of the circuit. Slight changes in dimensions can produce small changes in resistance or inductance and are normally compensated for in the tuning circuitry of the system.
- Base metal/plating – the most efficient conductor of RF energy is pure silver followed by annealed copper. There is very little difference in the conductivity of these materials, however there is a great deal of difference in cost. Copper is used as the base material of all commercially available coils but different manufacturers use different plating materials. Silver has the best conductance and gold the best corrosion resistance.

The main problem with an RF Coil is corrosion, whether from heat or chemical oxidation. Corrosion reduces the conductivity of the coil, reducing the efficiency of energy transfer to the plasma and increasing the stress applied to other components in the RF generating system.



Copper, Silver and Gold RF Coils.

If heat is the biggest problem then the best way to deal with this is to use a coil that is plated in a highly reflective material such as silver. Silver plating however does produce a tarnish appearance after a period of use. To obtain the best life out of a coil in this situation, the coil should be cleaned frequently with a tarnish remover. This will eventually lead to the removal of the silver plating but if the tarnish is not removed excessive heat can build up, leading to the plating flaking away from the copper tubing.

Chemical corrosion is best dealt with using a gold-plated coil. The plating process is critical in the performance of the coil. Gold plating can produce a porous coating, which allows a chemical attack on the copper tubing, thereby rendering the plating useless. The plating process used in the production of the Glass Expansion gold plated coils is designed to remove the porous effect yet still maintain the high purity plating. For even better corrosion resistance, Glass Expansion can supply Teflon-coated coils for some models.

Periodic cleaning of your coil will extend the lifetime and produce a more consistent plasma. It will also reduce stress on the RF generator.

## Glass Expansion Installation Kits for RF Coils

### Save the cost of a service call

- Incorrect alignment of the torch in the coil will dramatically reduce torch life. The Glass Expansion Installation Kits help ensure correct alignment and maximum torch life.
- Correct alignment of the RF Coil with respect to the torch body reduces devitrification of the outer tube.
- Re-usable alignment tools are available separately to ensure correct installation of the coil every time.
- Our easy to follow Do-It-Yourself installation instructions save you time, and the cost of a service call.

All kits contain:

- An Installation Kit – Aligns coil to torch mounting bracket.
- Required Spanner/s – Designed specifically for each instrument.
- CD with Do-It-Yourself instructions.





## The Assist syringe-driven sample introduction system

Assists you with faster throughput

Assists you with improved accuracy

Assists you with better precision



The Assist is an automated sample introduction system for ICP-OES or ICP-MS. It consists of purpose-built programmable syringe drives with an integrated valve system. The Assist delivers the highest level of accuracy, stability and sample throughput by controlling the delivery of both sample and internal standard or diluent, eliminating the inaccuracies and pulsations caused by peristaltic pumps. The Assist provides you with:

**Twice the sample throughput.** The rinse time, stabilization time and the time for the sample to move from the autosampler to the nebulizer are all reduced. This reduces the time for a typical analysis by at least half.

**Better precision.** The sample is delivered by a precisely controlled syringe, eliminating the signal pulsation problem which occurs with the usual peristaltic pump delivery system.

**Better accuracy.** The internal standard is delivered by a second precision syringe drive, ensuring that the ratio of internal standard to sample is accurately maintained. The fluctuations in this ratio that occur when the internal standard is delivered by peristaltic pump are eliminated, greatly improving the analytical accuracy.

**Automatic dilution.** The second syringe drive can also be used to deliver a diluent, enabling accurate dilution by a factor of up to 20:1 to be carried out automatically.

**Reduced carryover.** The sample does not contact any peristaltic pump tubing and the sample path is totally inert. This allows for a faster rinse and reduces carryover.

**Low sample and internal standard usage.** The volumes required are substantially reduced, resulting in lower cost of reagents and less wastage.

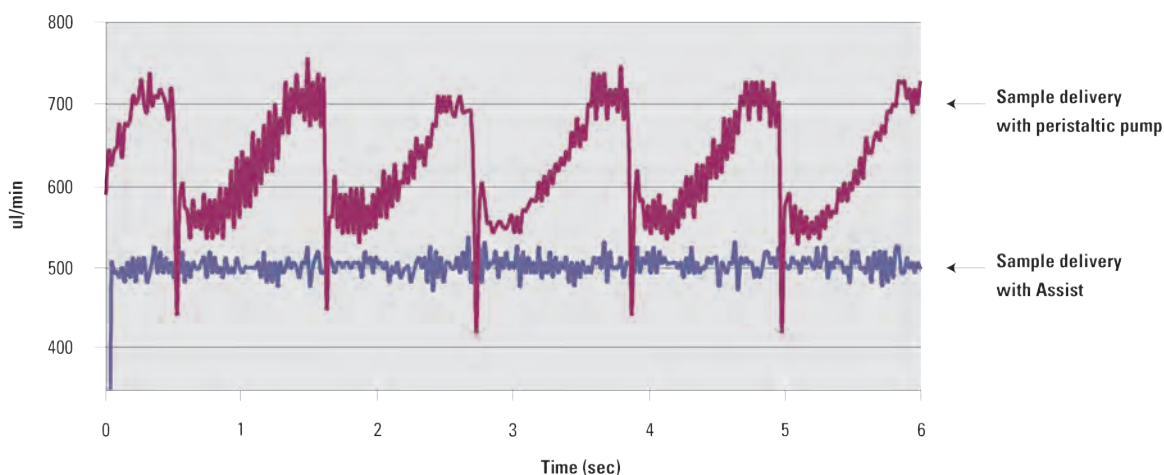
**Flexibility in the selection of the ratio of sample to internal standard.** The syringe system allows you to use sample to internal standard ratios of up to 20:1 and still get accurate correction.

**Longer life of consumables.** The lower sample volume and reduced analysis time mean that you save on consumables such as torches and ICP-MS cones as well as argon.

**Compatibility.** The Assist software is configured to operate with almost all models of ICP-MS, ICP-OES and autosampler.

### Assist Packages

Assist Premium Package (2 syringe units)	KT-1076
Assist Basic Package (1 syringe unit)	KT-1100
Assist Oils Package (3 syringe units)	KT-1095



### Configured to suit your application

The Assist is a modular system of syringe drives and switching valves and it can be configured to suit specific applications.

**Premium Package.** This is the most common system and is the system described above. It incorporates two syringe drives and a Niagara switching valve. It provides for the inline delivery and mixing of the sample and internal standard or diluent. P/N KT-1076

**Basic Package.** This system is used when inline delivery of internal standard or diluent is not required. It incorporates a single syringe drive and a Niagara switching valve. It provides all of the benefits listed above with the exception of those relating to delivery of internal standard or diluent. P/N KT-1100

**Oils Package.** This system is configured specifically for the analysis of wear metals in raw (undiluted) lubricating oils. It incorporates three syringe drives and a Niagara switching valve. It takes a sample of the oil, mixes it with a diluent such as kerosene and precisely delivers the diluted oil to the ICP spectrometer. It eliminates the need for manual dilutions and increases the speed of analysis. P/N KT-1095

# ISOMIST



## IsoMist Programmable Temperature Spray Chamber

### The Ultimate Spray Chamber for ICP-MS and ICP-OES

The IsoMist Programmable Temperature Spray Chamber, provides the benefits of a temperature-controlled ICP sample introduction system in a compact, convenient package.

### Peltier Effect Temperature Control

The temperature is electronically controlled using a powerful inbuilt Peltier device. You can select any temperature between  $-10^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$  in  $1^{\circ}\text{C}$  increments to provide the optimum conditions for any application. The rapid response of the Peltier device allows a spray chamber temperature of  $-5^{\circ}\text{C}$  to be reached within 15 minutes.

### Versatile Computer Interface

For maximum convenience, the IsoMist can be controlled from your PC via a Bluetooth® wireless interface or a standard USB network connection. The spray chamber temperature can be monitored through a temperature versus time plot on your PC screen. And, for regulatory compliance, the temperature versus time data file can be saved with your results. If these features are not required, once the temperature has been programmed, the IsoMist can be run in stand-alone mode without a PC connection.

### Reduced Oxide Interferences in ICP-MS

By introducing the sample at low temperature, the IsoMist reduces oxide levels, resulting in fewer interferences and improved detection limits.

### Perfect for Volatile Organics

The temperature can be set as low as  $-10^{\circ}\text{C}$  to reduce the solvent load on the plasma and allow the straightforward ICP-MS or ICP-OES analysis of even the most volatile organic solvents.

### Constant Temperature Improves Stability

By holding the spray chamber at a constant temperature, the IsoMist significantly improves long-term signal stability, increasing the likelihood of calibration checks passing.

### Heating Mode Enhances Sensitivity

The sensitivity for many applications is enhanced by running the spray chamber at an elevated temperature, a feature that is particularly important for samples with limited volume.

### Proven Cyclonic Spray Chamber

The IsoMist incorporates the proven Twister cyclonic spray chamber, combining excellent sensitivity and precision with exceptionally fast washout. The Helix nebulizer interface has zero dead volume and provides for convenient nebulizer insertion and removal. This system is compatible with the full range of Glass Expansion nebulizers.

### Completely Self-Contained Ergonomic Package

The compact design includes a rugged, low maintenance, chemically-resistant polypropylene housing. It provides a much more convenient alternative to a jacketed spray chamber with an external chiller because it does not require an external source of coolant. It is compatible with almost all ICP-MS and ICP-OES models.

### Optional PFA and Quartz Spray Chambers



The IsoMist can be used with PFA or quartz spray chambers in addition to the standard glass Twister spray chamber. Please contact enquiries@geicp.com for information on a suitable PFA or quartz spray chamber for your IsoMist.

The IsoMist can also be ordered with a PFA or quartz spray chamber installed in place of the standard glass spray chamber. Simple add a "P" for PFA or a "Q" for quartz to the part number for the standard kit, eg. KT-1010P for PFA or KT-1010Q for quartz.

### Ordering Information

We have established an IsoMist Kit for common ICP-OES and ICP-MS models. Each kit contains the IsoMist module, encapsulated Twister spray chamber, torch interface and mounting bracket (if required). Please select the kit to match your ICP from the following:

### IsoMist Programmable Temperature Spray Chamber Kits

Please email us at enquiries@geicp.com if your model is not listed.

IsoMist	
IsoMist Kit for Agilent 7500	KT-1010
IsoMist Kit for Agilent 7700	KT-1103
IsoMist Kit for Agilent 4500	KT-1053
IsoMist Kit for Agilent (Varian) 700-ES or Vista Axial	KT-1014
IsoMist Kit for Agilent (Varian) 700-ES or Vista Radial	KT-1022
IsoMist Kit for Agilent (Varian) 700-ES or Vista Axial All Glass System	KT-1054
IsoMist Kit for Agilent (Varian) 700-ES or Vista Radial All Glass System	KT-1055
IsoMist Kit for Bruker (Varian) 800-MS	KT-1017
IsoMist Kit for GBC OptiMass	KT-1042
IsoMist Kit for Horiba Jobin Yvon	KT-1064
IsoMist Kit for PerkinElmer Optima 4300/5300/7300V	KT-1011
IsoMist Kit for PerkinElmer Optima 2000/4000/5000/7000DV	KT-1012
IsoMist Kit for PerkinElmer Optima 3000 Axial/DV	KT-1063
IsoMist Kit for PerkinElmer NexION 300	KT-1096
IsoMist Kit for PerkinElmer Elan	KT-1013
IsoMist Kit for Shimadzu	KT-1067
IsoMist Kit for Thermo iCAP 6000 Duo	KT-1015
IsoMist Kit for Thermo iCAP 6000 Radial	KT-1021
IsoMist Kit for Thermo Iris Axial/Duo	KT-1018
IsoMist Kit for Thermo Iris Radial	KT-1058
IsoMist Kit for Thermo Finnigan Element	KT-1020
IsoMist Kit for Thermo (VG) PlasmaQuad	KT-1023
IsoMist Kit for Thermo X Series	KT-1025
IsoMist Basic Kit ROL	KT-1024
IsoMist Basic Kit LOL	KT-1027
IsoMist Basic Kit EROL (for Spectro)	KT-1029

## TruFlo Sample Monitor

Eliminates guesswork

Reduces sample repeats

Sounds out-of-range alarm

Is suitable for all ICP-OES and ICP-MS models



### TruFlo Sample Monitor

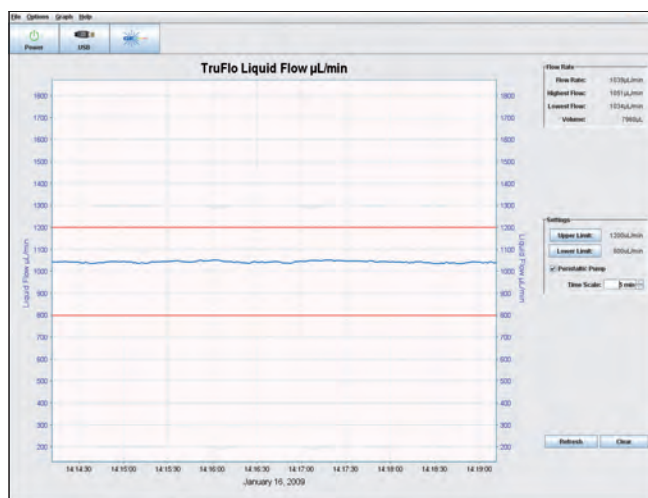
TruFlo Sample Monitor 0-4mL/min	70-803-0643
TruFlo Sample Monitor for HF 0-4mL/min	70-803-0890

### Do you ever need to repeat the analysis of a sample due to:

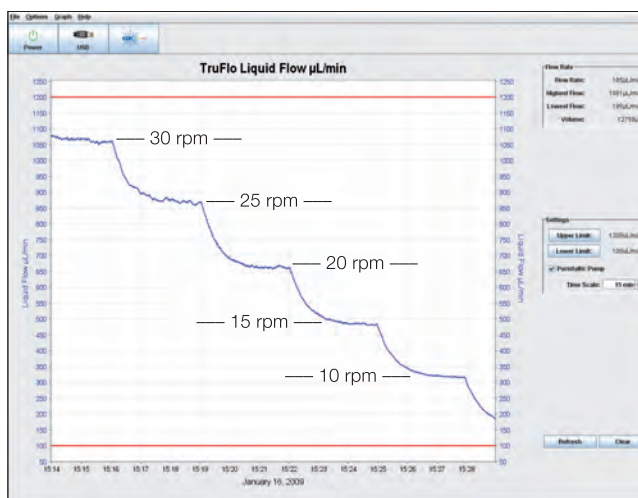
- A blocked nebulizer?
- Worn peristaltic pump tubing?
- Incorrect pressure of the pump tubing clamp?

With the digital display of the TruFlo Sample Monitor, you always know the actual rate of sample uptake to your nebulizer. This enhances the day-to-day reproducibility of your results and reduces the need to repeat measurements due to a blocked nebulizer, worn pump tubing or incorrect clamping of the pump tube. And the borosilicate glass sample path ensures that there is no memory effect or sample contamination. The TruFlo can even sound an alarm if the sample uptake is outside your specified limits.

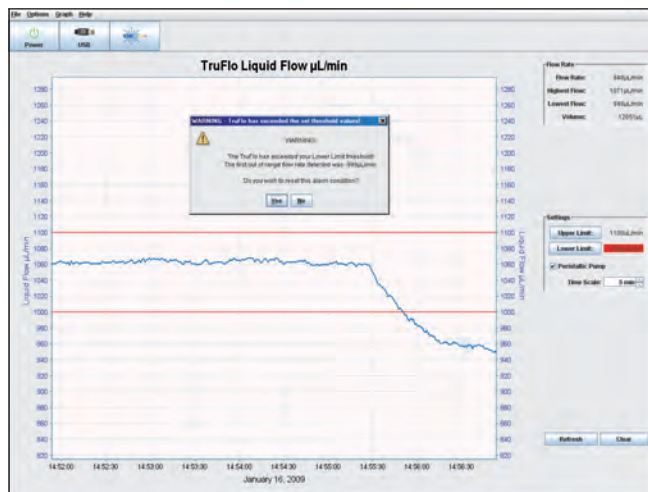
The actual sample flow is shown on the TruFlo's inbuilt digital display and a graph of the flow versus time can also be displayed on your computer.



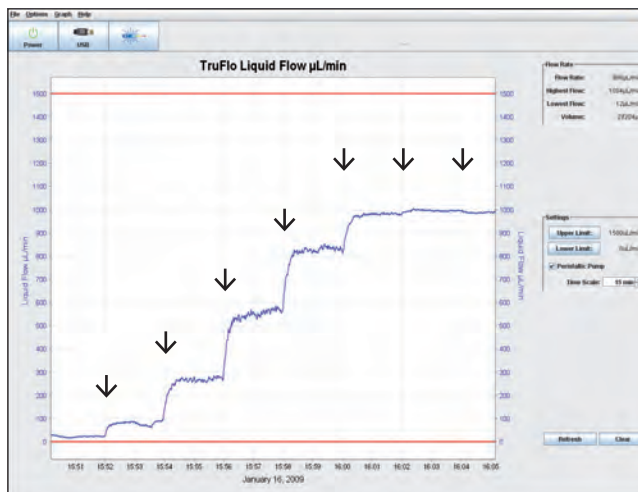
You can set the upper and lower limits of your acceptable sample flow range.



You always know the actual sample flow and you do not need to worry about converting pump revolutions to sample flow.



You receive a warning on the screen, as well as an audible alarm, if the sample flow moves outside the acceptable range.



The realtime flow display enables you to optimise the pressure on the peristaltic pump tubing. The clamp was tightened by ¼ turn at each arrow.

## NIAGARA II

### Niagara II Rapid Rinse Accessory

Most ICP systems incorporate an autosampler. With these systems there is a significant delay between the time when the autosampler probe enters the sample and the time when the sample reaches the nebulizer and further time is lost as the probe moves between sample and rinse. If these delays could be eliminated, the analysis time per sample could be reduced significantly and the sample throughput increased.

#### **This is what the Niagara II Rapid Rinse Accessory achieves.**

The second generation Niagara II provides all of the benefits of the original Niagara in a more compact easier-to-use design. It begins the rinsing of the nebulizer and spray chamber the instant the sample measurement is completed and continues to rinse until the next sample is ready. Thus the rinse is carried out in time that is usually wasted waiting for the sample solution to flow from the autosampler to the nebulizer. The time that is saved is around 30% for a typical analysis. This significantly reduces the cost per sample for busy laboratories such as those analyzing environmental, geochemical and oil samples.

The Niagara II is compatible with most ICP-OES and ICP-MS spectrometers and autosamplers.

#### Niagara II Rapid Rinse Accessory

KT-1073

If you do not have a spare channel for the rinse solution on your peristaltic pump, we can supply a three-channel pump as follows:

#### Peristaltic Pump for Niagara, 3 Channel

70-808-1394



## Niagara Plus

**Halve your operating costs**

**Reduce your environmental footprint**

**Double your sample throughput**

The Niagara Plus uses Flow Injection technology to reduce analysis time, environmental impact and operating cost:

- Lower argon consumption
- Reduced cost of consumables such as torches, cones, RF coils, pump tubing, acids, standards and chemicals
- Lower power consumption
- Reduced stress on RF system and lower maintenance cost
- Less down-time for cleaning carbon from torch when analyzing organics
- Less chemical waste to dispose of

In addition to the cost and environmental benefits, the Niagara Plus delivers a major improvement in analytical performance:

- Twice the sample throughput for a typical analysis
- Half the normal sample volume
- Automatic addition of the internal standard simplifies sample preparation
- Inert sample path reduces carryover – the sample does not contact any peristaltic pump tubing
- Constant flow of solution to the plasma maintains plasma stability and reduces stabilization times
- Compact design easily interfaces to almost all models of ICP-MS and ICP-OES



Niagara II module and positive displacement pump

Niagara Plus	
Niagara Plus	KT-1074

The Niagara Plus requires a 1.0mm ID autosampler probe for optimum performance. Select one of the following probes:

Autosampler Probes	
Teflon Encapsulated Carbon Fibre Probe 1.0mm ID (suitable for Cetac ASX-520)	70-803-0793
Teflon Encapsulated Carbon Fibre Probe 1.0mm ID (suitable for PerkinElmer S-10 or AS-93+)	70-803-0816
Teflon Encapsulated Carbon Fibre Probe 1.0mm ID (suitable for Agilent (Varian) SPS-3 or AIM-3600)	70-803-0853

If your autosampler is not listed here, please contact Glass Expansion at [enquiries@geicp.com](mailto:enquiries@geicp.com).

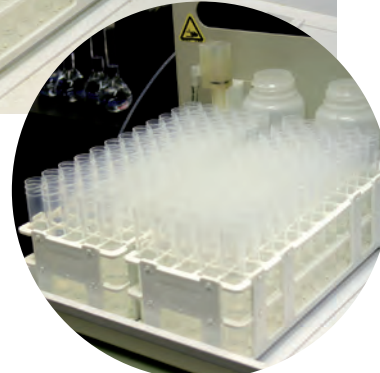
The Niagara Plus package includes:

- Niagara II module
- Positive displacement pump
- Adjustable mounting bracket
- USB to quad serial converter
- All required cables and tubing
- USB memory stick with operating software and instructions

Samples typically analyzed in an hour.



... without Niagara Plus.



... and with Niagara Plus.

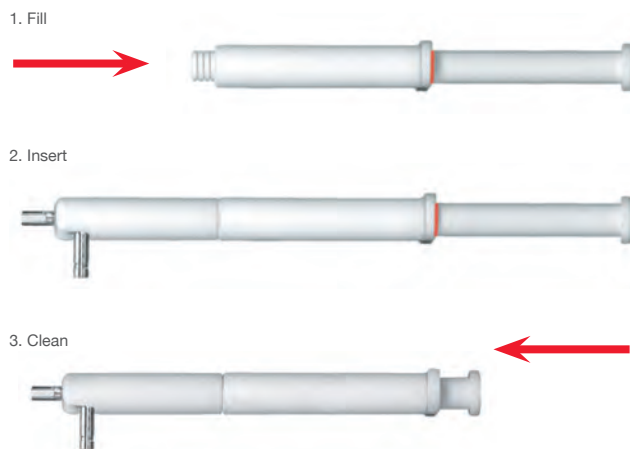
## OTHER ACCESSORIES

### The Eluo Nebulizer Cleaning Tool

Particle build-up in a nebulizer capillary and tip causes sample flow to be constricted, thereby reducing nebulizer efficiency and performance. Previously there was no simple way to effectively clean and unblock nebulizers. Now, blocked nebulizers can be safely and easily restored to optimum performance with a revolutionary cleaning instrument – the Eluo.

The Eluo is designed 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. Cleaning your nebulizer is as easy as 1, 2, 3.

1. Fill your Eluo with Methanol.
2. Insert your nebulizer, tip first, into the Eluo
3. Clean your nebulizer by pressing the Plunger down.



The Eluo is available for Glass Expansion concentric glass and HF-resistant nebulizers.

#### Eluo Nebulizer Cleaning Tool

Eluo Nebulizer Cleaning Tool (glass concentric nebulizers)	70-ELUO
Eluo Nebulizer Cleaning Tool (new OpalMist, PolyCon or DuraMist)	70-ELUO-OPD
Eluo Nebulizer Cleaning Tool (old OpalMist or PolyCon)	70-ELUO-OP
Eluo Plunger	703-0070
Eluo Barrel	703-0058
Eluo Nebulizer Holder (glass concentric nebulizers)	703-0069
Eluo OPD Nebulizer Holder (new OpalMist, PolyCon or DuraMist)	70-803-0932
Eluo OP Nebulizer Holder (old OpalMist or PolyCon)	703-0074
Eluo O-ring Kit (2 sets)	70-0806

### Capricorn Argon Humidifier

The Argon Humidifier is commonly used in ICP analyses involving samples with 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 Glass Expansion Capricorn combines ease of operation, high performance and safety.

- The rugged and durable casing enhances safety.
- The built-in pressure indicator serves as a diagnostic so you always know when the chamber is pressurized.
- An optional easy-to-use bypass toggle allows you to take the Capricorn off-line without disconnecting argon lines.
- Maximum and minimum fill marks ensure that you are always operating under optimum conditions.
- A rugged bubbling frit ensures maximum saturation of the argon.



Capricorn Argon Humidifier without bypass

Capricorn Argon Humidifier with bypass

#### Capricorn Argon Humidifier

Capricorn Argon Humidifier without bypass	70-808-1000
Capricorn Argon Humidifier with bypass	70-808-1226
Capricorn Argon Humidifier with bypass for Spectro	70-803-0518
Capricorn Argon Humidifier with bypass for Agilent (Varian)	70-803-0608
Capricorn Argon Humidifier with bypass for PerkinElmer	70-803-0570
Capricorn Argon Humidifier with bypass for Thermo	70-803-0634

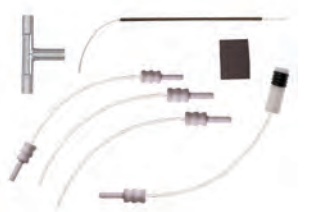
## Trident In-Line Reagent Additions Kits

Internal standards are often used to improve stability. The internal standardization process involves the addition of a known concentration of a particular element to every sample. This can be a very time-consuming procedure. The Glass Expansion Trident Kits allow the internal standard to be automatically mixed with each sample during sample introduction, thus saving considerable sample preparation time.

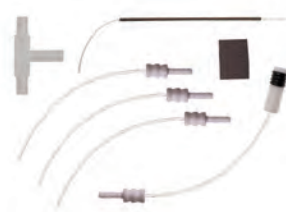
The sample and internal standard are pumped simultaneously using parallel channels of the peristaltic pump and mixed in a glass or polypropylene mixing t-piece. The ratio of internal standard flow to sample flow is set by the ratio of the area of the two peristaltic pump tubes. The pump tubes are usually chosen so that the internal standard flow is around 10% – 20% of the sample flow.

Check the Trident Dilution Factor Calculator on our website to find out the sample and internal standard dilution factors for selected combinations of pump tubing.

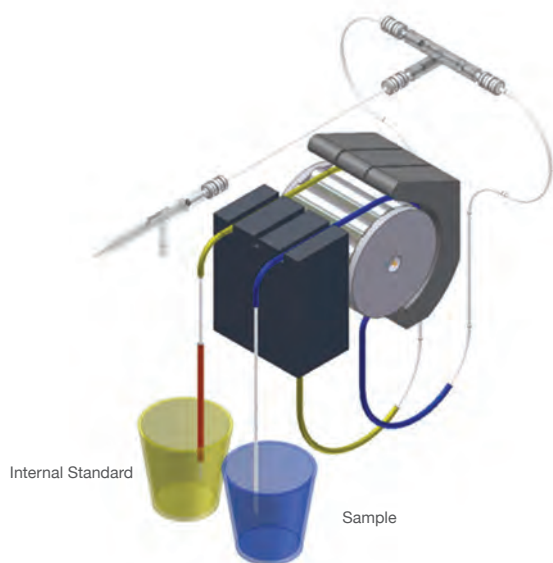
The peristaltic pump tubing is not supplied as part of the Internal Standard Kit but can be ordered separately.



Trident Internal Standard Kit  
60-808-1185



Trident Internal Standard Kit (HF)  
60-808-1150



Internal Standard

Sample

## O-Ring Tool

With older-style spray chambers which incorporate O-Rings, it is common for the O-Rings to bond to the glass making them difficult to remove. The O-Ring Tool makes removal of O-Rings much easier.



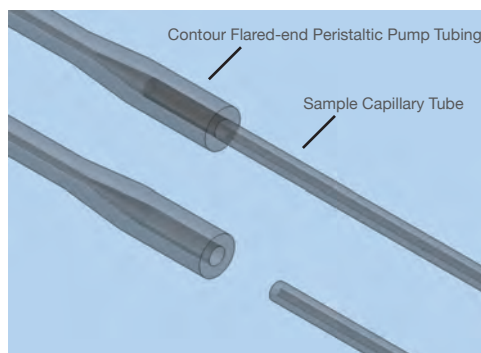
## O-Ring Removal Tool

50-100-1636

## Contour Flared-end Peristaltic Pump Tubing

It can be quite difficult to insert the sample and internal standard capillary tubes into the peristaltic pump tubes. This is particularly so for the internal standard pump tube due to its small ID (usually 0.2 to 0.4mm). To facilitate this connection, Glass Expansion supplies Contour flared-end pump tubing. The flared end of this pump tubing allows larger capillary tubing to be inserted. Gripping paper is supplied with the Internal Standard Kit to enable both tubes to be gripped firmly while they are being joined.

Ordering details for Contour Flared-end Peristaltic Pump Tubing can be found on page 94.



## Safety Gloves



### Safety Gloves

Safety Gloves, Small	SAFEGLOVE-sml
Safety Gloves, Medium	SAFEGLOVE-med
Safety Gloves, Large	SAFEGLOVE-lge

## Safety Glasses



### Safety Glasses

SAFEGLASS

For your protection, always use safety gloves and glasses when handling glass.

## EzyGlide Cloth








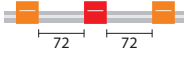

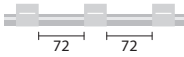

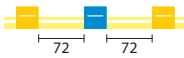

The EzyGlide Cloth is used to lubricate fully demountable torch tubes. Promotes easy insertion / removal of tubes.




EzyGlide Lubricated Cloth 70-EZG-CLOTH

## APPLICATION PACKAGES

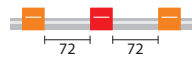
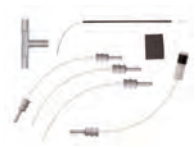
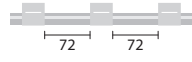

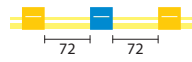
Animal feed, Chemicals and fertilizers, Clinical and forensic materials, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge



<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>AT1002-Ni</b> Nickel Skimmer Cone for 4500/7500a</p>	
<p><b>KT-1010</b> IsoMist Kit for Agilent 7500</p>		<p><b>AT1002C-Ni</b> Nickel Skimmer Cone - 7500c</p>	
<p><b>30-807-0542</b> Quartz Torch with 2.5mm Injector for Agilent 7500, 2 Projections, HMI Compatible</p>		<p><b>AT1002CE-Ni</b> Nickel Skimmer Cone - 7500ce</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>70-900-7500S</b> RF Coil Silver for Agilent 7500</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
<p><b>AT1001-Ni</b> Nickel Sampler Cone for Agilent 4500/7500</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

### Brines and salts

<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500</p>	
<p><b>KT-1010</b> IsoMist Kit for Agilent 7500</p>		<p><b>AT1006-Pt</b> Platinum Sampler Cone for Agilent 4500/7500 (10mm insert)</p>	
<p><b>30-807-0542</b> Quartz Torch with 2.5mm Injector for Agilent 7500, 2 Projections, HMI Compatible</p>		<p><b>AT1008-Pt</b> Platinum Skimmer Cone for Agilent 4500/7500</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>AT1008C-Pt</b> Platinum Skimmer Cone - 7500c</p>	
<p><b>70-900-7500G</b> RF Coil Gold for Agilent 7500</p>		<p><b>AT1008CS-Pt</b> Platinum Skimmer Cone, Copper Base - 7500cs, 7500ce</p>	



Brines and salts (continued)			
<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	
<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>		<p><b>70-808-1226</b> Capricorn Argon Humidifier with bypass</p>	
<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>			

Geological with HF, Soil and sediment with HF			
<p><b>ARG-1-PFA04X</b> OpalMist Nebulizer 0.4mL/min</p>		<p><b>AT1008-Pt</b> Platinum Skimmer Cone for Agilent 4500/7500</p>	
<p><b>KT-1010P</b> IsoMist Kit with PFA Spray Chamber for Agilent 7500</p>		<p><b>AT1008C-Pt</b> Platinum Skimmer Cone - 7500c</p>	
<p><b>30-808-3069</b> Semi Demountable Torch with Alumina Injector for Agilent 4500/7500</p>		<p><b>AT1008CS-Pt</b> Platinum Skimmer Cone, Copper Base - 7500cs, 7500ce</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>70-900-7500G</b> RF Coil Gold for Agilent 7500</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
<p><b>AT1006-Pt</b> Platinum Sampler Cone for Agilent 4500/7500 (10mm insert)</p>		<p><b>60-808-1150</b> Trident Internal Standard Kit for HF solutions</p>	

Isotopic Analysis of Minerals			
<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>30-807-0542</b> Quartz Torch with 2.5mm Injector for Agilent 7500, 2 Projections, HMI Compatible</p>	
<p><b>KT-1010</b> IsoMist Kit for Agilent 7500</p>		<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>	
		<p><b>70-900-7500G</b> RF Coil Gold for Agilent 7500</p>	

## APPLICATION PACKAGES



Isotopic Analysis of Minerals (continued)			
<p><b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500</p> 	<p><b>AT1008CS-Pt</b> Platinum Skimmer Cone, Copper Base - 7500cs, 7500ce</p> 		
<p><b>AT1006-Pt</b> Platinum Sampler Cone for Agilent 4500/7500 (10mm insert)</p> 	<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p> 		
<p><b>AT1008-Pt</b> Platinum Skimmer Cone for Agilent 4500/7500</p> 	<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p> 		
<p><b>AT1008C-Pt</b> Platinum Skimmer Cone - 7500c</p> 	<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p> 		
	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 		

Petrochemicals			
<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p> 	<p><b>AT1001-Ni</b> Nickel Sampler Cone for Agilent 4500/7500</p> 		
<p><b>KT-1010</b> IsoMist Kit for Agilent 7500</p> 	<p><b>AT1002-Ni</b> Nickel Skimmer Cone for 4500/7500a</p> 		
<p><b>30-807-0516</b> Quartz Torch with 1.0mm Injector for Agilent7500</p> 	<p><b>AT1002C-Ni</b> Nickel Skimmer Cone - 7500c</p> 		
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p> 	<p><b>AT1002CE-Ni</b> Nickel Skimmer Cone - 7500ce</p> 		
<p><b>70-900-7500S</b> RF Coil Silver for Agilent 7500</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 		
<p><b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500</p> 			

Semiconductors			
<p><b>ARG-1-PFA04X</b> OpalMist Nebulizer 0.4mL/min</p> 	<p><b>30-808-3068</b> Semi Demountable Torch for Agilent 4500/7500</p> 		
<p><b>KT-1010P</b> IsoMist Kit with PFA Spray Chamber for Agilent 7500</p> 	<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p> 		
	<p><b>31-808-2580</b> Sapphire Injector 2.4mm</p> 		

Semiconductors (continued)			
<b>70-900-7500S</b> RF Coil Silver for Agilent 7500		<b>AT1008CS-Pt</b> Platinum Skimmer Cone, Copper Base - 7500cs, 7500ce	
<b>70-900-7500T</b> RF Coil Installation Tool for Agilent 7500		<b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)	
<b>AT1006-Pt</b> Platinum Sampler Cone for Agilent 4500/7500 (10mm insert)		<b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)	
<b>AT1008-Pt</b> Platinum Skimmer Cone for Agilent 4500/7500		<b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)	
<b>AT1008C-Pt</b> Platinum Skimmer Cone - 7500c		<b>60-808-1185</b> Trident Internal Standard Kit	

## PRODUCT LIST

Nebulizers		
<b>SeaSpray</b>		
400µl/min uptake	ARG-1-USS04X	
<b>MicroMist</b>		
400µl/min uptake	ARG-1-UM04X	
200µL/min uptake	ARG-1-UM02X	
100µl/min uptake	ARG-1-UM01Q	
50µl/min uptake	ARG-1-UM005Q	
<b>OpalMist</b>		
400µl/min uptake	ARG-1-PFA04X	
200µl/min uptake	ARG-1-PFA02X	
100µl/min uptake	ARG-1-PFA01Q	
50µl/min uptake	ARG-1-PFA005Q	







IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b>	
IsoMist Kit for Agilent 7500	KT-1010






Spray Chambers		
<b>Twister with Aux. Port</b>		
50mL Cyclonic	20-809-2574HE	
Requires adaptor kit KT-1006.		
<b>Tracey PFA44 with Aux. Port</b>		
44mL Cyclonic	20-809-2578	
Suitable for use with HF. Requires adaptor kit KT-1006.		
<b>Adaptor Kit</b>		
Adaptor Kit	KT-1006	

Torches		
<b>Semi Demountable Torch</b>		
	30-808-3068	
<b>Comprises:</b>		
Torch Body, Quartz	31-808-3051	
Torch Adaptor	31-808-3067	
Tapered Quartz Injector 2.4mm	31-808-0773	
GazFit Connectors (PKT 4)	GAZ-0604	

## PRODUCT LIST

Torches (continued)		
<b>Fixed Torch for 7500</b>		
Quartz Torch, 2.5mm Injector, 2 Projections, HMI compatible	30-807-0542	
Standard Quartz Torch, 2.5mm Injector	30-808-0816	
Standard Quartz Torch, 1.5mm Injector	30-808-1211	
Standard Quartz Torch, 1.0mm Injector	30-807-0516	
<b>Quartz Injectors For Semi Demountable Torch</b>		
Tapered Quartz Injector 1.5mm	31-808-0771	
Tapered Quartz Injector 1.8mm	31-808-0772	
Tapered Quartz Injector 2.4mm	31-808-0773	
Capillary Quartz Injector 4.0mm	31-808-2502	
<b>Bonnet</b>		
Quartz Torch Bonnet	31-808-2577	
<b>Connector</b>		
Quartz Connector	31-808-2799	
<b>Semi Demountable Torch with Alumina Injector</b>		
	30-808-3069	
<b>Comprises:</b>		
Torch Body, Quartz	31-808-3051	
Torch Adaptor	31-808-3067	
Tapered Alumina Injector 2.4mm	31-808-0776	
GazFit Connectors (PKT 4)	GAZ-0604	
<b>HF-resistant Injectors for Semi Demountable Torch</b>		
Tapered Alumina Injector 1.5mm	31-808-0774	
Tapered Alumina Injector 1.8mm	31-808-0775	
Tapered Alumina Injector 2.4mm	31-808-0776	
Sapphire Injector 2.4mm	31-808-2580	

RF Coils		
<b>RF Coil</b>		
Gold	70-900-7500G	
<b>RF Coil</b>		
Silver	70-900-7500S	

RF Coils (continued)		
<b>Installation Kit</b>		
Installation Kit	70-900-7500T	




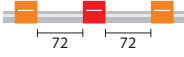

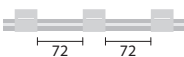


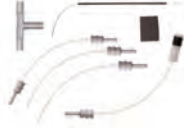


Cones		
<b>Nickel Sampler</b>		
(Agilent p/n G1820-65238)	AT1001-Ni	
<b>Nickel Skimmer - 4500, 7500a</b>		
(Agilent p/n G1820-65265, G1820-65050)	AT1002-Ni	
<b>Platinum Sampler, 10mm Insert</b>		
(Agilent p/n G1820-65239)	AT1006-Pt	
<b>Platinum Skimmer</b>		
(Agilent p/n G1820-65237)	AT1008-Pt	
<b>Nickel Skimmer - 7500c</b>		
(Agilent p/n G1833-65497)	AT1002C-Ni	
<b>Platinum Skimmer - 7500c</b>		
(Agilent p/n G1833-65092)	AT1008C-Pt	
<b>Nickel Sampler - T-mode</b>		
(Agilent p/n G1820-65480)	AT1001T-Ni	
<b>Nickel Skimmer - T-mode</b>		
(Agilent p/n G1820-65481)	AT1002T-Ni	
<b>Nickel Skimmer - 7500ce</b>		
(Agilent p/n G3270-65024)	AT1002CE-Ni	
<b>Platinum Skimmer, Copper Base - 7500cs, 7500ce</b>		
(Agilent p/n G1883-65132)	AT1008CS-Pt	
<b>Long Life Shield Plate, 7500/7700</b>		
(Agilent p/n G1833-65419)	AT5004	
<b>Platinum Skimmer, Nickel Base, 7500cs, 7500ce</b>		
(Agilent p/n G3270-60106)	AT1008CS-Pt/Ni	

## APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Clinical and forensic materials, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>AT7702S-Ni</b> Nickel Skimmer Cone for Agilent 7700s</p>	
<p><b>KT-1103</b> IsoMist Kit for Agilent 7700</p>		<p><b>AT7702X-Ni</b> Nickel Skimmer Cone for Agilent 7700x</p>	
<p><b>30-807-0556</b> Quartz Torch with 2.5mm Injector for Agilent 7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>AT7701-Ni</b> Nickel Sampler Cone for Agilent 7700</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

### Brines and salts






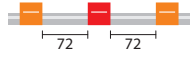

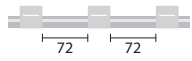
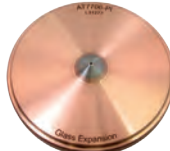
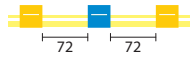

<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>AT7708X-Pt</b> Platinum Skimmer Cone for Agilent 7700x</p>	
<p><b>KT-1103</b> IsoMist Kit for Agilent 7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>30-807-0556</b> Quartz Torch with 2.5mm Injector for Agilent 7700</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
<p><b>AT7706-Pt</b> Platinum Sampler Cone for Agilent 7700</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	
<p><b>AT7708S-Pt</b> Platinum Skimmer Cone for Agilent 7700s</p>		<p><b>70-808-1226</b> Capricorn Argon Humidifier with bypass</p>	

## APPLICATION PACKAGES

Geological with HF, Soil and sediment with HF			
<p><b>ARG-1-PFA04X</b> OpalMist Nebulizer 0.4mL/min</p>		<p><b>AT7708X-Pt</b> Platinum Skimmer Cone for Agilent 7700x</p>	
<p><b>KT-1103P</b> IsoMist Kit with PFA Spray Chamber for Agilent 7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>AT7706-Pt</b> Platinum Sampler Cone for Agilent 7700</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
<p><b>AT7708S-Pt</b> Platinum Skimmer Cone for Agilent 7700s</p>		<p><b>60-808-1150</b> Trident Internal Standard Kit for HF solutions</p>	

Isotopic Analysis of Minerals			
<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>AT7708S-Pt</b> Platinum Skimmer Cone for Agilent 7700s</p>	
<p><b>KT-1103</b> IsoMist Kit for Agilent 7700</p>		<p><b>AT7708X-Pt</b> Platinum Skimmer Cone for Agilent 7700x</p>	
<p><b>30-807-0556</b> Quartz Torch with 2.5mm Injector for Agilent 7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>AT7706-Pt</b> Platinum Sampler Cone for Agilent 7700</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

Petrochemicals			
<p><b>ARG-1-USS04X</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>AT7701-Ni</b> Nickel Sampler Cone for Agilent 7700</p>	
<p><b>KT-1103</b> IsoMist Kit for Agilent 7700</p>		<p><b>AT7702S-Ni</b> Nickel Skimmer Cone for Agilent 7700s</p>	
<p><b>30-807-0558</b> Quartz Torch with 1.0mm Injector for Agilent 7700</p>		<p><b>AT7702X-Ni</b> Nickel Skimmer Cone for Agilent 7700x</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

Semiconductors			
<p><b>ARG-1-PFA04X</b> OpalMist Nebulizer 0.4mL/min</p>		<p><b>AT7708S-Pt</b> Platinum Skimmer Cone for Agilent 7700s</p>	
<p><b>KT-1103P</b> IsoMist Kit with PFA Spray Chamber for Agilent 7700</p>		<p><b>AT7708X-Pt</b> Platinum Skimmer Cone for Agilent 7700x</p>	
<p><b>30-807-0556</b> Quartz Torch with 2.5mm Injector for Agilent 7700</p>		<p><b>0.19-OR3B-F</b> Contour Flared End PVC Pump Tube 3tag 0.19mm ID Orange/Red (PKT 6)</p>	
<p><b>31-808-2577</b> Quartz Torch Bonnet for Agilent 7500/7700</p>		<p><b>1.02-WHT3B-F</b> Contour Flared End PVC Pump Tube 3tag 1.02mm ID White/White (PKT 6)</p>	
<p><b>AT7706-Pt</b> Platinum Sampler Cone for Agilent 7700</p>		<p><b>1.52-PH-3</b> PharMed Pump Tube 3tag 1.52mm ID Yellow/Blue (PKT 12)</p>	
		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

## PRODUCT LIST

### Nebulizers

#### SeaSpray

400µl/min uptake      ARG-1-USS04X

#### MicroMist

400µl/min uptake      ARG-1-UM04X

200µL/min uptake      ARG-1-UM02X

100µl/min uptake      ARG-1-UM01Q

50µl/min uptake      ARG-1-UM005Q

#### OpalMist

400µl/min uptake      ARG-1-PFA04X

200µl/min uptake      ARG-1-PFA02X

100µl/min uptake      ARG-1-PFA01Q

50µl/min uptake      ARG-1-PFA005Q



### IsoMist

#### IsoMist Programmable Temperature Spray Chamber

IsoMist Kit for Agilent 7700      KT-1103



### Spray Chambers

#### Twister with Aux. Port

50mL Cyclonic      20-809-2574HE

Requires adaptor kit KT-1104.



#### Tracey PFA44 with Aux. Port

44mL Cyclonic      20-809-2578

Suitable for use with HF. Requires adaptor kit KT-1104.



#### Adaptor Kit

Adaptor Kit for 7700      KT-1104

### Torches

#### Fixed Torch for 7700

Quartz Torch, 2.5mm Injector      30-807-0556

Quartz Torch, 1.5mm Injector      30-807-0557

Quartz Torch, 1.0mm Injector      30-807-0558

#### Bonnet

Quartz Torch Bonnet      31-808-2577



### Cones

#### Nickel Sampler - 7700

(Agilent p/n G3280-67040)      AT7701-Ni



#### Nickel Skimmer - 7700x

(Agilent p/n G3280-67041)      AT7702X-Ni



#### Nickel Skimmer - 7700s

(Agilent p/n G3280-67066)      AT7702S-Ni



#### Nickel Plated Sampler - 7700

(Agilent p/n G3280-67061)      AT7701-Ni/Ni



#### Platinum Sampler - 7700

(Agilent p/n G3280-67036)      AT7706-Pt



#### Platinum Sampler - 7700 (18mm insert)

(Agilent p/n G3280-67056)      AT7706A-Pt



#### Copper Skimmer - 7700s

(Agilent p/n G3280-67067)      AT7702S-Cu



#### Platinum Skimmer - 7700x

(Agilent p/n G3280-67060)      AT7708X-Pt



#### Platinum Skimmer with Nickel Base - 7700x

(Agilent p/n G3280-67063)      AT7708X-Pt/Ni



#### Platinum Skimmer - 7700s

(Agilent p/n G3280-67064)      AT7708S-Pt



#### Platinum Skimmer with Nickel Base - 7700s

(Agilent p/n G3280-67065)      AT7708S-Pt/Ni



#### Retaining Ring for Agilent 7700 Sampler Cone

(Agilent p/n G3280-20504)      AT7704



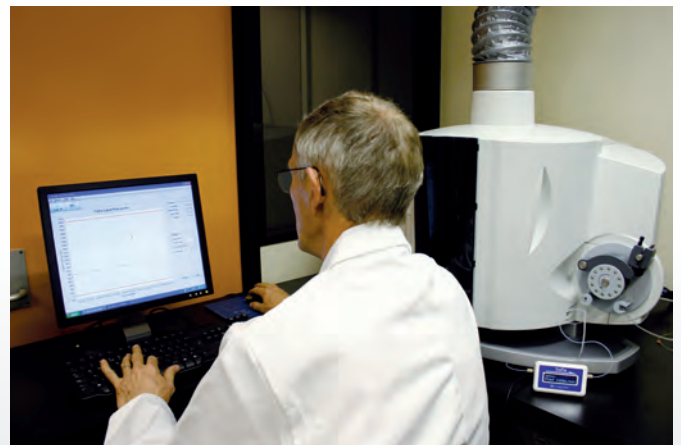
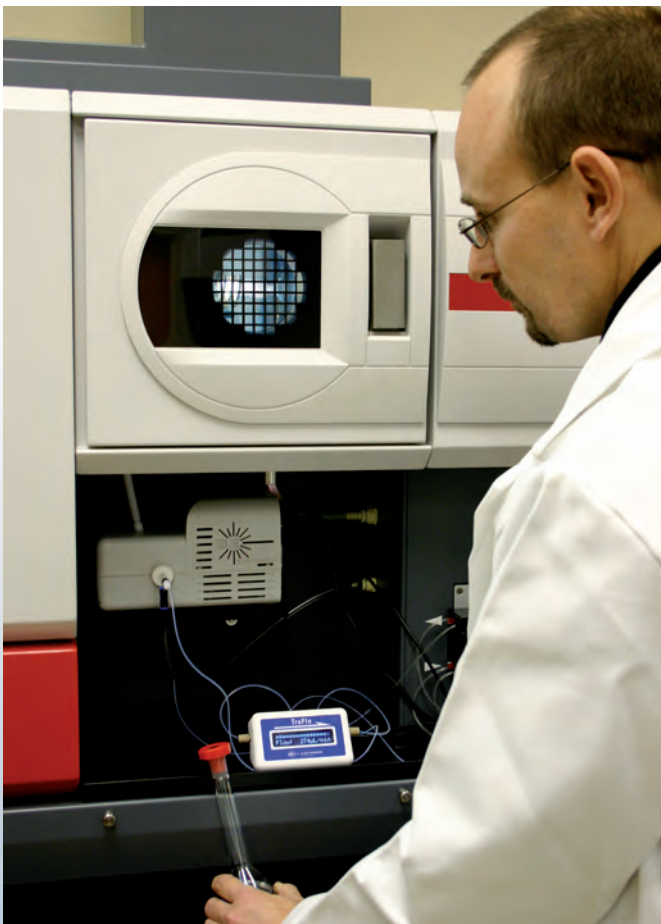
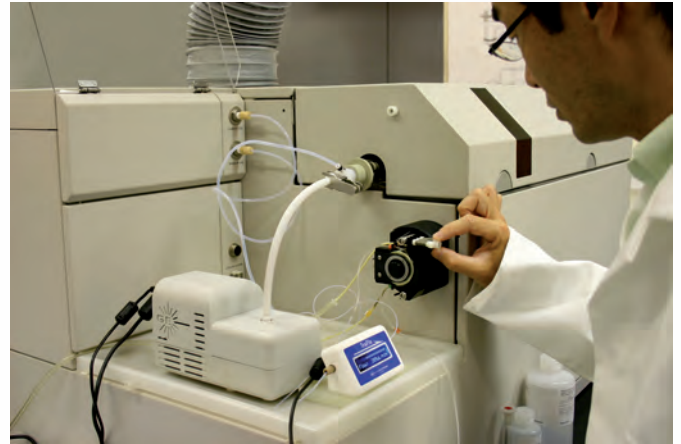
#### Graphite Gasket for Agilent 7700 Sampler Cone (PKT 3)

(Agilent p/n G3280-67009)      AT7703





# We have our own lab equipped with 3 ICP-OES & an ICP-MS




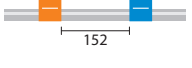

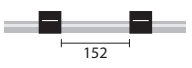

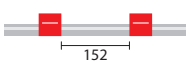

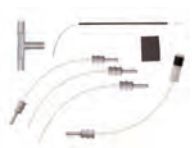




At our corporate headquarters in Melbourne, Australia, our test laboratory is equipped with PE Optima, Varian Vista, and Thermo Scientific iCAP ICP-OES instruments as well as an Agilent ICP-MS. This allows us to do real-world testing of new products so there is no doubt they will perform optimally in your instrument.

## APPLICATION PACKAGES







Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial	
<b>20-809-0600HE</b> Tracey Spray Chamber with Helix		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>30-808-0478</b> Quartz Torch with 90° bend and 2.3mm Injector		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-1000G</b> RF Coil Gold for Vista Axial		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>70-900-1004G</b> RF Coil Gold for 700-ES Series Axial			


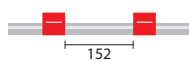
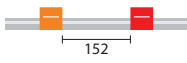
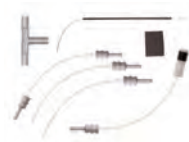
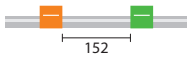
### Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>30-808-9983</b> High Solids Quartz Torch (Short) with 90° bend and 2.3mm Injector		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-1000ST</b> RF Coil Silver Teflon Coated for Vista Axial		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial			
<b>70-900-1004ST</b> RF Coil Silver Teflon Coated for 700-ES Series Axial		<b>70-803-0608</b> Capricorn Argon Humidifier with bypass for Varian models	
<b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial			

### Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>70-900-1000G</b> RF Coil Gold for Vista Axial	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial	
<b>30-808-0478</b> Quartz Torch with 90° bend and 2.3mm Injector		<b>70-900-1004G</b> RF Coil Gold for 700-ES Series Axial	

**Clinical and forensic materials (continued)**

<p><b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	
<p><b>0.38-OG-F</b> Contour Flared End PVC Pump Tube 2tag 0.38mm ID Orange/Green (PKT 6)</p>			

**Drinking, ground and surface water**








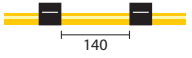
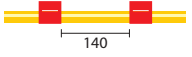
<p><b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min</p>		<p><b>70-900-1004G</b> RF Coil Gold for 700-ES Series Axial</p>	
<p><b>20-809-0600HE</b> Tracey Spray Chamber with Helix</p>		<p><b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial</p>	
<p><b>30-808-0478</b> Quartz Torch with 90° bend and 2.3mm Injector</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>70-900-1000G</b> RF Coil Gold for Vista Axial</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial</p>			

**Geological with HF, Soil and sediment with HF**


<p><b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min</p>		<p><b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial</p>	
<p><b>20-809-9188</b> Tracey TFE Spray Chamber with Helix</p>		<p><b>70-900-1004ST</b> RF Coil Silver Teflon Coated for 700-ES Series Axial</p>	
<p><b>21-809-2831</b> PuraFlex Transfer Tube 230mm</p>		<p><b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial</p>	
<p><b>21-100-0364</b> Mounting Bracket for HF Spray Chamber, Axial</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>30-808-0383</b> Semi Demountable Torch with Alumina Injector 2.4mm</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>70-900-1000ST</b> RF Coil Silver Teflon Coated for Vista Axial</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
		<p><b>60-808-1150</b> Trident Internal Standard Kit for HF solutions</p>	




## APPLICATION PACKAGES

Petrochemicals			
<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial	
<b>KT-1014</b> IsoMist Kit for Varian 700-ES or Vista Axial		<b>70-900-1004G</b> RF Coil Gold for 700-ES Series Axial	
<b>30-808-1346</b> Quartz Torch with 90° bend and 0.8mm Injector		<b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial	
<b>70-900-1000G</b> RF Coil Gold for Vista Axial		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>70-900-1000T</b> RF Coil Installation Tool for Vista Axial	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>70-900-1004G</b> RF Coil Gold for 700-ES Series Axial	
<b>30-808-1346</b> Quartz Torch with 90° bend and 0.8mm Injector		<b>70-900-1004T</b> RF Coil Installation Tool for 700-ES Series Axial	
<b>70-900-1000G</b> RF Coil Gold for Vista Axial		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

## PRODUCT LIST








Nebulizers		
<b>Conikal</b> 2mL/min uptake ARG-07-UC2		
<b>SeaSpray</b> 2mL/min uptake ARG-07-USS2		
<b>Slurry</b> 4mL/min uptake ARG-07-US6		
<b>MicroMist</b> 600µL/min uptake ARG-07-UM06		
200µL/min uptake ARG-07-UM02		
100µL/min uptake ARG-07-UM01		
50µL/min uptake ARG-07-UM005		

Nebulizers (continued)		
<b>OpalMist</b> 2mL/min uptake ARG-07-PFA2		
600µL/min uptake ARG-07-PFA06		
200µL/min uptake ARG-07-PFA02		
100µL/min uptake ARG-07-PFA01		
50µL/min uptake ARG-07-PFA005		
<b>DuraMist</b> 1mL/min uptake ARG-07-DM1		
400µL/min uptake ARG-07-DM04		
<b>VeeSpray - Ceramic</b> Standard ARG-07-CV6		

# PRODUCT LIST

IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b>	
IsoMist Kit for 700-ES or Vista Axial	KT-1014
IsoMist Kit for 700-ES or Vista Axial. All glass system	KT-1054



Spray Chambers	
<b>Tracey</b>	
50mL Cyclonic	20-809-0600HE
	
<b>Twister</b>	
50mL Cyclonic	20-809-0285HE
	
<b>Cinnabar</b>	
20mL Cyclonic	20-809-0183HE
	
<b>Twinnabar</b>	
20mL Cyclonic	20-809-0448HE
	
<b>Tracey TFE</b>	
50mL Cyclonic	20-809-9188
Suitable for use with HF.	
	
<b>Mounting Bracket - HF Spray Chamber</b>	
	21-100-0364
	
<b>PuraFlex Transfer Tube</b>	
	21-809-2831
Connects spray chamber to torch. Requires adjustable mount 21-100-0215, or for HF, 21-100-0364.	
	

Torches	
<b>Fixed Torches (Quartz one piece)</b>	
Quartz Torch with 90° Bend	30-808-0478
Quartz Torch (High Solids, short) with 90° Bend	30-808-9983
Quartz Torch (High Solids, Full-Length) with 90° Bend	30-807-0528



Torches (continued)	
<b>Semi Demountable Torch</b>	
	30-808-0379
<b>Comprises:</b>	
Quartz Torch Body	31-808-0353
Tapered Quartz Injector 2.4mm	31-808-0400
Torch Adaptor	31-808-0863
GazFit Connectors (PKT 4) - for 6mm OD side arms	GAZ-06
GazFit Connectors (PKT 2) - for 8mm torch adaptor	GAZ-08
<b>Semi Demountable Torch Options</b>	
Quartz Torch Body - Short (for high solids)	31-808-0177
Tapered Quartz Injector 1.0mm	31-808-0544
Tapered Quartz Injector 1.5mm	31-808-0543
Tapered Quartz Injector 1.8mm	31-808-0545
Tapered Quartz Injector 2.4mm	31-808-0400
<b>Axial ABC Fully Demountable Torch</b>	
	30-808-0878
<b>Comprises:</b>	
Torch Body & Case Assembly	31-808-1231
Quartz Injector 2.4mm Fully Demountable	31-808-0926
Tube Intermediate Fully Demountable	31-808-0908
Tube Outer Fully Demountable Axial	31-808-0841
ABC Vista Axial Swivel Adaptor	31-808-0798
Kit O-Rings Fully Demountable Torch	70-0805
<b>ABC Fully Demountable Torch Options</b>	
Tapered Quartz Injector 1.0mm Fully Demountable	31-808-0925
Tapered Quartz Injector 1.5mm Fully Demountable	31-808-0906
Tapered Quartz Injector 1.8mm Fully Demountable	31-808-9988
Tapered Quartz Injector 2.4mm Fully Demountable	31-808-0926
Capillary Quartz Injector 2.4mm	31-808-1244
Outer Tube Fully Demountable Axial (High Solids)	31-808-1307
Mounting Bracket Varian Axial ABC Fully Demountable Torch	31-808-1094
Ceramic Injector 1.5mm Fully Demountable	31-808-9201
Ceramic Injector 1.8mm Fully Demountable	31-808-0928
Ceramic Injector 2.4mm Fully Demountable	31-808-9202



## PRODUCT LIST

Torches (continued)	
<b>Fixed Torches for All Glass System</b>	
Quartz Torch with 2.3mm Injector and Right Angle Ball Joint	30-808-0540
Quartz Torch with 1.8mm Capillary Injector - (for oil analysis) and Right Angle Ball Joint	30-808-0887
Quartz Torch (High Solids) with 2.3mm Injector and Right Angle Ball Joint	30-808-1255
Quartz Torch (organics) with 0.8mm Injector and Right Angle Ball Joint	30-808-8216
<b>Semi Demountable Torch with Alumina Injector</b>	
	30-808-0383
<b>Comprises:</b>	
Quartz Torch Body	31-808-0353
Tapered Alumina Injector 2.4mm	31-808-0401
Torch Adaptor	31-808-0863
GazFit Connectors (PKT 4) - for 6mm OD side arms	GAZ-06
GazFit Connectors (PKT 2)- for 8mm torch adaptor	GAZ-08
<b>HF Resistant Injectors for Semi Demountable Torch</b>	
Tapered Alumina Injector 1.8mm	31-808-0814
Tapered Alumina Injector 2.4mm	31-808-0401
Sapphire Injector 2.4mm	31-808-1426

RF Coils	
<b>RF Coil</b> Gold Vista	70-900-1000G
<b>RF Coil</b> Silver Vista	70-900-1000S
<b>RF Coil</b> Silver, Teflon Coated Vista	70-900-1000ST
<b>Installation kit</b> Vista	70-900-1000T
<b>RF Coil</b> Gold 700ES	70-900-1004G

RF Coils (continued)	
<b>RF Coil</b> Silver 700ES	70-900-1004S
<b>RF Coil</b> Silver, Teflon Coated 700ES	70-900-1004ST
<b>Installation kit</b> 700ES	70-900-1004T

Kits	
<b>Axial All Glass System</b>	
	KT-8045A
<b>Kit Comprises:</b>	
Twister Spray Chamber	20-809-9199HE
Quartz Torch RA/FS13 & 2.3mm Injector	30-808-0540
Glass Transfer Tube-206, + JC-13 Clip	31-809-0274
Adjustable Mount	21-100-0215
<b>All Glass System Options</b>	
Jacketed Spray Chamber Adjustable Mount	21-100-0216
Quartz Torch, High Solids, RA/FS13 + 2.3mm injector	21-808-1255
Quartz Torch, RA/FS13 + 1.8mm Capillary injector	21-808-0887
Quartz Torch, Organics, RA/FS13 + 0.8mm injector	21-808-8216

# APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial	
<b>20-809-0600HE</b> Tracey Spray Chamber with Helix		<b>70-900-1005G</b> RF Coil Gold for 700-ES Series Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial	
<b>31-808-3058</b> Tapered Quartz Injector for D-Torch 1.5mm		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-1001G</b> RF Coil Gold for Vista Radial		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

## Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-1005ST</b> RF Coil Silver Teflon Coated for 700-ES Series Radial	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-808-3058</b> Tapered Quartz Injector for D-Torch 1.5mm		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-808-3092</b> Ceramic Outer Tube for D-Torch		<b>70-803-0608</b> Capricorn Argon Humidifier with bypass for Varian models	
<b>70-900-1001ST</b> RF Coil Silver Teflon Coated for Vista Radial			
<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial			

## Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>31-808-3058</b> Tapered Quartz Injector for D-Torch 1.5mm	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>70-900-1001G</b> RF Coil Gold for Vista Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial	

## APPLICATION PACKAGES











### Clinical and forensic materials (continued)

<b>70-900-1005G</b> RF Coil Gold for 700-ES Series Radial		<b>0.38-OG-F</b> Contour Flared End PVC Pump Tube 2tag 0.38mm ID Orange/Green (PKT 6)	
<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

### Geological with HF, Soil and sediment with HF

<b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min		<b>31-808-3160</b> Alumina Injector for Radial D-Torch 1.8mm	
<b>20-809-9188</b> Tracey TFE Spray Chamber with Helix		<b>70-900-1001ST</b> RF Coil Silver Teflon Coated for Vista Radial	
<b>21-809-2735</b> PuraFlex Transfer Tube		<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial	
<b>21-809-2555</b> Mounting Bracket for HF Spray Chamber, Radial		<b>70-900-1005ST</b> RF Coil Silver Teflon Coated for 700-ES Series Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial	
<b>31-808-3092</b> Ceramic Outer Tube for D-Torch		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	





### Petrochemicals


<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial	
<b>KT-1022</b> IsoMist Kit for 700-ES or Vista Radial		<b>70-900-1005G</b> RF Coil Gold for 700-ES Series Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial	
<b>31-808-3195</b> Tapered Quartz Injector for D-Torch 0.8mm		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-808-3092</b> Ceramic Outer Tube for D-Torch		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	





Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>70-900-1001T</b> RF Coil Installation Tool for Vista Radial	
<b>20-809-0285HE</b> Twister Spray Chamber with Helix		<b>70-900-1005G</b> RF Coil Gold for 700-ES Series Radial	
<b>30-808-3052</b> D-Torch for 700-ES or Vista Radial (without injector)		<b>70-900-1005T</b> RF Coil Installation Tool for 700-ES Series Radial	
<b>31-808-3195</b> Tapered Quartz Injector for D-Torch 0.8mm		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-808-3092</b> Ceramic Outer Tube for D-Torch		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-1001G</b> RF Coil Gold for Vista Radial			


## PRODUCT LIST

Nebulizers		
<b>Conikal</b> 2mL/min uptake ARG-07-UC2		
<b>SeaSpray</b> 2mL/min uptake ARG-07-USS2		
<b>Slurry</b> 4mL/min uptake ARG-07-US6		
<b>MicroMist</b> 600µL/min uptake ARG-07-UM06		
200µL/min uptake ARG-07-UM02		
100µL/min uptake ARG-07-UM01		
50µL/min uptake ARG-07-UM005		
<b>OpalMist</b> 2mL/min uptake ARG-07-PFA2		
600µL/min uptake ARG-07-PFA06		
200µL/min uptake ARG-07-PFA02		
100µL/min uptake ARG-07-PFA01		
50µL/min uptake ARG-07-PFA005		
<b>DuraMist</b> 1mL/min uptake ARG-07-DM1		
400µL/min uptake ARG-07-DM04		
<b>VeeSpray - Ceramic</b> Standard ARG-07-CV6		





IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b> IsoMist Kit for 700-ES or Vista Radial KT-1022	
IsoMist Kit for 700-ES or Vista Radial All Glass System KT-1055	

Spray Chambers		
<b>Tracey</b> 50mL Cyclonic 20-809-0600HE		
<b>Twister</b> 50mL Cyclonic 20-809-0285HE		
<b>Cinnabar</b> 20mL Cyclonic 20-809-0183HE		
<b>Twinnabar</b> 20mL Cyclonic 20-809-0448HE		

## PRODUCT LIST

Spray Chambers (continued)		
<p><b>Tracey TFE</b> 50mL Cyclonic 20-809-9188 Suitable for use with HF.</p>		
<p><b>Mounting Bracket - HF Spray Chamber</b> 21-809-2555</p>		
<p><b>PuraFlex Transfer Tube</b> 21-809-2735 Connects spray chamber to torch. Requires adjustable mount 21-809-2555.</p>		

Torches		
<p><b>D-Torch Demountable Torch</b> D-Torch with Quartz Outer Tube 30-808-3052</p> <p><b>Comprises:</b> Base and Inner Tube 31-808-3146 Quartz Outer Tube 31-808-3062 Retaining Ring for Outer Tube 31-808-2818 Retaining Ring for Injector 31-808-2921</p>		
<p><b>Tapered Quartz Injectors</b> Tapered Quartz Injector 1.5mm 31-808-3058 Tapered Quartz Injector 0.8mm 31-808-3195</p>		
<p><b>Ceramic Outer Tube</b> 31-808-3092</p>		
<p><b>Tapered Quartz Injector 1.5mm with Ball Joint</b> 31-808-3150</p>		
<p><b>Alumina Injector 1.8mm</b> 31-808-3160</p>		
<p><b>Semi Demountable Torch</b> 30-808-0542</p> <p><b>Comprises:</b> Torch Body, Quartz 31-808-0541 Torch Adaptor 8/44 31-808-2638 Tapered Quartz Injector 1.5mm 31-808-0543 GazFit Connectors (PKT 4) for 6mm OD side arms GAZ-06</p>		

Torches (continued)		
<p><b>Quartz Injectors for Semi-Demountable Torch</b> Tapered Quartz Injector 1.0mm 31-808-0544 Tapered Quartz Injector 1.5mm 31-808-0543 Tapered Quartz Injector 1.8mm 31-808-0545 Tapered Quartz Injector 2.4mm 31-808-0400</p>		
<p><b>ABC Fully Demountable Torch</b> 30-808-0805</p> <p><b>Comprises:</b> Torch Body &amp; Case Assembly 31-808-1231 Quartz Injector 1.5mm Fully Demountable 31-808-0906 Tube Intermediate Fully Demountable 31-808-0908 Tube Outer Fully Demountable Radial 31-808-0907 Polypropylene 8mm Joint Adaptor 31-808-0498 Kit O-Rings Fully Demountable Torch 70-0805</p> <p><b>ABC Torch Options</b> Quartz Injector 1.0mm Fully Demountable 31-808-0925 Quartz Injector 1.5mm Fully Demountable 31-808-0906 Quartz Injector 1.8mm Fully Demountable 31-808-9988 Quartz Injector 2.4mm Fully Demountable 31-808-0926 Mounting Bracket for Vista Radial ABC Fully Demountable Torch 31-808-0500</p>		
<p><b>HF Resistant Options for ABC Fully Demountable Torch</b> Ceramic Injector 1.5mm Fully Demountable 31-808-9201 Ceramic Injector 1.8mm Fully Demountable 31-808-0928 Ceramic Injector 2.4mm Fully Demountable 31-808-9202 Ceramic Outer Tube, Fully Demountable Radial 31-808-0927</p>		
<p><b>Fixed Torches</b> Quartz Torch, Low Flow, 1.5mm Injector 30-800-0015 Quartz Torch, High Solids, 1.8mm Injector 30-808-1182 Quartz Torch, 0.8mm Injector 30-807-0539</p>		

## Torches (continued)

### Other Products

Quartz Torch Bonnet 31-800-0003



### Semi Demountable Torch HF

30-808-0942

#### Comprises:

Torch Body, Quartz 31-808-0541

Torch Adaptor 8/44 31-808-2638

Tapered Alumina  
Injector 1.8mm 31-808-0938

GazFit Connectors (PKT 4)  
for 6mm OD side arms GAZ-06



## Kits

### Radial All Glass System Kit

KT-8046A

#### Kit Comprises:

Twister Spray Chamber 20-809-9199HE

Radial Torch with  
Ball Joint and 1.5mm  
Injector 30-808-0875

Glass Transfer Tube-160,  
+ JC-13 Clip 31-809-0549

Adjustable Mount 21-100-0200

#### All Glass System Options

Jacketed Spray Chamber  
Adjustable Mount 21-100-0217

Quartz Torch with Ball  
Joint and 1.8mm  
Injector High Solids 30-807-0536



## RF Coils

### RF Coil

Gold Vista 70-900-1001G



### RF Coil

Silver Vista 70-900-1001S



### RF Coil

Silver, Teflon Coated  
Vista 70-900-1001ST



### Installation kit

Vista 70-900-1001T



### RF Coil

Gold 700ES 70-900-1005G



### RF Coil

Silver 700ES 70-900-1005S



### RF Coil

Silver, Teflon Coated  
700ES 70-900-1005ST



### Installation kit

700ES 70-900-1005T



## APPLICATION PACKAGES




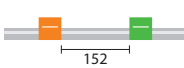

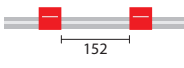
Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-1-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>20-808-8882HE</b> Tracey Spray Chamber with Helix		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-5000S</b> RF Coil Silver for JY		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	





### Brines and salts

<b>ARG-1-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-5000G</b> RF Coil Gold for JY		<b>70-808-1226</b> Capricorn Argon Humidifier with bypass	
<b>70-900-5000T</b> RF Coil Installation Tool for JY			

### Clinical and forensic materials



<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>0.38-OG-F</b> Contour Flared End PVC Pump Tube 2tag 0.38mm ID Orange/Green (PKT 6)	
<b>70-900-5000S</b> RF Coil Silver for JY		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

### Drinking, ground and surface water


<b>ARG-1-UC1</b> Conikal U-Series Nebulizer 1mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>20-808-8882HE</b> Tracey Spray Chamber with Helix		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-5000S</b> RF Coil Silver for JY		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	




Geological with HF, Soil and sediment with HF			
<b>ARG-1-DM1</b> DuraMist Nebulizer 1mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>20-809-2506</b> Tracey TFE Spray Chamber with Helix		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-5000G</b> RF Coil Gold for JY		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

Petrochemicals			
<b>ARG-1-UM04</b> MicroMist U-Series Nebulizer 0.4mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>KT-1064</b> IsoMist Kit for Horiba Jobin Yvon		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-5000S</b> RF Coil Silver for JY		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	


Wear Metals in oil			
<b>ARG-1-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>70-900-5000T</b> RF Coil Installation Tool for JY	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>70-900-5000S</b> RF Coil Silver for JY		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

## PRODUCT LIST

Nebulizers		
<b>Conikal</b>		
1mL/min uptake	ARG-1-UC1	
<b>SeaSpray</b>		
2mL/min uptake	ARG-1-USS2	
<b>Slurry</b>		
4mL/min uptake	ARG-1-US6	
<b>MicroMist</b>		
400µL/min uptake	ARG-1-UM04	
200µL/min uptake	ARG-1-UM02	
100µL/min uptake	ARG-1-UM01	
50µL/min uptake	ARG-1-UM005	



Nebulizers (continued)		
<b>OpalMist</b>		
2mL/min uptake	ARG-1-PFA2	
400µL/min uptake	ARG-1-PFA04	
200µL/min uptake	ARG-1-PFA02	
100µL/min uptake	ARG-1-PFA01	
50µL/min uptake	ARG-1-PFA005	
<b>DuraMist</b>		
1mL/min uptake	ARG-1-DM1	
400µL/min uptake	ARG-1-DM04	
<b>VeeSpray - Ceramic</b>		
Standard	ARG-1-CV6	



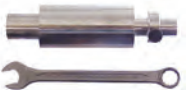
## PRODUCT LIST

IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b> IsoMist Kit for Horiba Jobin Yvon      KT-1064	

Spray Chambers	
<b>Tracey</b> 50mL Cyclonic      20-808-8882HE	
<b>Twister</b> 50mL Cyclonic      20-809-0222HE	
<b>Cinnabar</b> 20mL Cyclonic      20-809-0164HE	
<b>Tracey TFE</b> 50mL Cyclonic      20-809-2506 Suitable for use with HF.	

Components for JY Designed Demountable Torch	
<b>Quartz Inner Tube</b> 31-808-0118	
<b>Quartz Outer Tube</b> 31-808-8123	
<b>Torch Bonnet</b> 31-800-0023	

HF Resistant Components for JY Designed Demountable Torch	
<b>Alumina Inner Tube</b> 31-808-0571	
<b>Alumina Injector Tube 2.9mm</b> 31-808-0567	

RF Coils	
<b>RF Coil</b> Gold      70-900-5000G	
<b>RF Coil</b> Silver      70-900-5000S	
<b>Installation kit</b> 70-900-5000T	

# A wealth of useful information for the ICP user

### NEW GLASS EXPANSION D-TORCH\*

Reduce your ICP running costs with our revolutionary new demountable torch.

- Why replace the entire torch when just the outer tube wears? With the D-Torch, you need only replace the outer tube. And most operators will be saving money after only two replacements.
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- Ceramic lasts much longer for samples with high dissolved solids or for organic applications such as wear metals in engine oils.
- Ceramic provides low background for Si determinations.
- Interchangeable injectors for aqueous, organic, high dissolved solids or HF applications.

The D-Torch is also much lower cost than other demountable torches. Please contact us for information on a D-Torch to suit your ICP model.

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 • The rugged precision-machined...  
 • The industry's lightest...  
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 • The industry's lightest...  
 With the SeeSaw™ U-Groove...  
 • The rugged precision-machined...  
 • The industry's lightest...

## ICP/ICP-MS Supplies

torches



coils



spray chambers



cones



nebulizers



**GE GLASS EXPANSION**  
Quality By Design

Issue 7

Flyers

### APPLICATION NOTE

#### Improved Accuracy in the Analysis of Precious Metals by ICP-OES

Andy Smith  
GOMON Metals, UK  
Aid Deaconshofer  
(Glass Expansion, Australia)

This study investigated the frequency variations and measurement accuracy of precious metals at different spray chamber temperatures. The aim of this research was to investigate the possibility of grading precious metal solutions using ICP-OES to replicate the high level of accuracy and precision obtained using conventional wet chemical techniques.

The investigation was carried out using an ICP-OES as shown in Figure 1. A spray chamber connected to a Vista VISTA Nebulizer, which is used to nebulize the sample, is shown in Figure 2. The ICP-OES is used to measure the concentration of the sample. The ICP-OES is used to measure the concentration of the sample. The ICP-OES is used to measure the concentration of the sample.



Figure 1. Equipment used for the experiment. Vista VISTA ICP-OES with Vista Nebulizer. The ICP-OES is used to measure the concentration of the sample.

## NEWS

Glass Expansion Newsletter | June 2010 | Issue 22

### APPLICATION SPOTLIGHT DEALING WITH HIGH SALT MATRICES

**Introduction**

In the very first issue of the newsletter in 2003, we focused on the analysis of high salt samples by ICP spectrometry. Since that time, there has been significant developments in both the spectrometers and the sample introduction systems that accompany them and it is worthwhile to review this very common application. The challenges created by high salt samples are numerous.

- Elevated background levels for ICP-OES.
- Spectral charge interferences for ICP-AES.
- Positive spectral interferences for ICP-AES.
- Matrix interferences in general.
- Easily ionizable element interferences for ICP-OES.
- Distribution of quartz components.
- Salt deposits in nebulizers and injectors.
- Reduced lifetime of consumables.
- Computer and memory effects.

ICP-OES is generally recommended to exceed 0.1 or 0.2% total dissolved solids (TDS) on an ICP-AES. However, concentrations are usually just an indication of the reduction of TDS. In this article, we will examine the topic listed above with an eye towards being the best solution.



Figure 2. Effect of a complex matrix on an arbitrary peak at 206.53nm.

**IN THIS ISSUE:**

- Application Spotlight 1-3
- GE News 1
- New Products 4
- Relevant News 5
- From the Editor 6
- From the ICP-MS User 6
- From the ICP-OES User 6
- From the ICP-AES User 6
- From the ICP-MS User 6
- From the ICP-OES User 6
- From the ICP-AES User 6

Newsletters

Catalogs

### TruFlo™ Sample Monitor

OPERATION MANUAL



GLASS EXPANSION Quality By Design

Instructions

Application notes

- Application notes
- Newsletters
- Catalogs
- Product flyers
- Website
- Product care advice
- Operating instructions

## GLASS EXPANSION Quality By Design

### ICP/ICP-MS Sample Introduction Systems

CONTACT: 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111 | 01203 111111

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- ICP-AES Coils
- ICP-AES Cones
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- ICP-MS Nebulizers
- ICP-MS Spray Chambers
- ICP-MS Coils
- ICP-MS Cones
- ICP-MS Torches

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Our new **TruFlo™ Sample Monitor** eliminates guesswork so that you always know the actual flow rate of sample flow to your nebulizer.

Our new **TruFlo™ U-Groove** allows low injection technology to have your operating costs and your analysis time.

Check out the new **TruFlo™ Sample Monitor** Series Chamber. The nebulizer is electronically controlled and any temperature between -10°C and +10°C can be selected.

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**FREE DELIVERY**

Check out our new **TruFlo™ Sample Monitor** Series Chamber. The nebulizer is electronically controlled and any temperature between -10°C and +10°C can be selected.

Website

## APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Clinical and forensic materials, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan 6000/9000 Series</p>	
<p><b>KT-1013</b> IsoMist Kit for PerkinElmer Elan</p>		<p><b>PE2011-Ni</b> Nickel Sampler Cone for Elan</p>	
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan</p>		<p><b>PE2012-Ni</b> Nickel Skimmer Cone for Elan</p>	
<p><b>31-800-0012</b> Quartz Torch Bonnet</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>31-807-0004</b> Tapered Quartz Injector 2.0mm (for non-DRC models)</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>31-808-0806</b> Tapered Quartz Injector with Ball Joint 2.0mm (for DRC models)</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan 6000/9000 Series</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

### Brines and salts

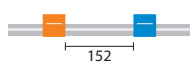
<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>31-808-0806</b> Tapered Quartz Injector with Ball Joint 2.0mm (for DRC models)</p>	
<p><b>KT-1013</b> IsoMist Kit for PerkinElmer Elan</p>		<p><b>70-900-2006C</b> RF Coil Copper for PE Elan 6000/9000 Series</p>	
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan</p>		<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan 6000/9000 Series</p>	
<p><b>31-808-2849</b> Ceramic Outer Tube for D-Torch</p>		<p><b>PE2013-Pt</b> Platinum Sampler Cone for Elan</p>	
<p><b>31-800-0012</b> Quartz Torch Bonnet</p>		<p><b>PE2014-Pt</b> Platinum Skimmer Cone for Elan</p>	
<p><b>31-807-0004</b> Tapered Quartz Injector 2.0mm (for non-DRC models)</p>			



Brines and salts (continued)

**0.25-OB-F**

Contour Flared End PVC Pump Tube 2tag  
0.25mm ID Orange/Blue (PKT 6)



**60-808-1185**

Trident Internal Standard Kit



**0.76-BLK-F**

Contour Flared End PVC Pump Tube 2tag  
0.76mm ID Black/Black (PKT 6)



**70-803-0570**

Capricorn Argon Humidifier with bypass  
for PerkinElmer models



**1.14-RED-F**

Contour Flared End PVC Pump Tube 2tag  
1.14mm ID Red/Red (PKT 6)



Geological with HF, Soil and sediment with HF

**ARG-1-PFA04**

OpalMist Nebulizer 0.4mL/min



**PE2013-Pt**

Platinum Sampler Cone for Elan



**KT-1013P**

IsoMist Kit with PFA Spray Chamber for  
PerkinElmer Elan



**PE2014-Pt**

Platinum Skimmer Cone for Elan



**30-807-0540**

D-Torch with Quartz Outer Tube for Elan



**31-808-2849**

Ceramic Outer Tube for D-Torch



**0.25-OB-F**

Contour Flared End PVC Pump Tube 2tag  
0.25mm ID Orange/Blue (PKT 6)



**31-800-0012**

Quartz Torch Bonnet



**0.76-BLK-F**

Contour Flared End PVC Pump Tube 2tag  
0.76mm ID Black/Black (PKT 6)



**31-807-0060**

Tapered Alumina Injector 2.0mm



**70-900-2006C**

RF Coil Copper for PE Elan 6000/9000  
Series



**1.14-RED-F**

Contour Flared End PVC Pump Tube 2tag  
1.14mm ID Red/Red (PKT 6)



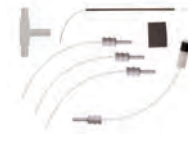
**70-900-2006T**

RF Coil Installation Tool for PE Elan  
6000/9000 Series



**60-808-1150**

Trident Internal Standard Kit for HF solutions



Isotopic Analysis of Minerals

**ARG-1-USS04**

SeaSpray U-Series Nebulizer 0.4mL/min



**31-800-0012**

Quartz Torch Bonnet



**KT-1013**

IsoMist Kit for PerkinElmer Elan



**31-807-0004**

Tapered Quartz Injector 2.0mm  
(for non-DRC models)



**30-807-0540**

D-Torch with Quartz Outer Tube for Elan



**31-808-0806**

Tapered Quartz Injector with Ball Joint  
2.0mm (for DRC models)





# APPLICATION PACKAGES



Isotopic Analysis of Minerals (continued)			
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan 6000/9000 Series</p> 	<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 		
<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan 6000/9000 Series</p> 	<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p> 		
<p><b>PE2013-Pt</b> Platinum Sampler Cone for Elan</p> 	<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p> 		
<p><b>PE2014-Pt</b> Platinum Skimmer Cone for Elan</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 		
Petrochemicals			
<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p> 	<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan 6000/9000 Series</p> 		
<p><b>KT-1013</b> IsoMist Kit for PerkinElmer Elan</p> 	<p><b>PE2011-Ni</b> Nickel Sampler Cone for Elan</p> 		
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan</p> 	<p><b>PE2012-Ni</b> Nickel Skimmer Cone for Elan</p> 		
<p><b>31-808-2849</b> Ceramic Outer Tube for D-Torch</p> 	<p><b>0.25-OB-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 		
<p><b>31-800-0012</b> Quartz Torch Bonnet</p> 	<p><b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p> 		
<p><b>31-808-0789</b> Tapered Quartz Injector 1.2mm (for non-DRC models)</p> 	<p><b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p> 		
<p><b>31-808-3125</b> Tapered Quartz Injector with Ball Joint 0.85mm (for DRC models)</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 		
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan 6000/9000 Series</p> 			

Semiconductors			
<b>ARG-1-PFA04</b> OpalMist Nebulizer 0.4mL/min		<b>PE2013-Pt</b> Platinum Sampler Cone for Elan	
<b>KT-1013P</b> IsoMist Kit with PFA Spray Chamber for PerkinElmer Elan		<b>PE2014-Pt</b> Platinum Skimmer Cone for Elan	
<b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>31-808-2849</b> Ceramic Outer Tube for D-Torch		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-800-0012</b> Quartz Torch Bonnet		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-808-2803</b> Sapphire Injector 2.0mm		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>70-900-2006C</b> RF Coil Copper for PE Elan 6000/9000 Series		<b>70-900-2006T</b> RF Coil Installation Tool for PE Elan 6000/9000 Series	





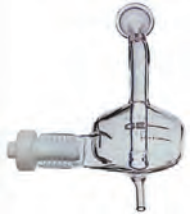


## PRODUCT LIST








Nebulizers		
<b>SeaSpray</b>		
400µL/min uptake	ARG-1-USS04	
<b>MicroMist</b>		
400µL/min uptake	ARG-1-UM04	
200µL/min uptake	ARG-1-UM02	
100µL/min uptake	ARG-1-UM01	
50µL/min uptake	ARG-1-UM005	
<b>OpalMist</b>		
400µL/min uptake	ARG-1-PFA04	
200µL/min uptake	ARG-1-PFA02	
100µL/min uptake	ARG-1-PFA01	
50µL/min uptake	ARG-1-PFA005	

IsoMist		
<b>IsoMist Programmable Temperature Spray Chamber</b>		
IsoMist Kit for PerkinElmer Elan	KT-1013	





Spray Chambers			
<b>Spray Chambers – Suitable for Torch adaptor 31-808-0827 or 31-808-2825</b>			
The following spray chambers are suitable for torch adaptors 31-808-0827 (equivalent PerkinElmer P/N N8120116) or 31-808-2825 (equivalent PerkinElmer P/N W1013266). These torch adaptors are usually used with non-DRC Elan models, or with Elan DRC models using an HF-resistant sample introduction system. They require the Elan Screw Mount CSC Adaptor, part number 21-808-0389, for secure mounting.			
<b>Tracey</b>			
50mL Cyclonic	20-809-0224HE		
<b>Twister</b>			
50mL Cyclonic	20-809-0578HE		

# PRODUCT LIST



Spray Chambers (continued)		
<b>Cinnabar</b> 20mL Cyclonic                      20-809-0162HE		
<b>Twinnabar</b> 20mL Cyclonic                      20-809-0491HE		
<b>Tracey PFA44</b> 44mL Cyclonic                      20-809-2509  With ScrewLok. Suitable for use with HF		
<b>Other Adaptors</b> Elan Screw Mount CSC Adaptor                      21-808-0389  Elan Adaptor Nut                      21-808-0388  Elan Screw Mount CSC Adaptor with Aux Port                      21-809-2733		
<b>Spray Chambers – Suitable for Torch adaptor                      31-808-0825 or 31-808-2824</b>  The following spray chambers are suitable for torch adaptors 31-808-0825 (equivalent PerkinElmer P/N WE023951) or 31-808-2824 (equivalent PerkinElmer P/N W1012406). This adaptor is usually used with DRC Elan models.		
<b>Twister</b> 50mL Cyclonic                      20-809-0296HE		
<b>Cinnabar</b> 20mL Cyclonic                      20-809-0322HE		
<b>Helix Nebulizer Adaptor 6/35</b> 21-808-1010  For PE Scott style spray chambers.		

Torches	
<b>D-Torch with Quartz Outer Tube</b> 30-807-0540  Comprises: Base and Inner Tube                      31-808-2847 Quartz Outer Tube                      31-808-2848 Retaining Ring                      31-808-2818	
<b>Ceramic Outer Tube for D-Torch</b> 31-808-2849	
<b>Quartz Torch</b> Standard Quartz Torch                      30-808-8107 High Efficiency Quartz Torch                      31-808-2784	
<b>Quartz Injectors (non DRC)</b> Tapered Quartz Injector 1.0mm                      31-808-0370  Tapered Quartz Injector 1.2mm                      31-808-0789  Tapered Quartz Injector 1.5mm                      31-807-0006  Tapered Quartz Injector 1.8mm                      31-807-0005  Tapered Quartz Injector 2.0mm                      31-807-0004  These injectors are suitable for torch adaptors 31-808-0827 (equivalent PerkinElmer P/N N8120116) or 31-808-2825 (equivalent PerkinElmer P/N W1013266). These adaptors are usually used with non-DRC Elan models.	
<b>Quartz Injectors (DRC Versions)</b> Tapered Quartz Injector with Ball Joint, 2.0mm                      31-808-0806  Tapered Quartz Injector with Ball Joint, 1.5mm                      31-808-0851  Tapered Quartz Injector with Ball Joint, 0.85mm                      31-808-3125  These injectors are suitable for torch adaptors 31-808-0825 (equivalent PerkinElmer P/N WE023951) or 31-808-2824 (equivalent PerkinElmer P/N W1012406). These adaptors are usually used with DRC Elan models.	
<b>Torch Adaptor</b> Elan DRC Torch Adaptor                      31-808-0825  This adaptor is suitable for injectors with a ball joint	
<b>Torch Adaptor</b> Cassette Mount Adaptor for Ball Joint Injector                      31-808-2824  This adaptor is suitable for injectors with a ball joint.	

Torches (continued)	
<p><b>Torch Adaptor</b> Elan Torch Adaptor 31-808-0827</p> <p>This adaptor is suitable for injectors without a ball joint</p>	
<p><b>Torch Adaptor</b> PFA Cassette Mount Adaptor 31-808-2825</p> <p>This adaptor is suitable for injectors without a ball joint.</p>	
<p><b>Other Components</b> Quartz Bonnet for Elan 31-800-0012</p>	
<p><b>HF Resistant Injectors</b> Tapered Alumina Injector 1.5mm 31-807-0044 Tapered Alumina Injector 1.8mm 31-807-0045 Tapered Alumina Injector 2.0mm 31-807-0060 Sapphire Injector 2.0mm 31-808-2803 Platinum Injector 2.0mm 31-808-2972</p> <p>These injectors are suitable for torch adaptor 31-808-0827 (equivalent PerkinElmer P/N N8120116) or 31-808-2825 (equivalent PerkinElmer P/N W1013266).</p>	

Cones (continued)	
<p><b>Platinum Sampler</b> (PE p/n WE02-7802) PE2013-Pt</p>	
<p><b>Platinum Skimmer</b> (PE p/n WE02-7803) PE2014-Pt</p>	
<p><b>Insertion Tool</b> (PE p/n WE01-7142) PE6000</p>	
<p><b>Sampler Cone O-Ring (PKT 5)</b> (PE p/n N812-0511) PE5011</p>	
<p><b>Skimmer Cone O-Ring (PKT 5)</b> (PE p/n N812-0512) PE5012</p>	

RF Coils	
<p><b>RF Coil for Elan 6000/9000 Series</b> Silver 70-900-2006S</p>	
<p><b>RF Coil for Elan 6000/9000 Series</b> Copper 70-900-2006C</p>	
<p><b>Installation Kit for Elan 6000/9000</b> RF Coil Installation Kit 70-900-2006T</p>	




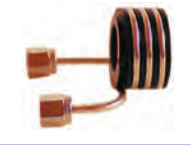

Cones	
<p><b>Nickel Sampler</b> (PE p/n WE02-1140) PE2011-Ni</p>	
<p><b>Nickel Skimmer</b> (PE p/n WE02-1137) PE2012-Ni</p>	

# APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Clinical and forensic materials, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>PE3011-Ni</b> Nickel Sampler Cone for NexION</p>	
<p><b>KT-1096</b> IsoMist Kit for PerkinElmer NexION</p>			<p><b>PE3012-Ni</b> Nickel Skimmer Cone for NexION</p>
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>31-808-0806</b> Tapered Quartz Injector with ball joint 2mm (suitable for Elan DRC/NexION)</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

## Brines and salts

<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>PE3014-Pt</b> Platinum Skimmer Cone for NexION</p>	
<p><b>KT-1096</b> IsoMist Kit for PerkinElmer NexION</p>			<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>31-808-2849</b> Ceramic Outer Tube for D-Torch</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>31-808-0806</b> Tapered Quartz Injector with ball joint 2mm (suitable for Elan DRC/NexION)</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION</p>		<p><b>70-803-0570</b> Capricorn Argon Humidifier with bypass for PerkinElmer models</p>	
<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION</p>			
<p><b>PE3013-Pt</b> Platinum Sampler Cone for NexION</p>			





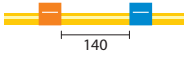


Geological with HF, Soil and sediment with HF

<p><b>ARG-1-PFA04</b> OpalMist Nebulizer 0.4mL/min</p>		<p><b>PE3013-Pt</b> Platinum Sampler Cone for NexION</p>	
<p><b>KT-1096P</b> IsoMist Kit with PFA Spray Chamber for PerkinElmer NexION</p>		<p><b>PE3014-Pt</b> Platinum Skimmer Cone for NexION</p>	
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>31-808-2849</b> Ceramic Outer Tube for D-Torch</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>31-807-0060</b> Tapered Alumina Injector 2.0mm</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION</p>		<p><b>60-808-1150</b> Trident Internal Standard Kit for HF solutions</p>	
<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION</p>			

Isotopic Analysis of Minerals

<p><b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p>		<p><b>PE3013-Pt</b> Platinum Sampler Cone for NexION</p>	
<p><b>KT-1096</b> IsoMist Kit for PerkinElmer NexION</p>		<p><b>PE3014-Pt</b> Platinum Skimmer Cone for NexION</p>	
<p><b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>31-808-0806</b> Tapered Quartz Injector with ball joint 2mm (suitable for Elan DRC/NexION)</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	

# APPLICATION PACKAGES

Petrochemicals			
<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>PE3011-Ni</b> Nickel Sampler Cone for NexION	
<b>KT-1096</b> IsoMist Kit for PerkinElmer NexION			<b>PE3012-Ni</b> Nickel Skimmer Cone for NexION
<b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION		<b>0.25-OB-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>31-808-2849</b> Ceramic Outer Tube for D-Torch			<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)
<b>31-808-3125</b> Tapered Quartz Injector with ball joint 0.85mm (suitable for Elan DRC/NexION)		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION			<b>60-808-1185</b> Trident Internal Standard Kit
<b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION			

Semiconductors			
<b>ARG-1-PFA04</b> OpalMist Nebulizer 0.4mL/min		<b>PE3013-Pt</b> Platinum Sampler Cone for NexION	
<b>KT-1096P</b> IsoMist Kit with PFA Spray Chamber for PerkinElmer NexION			<b>PE3014-Pt</b> Platinum Skimmer Cone for NexION
<b>30-807-0540</b> D-Torch with Quartz Outer Tube for Elan/ NexION		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>31-808-2849</b> Ceramic Outer Tube for D-Torch			<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)
<b>31-808-2803</b> Sapphire Injector 2.0mm		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>70-900-2006C</b> RF Coil Copper for PE Elan/NexION			<b>60-808-1185</b> Trident Internal Standard Kit
<b>70-900-2006T</b> RF Coil Installation Tool for PE Elan/NexION			



# PRODUCT LIST

## Nebulizers

### SeaSpray

400µL/min uptake ARG-1-USS04

### MicroMist

400µL/min uptake ARG-1-UM04

200µL/min uptake ARG-1-UM02

100µL/min uptake ARG-1-UM01

50µL/min uptake ARG-1-UM005

### OpalMist

400µL/min uptake ARG-1-PFA04

200µL/min uptake ARG-1-PFA02

100µL/min uptake ARG-1-PFA01

50µL/min uptake ARG-1-PFA005



## IsoMist

### IsoMist Programmable Temperature Spray Chamber

IsoMist Kit for PerkinElmer  
NexION KT-1096



## Spray Chambers

### Twinnabar

20mL Cyclonic 20-809-0491HE

Suitable for adaptor 31-808-2825 and injectors without ball joint.



## Torches

### D-Torch with Quartz Outer Tube

30-807-0540

Comprises:

Base and Inner Tube 31-808-2847

Quartz Outer Tube 31-808-2848

Retaining Ring 31-808-2818



### Ceramic Outer Tube for D-Torch

31-808-2849



### Quartz Torch

Standard Quartz Torch 30-808-8107

High Efficiency Quartz Torch 31-808-2784



## Torches (continued)

### Quartz Injectors (non DRC)

Tapered Quartz Injector  
1.0mm 31-808-0370

Tapered Quartz Injector  
1.2mm 31-808-0789

Tapered Quartz Injector  
1.5mm 31-807-0006

Tapered Quartz Injector  
1.8mm 31-807-0005

Tapered Quartz Injector  
2.0mm 31-807-0004

These injectors are suitable for torch adaptor 31-808-2825 (equivalent PerkinElmer P/N W1013266).



### Quartz Injectors (DRC Versions)

Tapered Quartz Injector  
with Ball Joint, 2.0mm 31-808-0806

Tapered Quartz Injector  
with Ball Joint, 1.5mm 31-808-0851

Tapered Quartz Injector  
with Ball Joint, 0.85mm 31-808-3125

These injectors are suitable for torch adaptor 31-808-2824 (equivalent PerkinElmer P/N W1012406).



### Torch Adaptor

Cassette Mount  
Adaptor for Ball  
Joint Injector 31-808-2824

This adaptor is suitable for injectors with a ball joint.



### Torch Adaptor

PFA Cassette Mount  
Adaptor 31-808-2825

This adaptor is suitable for injectors without a ball joint.



### HF Resistant Injectors

Tapered Alumina Injector  
1.5mm 31-807-0044

Tapered Alumina Injector  
1.8mm 31-807-0045

Tapered Alumina Injector  
2.0mm 31-807-0060


Sapphire Injector 2.0mm 31-808-2803

Platinum Injector 2.0mm 31-808-2972

These injectors are suitable for torch adaptor 31-808-2825 (equivalent PerkinElmer P/N W1013266).



## PRODUCT LIST

Cones		
<b>Nickel Sampler</b> (PE p/n W1033612)	PE3011-Ni	
<b>Nickel Skimmer</b> (PE p/n W1026356)	PE3012-Ni	
<b>Platinum Sampler</b> (PE p/n W1033614)	PE3013-Pt	
<b>Platinum Skimmer</b> (PE p/n W1026907)	PE3014-Pt	
<b>Hyper Skimmer</b> (PE p/n W1033995)	PE3015-AI	

RF Coils		
<b>RF Coil for Elan/NexION</b> Copper	70-900-2006C	
<b>Installation Kit for Elan/NexION</b> RF Coil Installation Kit	70-900-2006T	

# Invaluable online calculators at [www.geicp.com](http://www.geicp.com)

## Pump Speed and Sample Uptake Calculator

- Choose the right pump tubing to give you the required sample uptake
- Select the pump speed to give you the required sample uptake
- Find out what the sample uptake is with the pump tubing and pump speed you are currently using

**Step 1. Select pump configuration**

Varian 700-ES Series

Pump diameter (to outside of rollers)	68.8	mm
Number of rollers	12	
Roller diameter	14.0	mm

**Step 2. Select pump tubing**

black/black, 0.76mm ID

**Step 3. Calculate pump speed or sample uptake**

Sample uptake  (µl/min)      Pump speed  RPM

Enter your required sample uptake to calculate the pump speed OR your actual pump speed to calculate the sample uptake.

This calculation should be used as a guide only. Variations between pump tubes and roller pressures mean that the accuracy of the calculation cannot be guaranteed.

## Trident Dilution Calculator

**Trident Dilution Factor Calculator**

Do you need to know how much your sample and internal standard are diluted?  
Simply select your peristaltic pump tubing and our Dilution Factor Calculator will show you.

Sample pump tubing

Internal standard pump tubing


Sample is diluted by **5.9%**  
ie Final conc. of sample is **0.941** times initial concentration

Internal standard is diluted by **94.1%**  
ie Final conc. of internal standard is **0.059** times initial concentration  
or Internal standard is diluted by a factor of **16.9**




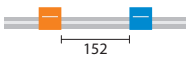

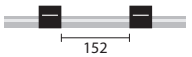



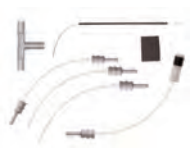


This calculation should be used as a guide only. Variations between pump tubes and roller pressures mean that the accuracy of the calculation cannot be guaranteed.

## APPLICATION PACKAGES





Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>20-809-0434HE</b> Tracey Spray Chamber with Helix		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-807-0075</b> Tapered Quartz Injector 2.0mm		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>70-900-2003S</b> RF Coil Silver			


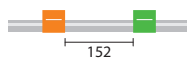

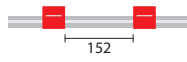

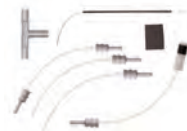
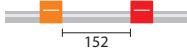
### Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>20-809-0208HE</b> Twister Spray Chamber with Helix		<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-808-2506</b> Tapered Quartz Injector 3.0mm		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>70-900-2003G</b> RF Coil Gold		<b>70-803-0570</b> Capricorn Argon Humidifier with bypass for PerkinElmer models	

### Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)	
<b>20-809-0208HE</b> Twister Spray Chamber with Helix		<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000	

Clinical and forensic materials (continued)

<p><b>31-807-0075</b> Tapered Quartz Injector 2.0mm</p>		<p><b>0.38-OG-F</b> Contour Flared End PVC Pump Tube 2tag 0.38mm ID Orange/Green (PKT 6)</p>	
<p><b>70-900-2003S</b> RF Coil Silver</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>70-900-2003T</b> RF Coil Installation Tool</p>		<p><b>60-808-1185</b> Trident Internal Standard Kit</p>	
<p><b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)</p>			

Drinking, ground and surface water

<p><b>ARG-07-UC2</b> Conikal U-Series Nebulizer 2mL/min</p>		<p><b>31-807-0075</b> Tapered Quartz Injector 2.0mm</p>	
<p><b>20-809-0434HE</b> Tracey Spray Chamber with Helix</p>		<p><b>70-900-2003S</b> RF Coil Silver</p>	
<p><b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)</p>		<p><b>70-900-2003T</b> RF Coil Installation Tool</p>	
<p><b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	

Geological with HF, Soil and sediment with HF


<p><b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min</p>		<p><b>70-900-2003G</b> RF Coil Gold</p>	
<p><b>20-809-2510</b> Tracey TFE Spray Chamber with Helix</p>		<p><b>70-900-2003T</b> RF Coil Installation Tool</p>	
<p><b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)</p>		<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p>	
<p><b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000</p>		<p><b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)</p>	
<p><b>31-808-1210</b> Tapered Alumina Injector 2.0mm</p>		<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p>	
<p><b>31-808-1150</b> Trident Internal Standard Kit for HF solutions</p>		<p><b>60-808-1150</b> Trident Internal Standard Kit for HF solutions</p>	
<p><b>31-808-1150</b> Trident Internal Standard Kit for HF solutions</p>			


# APPLICATION PACKAGES

Petrochemicals			
<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>31-808-0939</b> Capillary Quartz Injector 1.0mm	
<b>KT-1012</b> IsoMist Kit for PerkinElmer Optima 2000/4000/5000/7000 DV		<b>70-900-2003S</b> RF Coil Silver	
		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>31-808-1154</b> Tapered Quartz Injector 1.2mm	
<b>20-809-0446HE</b> Twister Spray Chamber with Helix (Organics)		<b>70-900-2003S</b> RF Coil Silver	
		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>30-808-2926</b> D-Torch for Optima 2/4/5/7000 DV (with Quartz Outer Tube)		<b>0.76-BLK-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

# PRODUCT LIST

Nebulizers		
<b>Conikal</b>		
2mL/min uptake	ARG-07-UC2	
<b>SeaSpray</b>		
2mL/min uptake	ARG-07-USS2	
<b>Slurry</b>		
4mL/min uptake	ARG-07-US6	
<b>MicroMist</b>		
600µL/min uptake	ARG-07-UM06	
200µL/min uptake	ARG-07-UM02	
100µL/min uptake	ARG-07-UM01	
50µL/min uptake	ARG-07-UM005	

Nebulizers (continued)		
<b>OpalMist</b>		
2mL/min uptake	ARG-07-PFA2	
600µL/min uptake	ARG-07-PFA06	
200µL/min uptake	ARG-07-PFA02	
100µL/min uptake	ARG-07-PFA01	
50µL/min uptake	ARG-07-PFA005	
<b>DuraMist</b>		
1mL/min uptake	ARG-07-DM1	
400µL/min uptake	ARG-07-DM04	
<b>VeeSpray - Ceramic</b>		
Standard	ARG-07-CV6	

# PRODUCT LIST


IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b>	
IsoMist Kit for PerkinElmer Optima 2000/4000/5000/7000DV	
	KT-1012



Spray Chambers	
<b>Tracey</b>	
50mL Cyclonic	20-809-0434HE
<b>Twister</b>	
50mL Cyclonic (Aqueous)	20-809-0208HE
With 7mm baffle.	
<b>Twister</b>	
50mL Cyclonic (Organics)	20-809-0446HE
With 4mm baffle.	
<b>Twister</b>	
50mL Cyclonic with Aux. port	20-809-0004HE
<b>Cinnabar</b>	
20mL Cyclonic	20-809-9121HE
<b>Twinnabar</b>	
20mL Cyclonic	20-809-9120HE
<b>Tracey TFE</b>	
50mL Cyclonic	20-809-2510
Suitable for use with HF. Plugs directly into cassette mount.	

Torches	
<b>D-Torch with Quartz Outer Tube</b>	30-808-2926
<b>Comprises:</b>	
Base and Inner Tube	31-808-2981
Quartz Outer Tube	31-808-2986
Retaining Ring	31-808-2818
<b>Quartz Torches</b>	
Quartz Torch - JAZ with single slot	30-808-0845
Quartz Torch without slot	30-808-1122
Quartz Torch (short) without slot	30-808-0845S
Quartz Torch with 3 slots	30-808-1470
<b>Quartz Injectors</b>	
Quartz Capillary Injector 1.0mm	31-808-0939
Quartz Tapered Injector 1.2mm	31-808-1154
Quartz Capillary Injector 1.8mm	31-808-0794
Quartz Tapered Injector 2.0mm	31-807-0075
Quartz Tapered Injector 3.0mm	31-808-2506
<b>HF Resistant Injectors</b>	
Tapered Alumina Injector 2.0mm	31-808-1210
Tapered Alumina Injector 2.4mm	31-808-2771
Sapphire Injector 2.0mm	31-808-2774
<b>Torch Bonnet 2000/4000/5000/7000</b>	31-800-0018
<b>Radial Purge Window Short (32mm) for 2000DV or 3300DV</b>	31-808-8098
<b>Axial Purge Window (17mm disk) for 4000/5000/7000DV</b>	31-808-0551
<b>Radial Purge Window for 4000/5000DV (Pre Nov. 2004)</b>	31-800-0024
<b>Radial Purge Window for 2000DV, Long</b>	31-808-2631

## PRODUCT LIST

Torches (continued)		
<b>Axial Purge Window for 2000DV or 3000XL (32mm disk)</b> 31-808-2649		
<b>Copper Foil for Torch Body (PKT 10)</b> 31-808-2645		
<b>Radial Purge Window for 5000/7000DV (Post Nov. 2004)</b> 31-808-2788		

RF Coils		
<b>RF Coil</b> Gold 70-900-2003G		
<b>RF Coil</b> Silver 70-900-2003S		
<b>Installation Kit</b> 70-900-2003T		



# APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>31-807-0050</b> Tapered Quartz Injector 2.0mm	
<b>20-809-0495HE</b> Twister Spray Chamber with Helix		<b>70-900-2003S</b> RF Coil Silver	
<b>30-808-2832</b> D-Torch for Optima 4300/5300/7300V (with Quartz Outer Tube)		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

## Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-2003G</b> RF Coil Gold	
<b>20-809-0495HE</b> Twister Spray Chamber with Helix		<b>70-900-2003T</b> RF Coil Installation Tool	
<b>30-808-2832</b> D-Torch for Optima 4300/5300/7300V (with Quartz Outer Tube)		<b>0.76-BLK-F</b> Contour Flared End PVC Pump Tube 2tag 0.76mm ID Black/Black (PKT 6)	
<b>31-808-2815</b> Ceramic Outer Tube for D-Torch, Optima 4300/5300/7300V		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000		<b>70-803-0570</b> Capricorn Argon Humidifier with bypass for PerkinElmer models	
<b>31-807-0050</b> Tapered Quartz Injector 2.0mm			

## Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>31-800-0018</b> Quartz Torch Bonnet for Optima 2000/4000/5000/7000	
<b>20-809-0495HE</b> Twister Spray Chamber with Helix		<b>31-807-0050</b> Tapered Quartz Injector 2.0mm	
		<b>70-900-2003S</b> RF Coil Silver	
<b>30-808-2832</b> D-Torch for Optima 4300/5300/7300V (with Quartz Outer Tube)		<b>70-900-2003T</b> RF Coil Installation Tool	

# APPLICATION PACKAGES

## Clinical and forensic materials (continued)

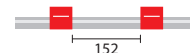
### 0.38-OG-F

Contour Flared End PVC Pump Tube 2tag  
0.38mm ID Orange/Green (PKT 6)



### 1.14-RED-F

Contour Flared End PVC Pump Tube 2tag  
1.14mm ID Red/Red (PKT 6)



## Drinking, ground and surface water

### ARG-07-UC2

Conikal U-Series Nebulizer 2mL/min



### 31-807-0050

Tapered Quartz Injector 2.0mm



### 20-809-0495HE

Twister Spray Chamber with Helix



### 70-900-2003S

RF Coil Silver



### 70-900-2003T

RF Coil Installation Tool



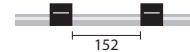
### 30-808-2832

D-Torch for Optima 4300/5300/7300V  
(with Quartz Outer Tube)



### 0.76-BLK-F

Contour Flared End PVC Pump Tube 2tag  
0.76mm ID Black/Black (PKT 6)



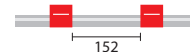
### 31-800-0018

Quartz Torch Bonnet for Optima  
2000/4000/5000/7000



### 1.14-RED-F

Contour Flared End PVC Pump Tube 2tag  
1.14mm ID Red/Red (PKT 6)



## Geological with HF, Soil and sediment with HF

### ARG-07-DM1

DuraMist Nebulizer 1mL/min



### 31-808-1352

Tapered Alumina Injector 2.0mm



### 20-809-2507

Tracey TFE Spray Chamber with Helix



### 70-900-2003G

RF Coil Gold



### 70-900-2003T

RF Coil Installation Tool



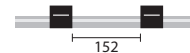
### 30-808-2832

D-Torch for Optima 4300/5300/7300V  
(with Quartz Outer Tube)



### 0.76-BLK-F

Contour Flared End PVC Pump Tube 2tag  
0.76mm ID Black/Black (PKT 6)



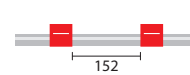
### 31-808-2815

Ceramic Outer Tube for D-Torch, Optima  
4300/5300/7300V



### 1.14-RED-F

Contour Flared End PVC Pump Tube 2tag  
1.14mm ID Red/Red (PKT 6)



## Petrochemicals

### ARG-07-UM06

MicroMist U-Series Nebulizer 0.6mL/min



### 31-808-2815

Ceramic Outer Tube for D-Torch, Optima  
4300/5300/7300V



### KT-1011

IsoMist Kit for PerkinElmer Optima  
4300/5300/7300V



### 31-808-0119

Tapered Quartz Injector 1.0mm



### 70-900-2003S

RF Coil Silver



### 30-808-2832

D-Torch for Optima 4300/5300/7300V  
(with Quartz Outer Tube)



### 70-900-2003T

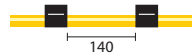
RF Coil Installation Tool



Petrochemicals (continued)

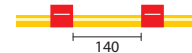
**0.76-BLK-SF-F**

Contour Flared End Solva Flex Pump Tube  
2tag 0.76mm ID Black/Black (PKT 6)



**1.14-RED-SF-F**

Contour Flared End Solva Flex Pump Tube  
2tag 1.14mm ID Red/Red (PKT 6)



Wear Metals in oil

**ARG-07-US6**

Slurry U-Series Nebulizer 4mL/min



**31-808-0119**

Tapered Quartz Injector 1.0mm



**20-809-0495HE**

Twister Spray Chamber with Helix



**70-900-2003S**

RF Coil Silver



**70-900-2003T**

RF Coil Installation Tool



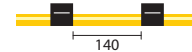
**30-808-2832**

D-Torch for Optima 4300/5300/7300V  
(with Quartz Outer Tube)



**0.76-BLK-SF-F**

Contour Flared End Solva Flex Pump Tube  
2tag 0.76mm ID Black/Black (PKT 6)



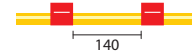
**31-808-2815**

Ceramic Outer Tube for D-Torch, Optima  
4300/5300/7300V



**1.14-RED-SF-F**

Contour Flared End Solva Flex Pump Tube  
2tag 1.14mm ID Red/Red (PKT 6)



PRODUCT LIST

Nebulizers

**Conikal**

2mL/min uptake ARG-07-UC2

**SeaSpray**

2mL/min uptake ARG-07-USS2

**Slurry**

4mL/min uptake ARG-07-US6

**MicroMist**

600µL/min uptake ARG-07-UM06

200µL/min uptake ARG-07-UM02

100µL/min uptake ARG-07-UM01

50µL/min uptake ARG-07-UM005

**OpalMist**

2mL/min uptake ARG-07-PFA2

600µL/min uptake ARG-07-PFA06

200µL/min uptake ARG-07-PFA02

100µL/min uptake ARG-07-PFA01

50µL/min uptake ARG-07-PFA005

**DuraMist**

1mL/min uptake ARG-07-DM1

400µL/min uptake ARG-07-DM04

**VeeSpray - Ceramic**

Standard ARG-07-CV6



IsoMist

**IsoMist Programmable Temperature Spray Chamber**

IsoMist Kit for PerkinElmer  
Optima 4300/5300/7300V KT-1011



Spray Chambers

**Twister**

50mL Cyclonic 20-809-0495HE











**Tracey TFE**

50mL Cyclonic 20-809-2507  
Suitable for use with HF.



## PRODUCT LIST

Torches		
<b>D-Torch Demountable Torch</b>		
D-Torch for 4300/5300/7300V	30-808-2832	
<b>Comprises:</b>		
Base and Inner Tube	31-808-2809	
Quartz Outer Tube	31-808-2821	
Retaining Ring	31-808-2818	
<b>Quartz Torch</b>		
Quartz Torch - three slot	30-807-0064	
<b>Quartz Injectors</b>		
Tapered Quartz Injector 1.0mm	31-808-0119	
Tapered Quartz Injector 1.5mm	31-808-0124	
Tapered Quartz Injector 1.8mm	31-807-0008	
Tapered Quartz Injector 2.0mm	31-807-0050	
These injectors are suitable for both the fixed torch and D-Torch.		
<b>HF Resistant Injectors</b>		
Tapered Alumina Injector 1.5mm	31-807-0051	
Tapered Alumina Injector 1.8mm	31-807-0052	
Tapered Alumina Injector 2.0mm	31-808-1352	
Capillary Alumina Injector 2.0mm	31-808-2625	
These injectors are suitable for both the fixed torch and D-torch.		
<b>Torch Bonnet</b>	31-800-0018	
<b>Purge Extension Window for 4300/5300/7300V</b>	31-808-1345	
<b>Torch Adaptor with Auxiliary Port</b>	31-808-2503	
<b>Option for D-Torch</b>	31-808-2815	

RF Coils		
<b>RF Coil</b>		
Gold	70-900-2003G	
<b>RF Coil</b>		
Silver	70-900-2003S	
<b>Installation Kit</b>	70-900-2003T	

# Customer Comments

*We like the TruFlo monitor. It has helped us on a number of occasions to track down some minor issues and we use it constantly while running our ICP.*

[Oil company – USA](#)

*With Niagara Plus we have found a marked improvement in carry over, productivity, gas and internal standard usage without the loss of sensitivity ... Argon saving would be around 40-50% as sample time has been halved.*

[University environmental laboratory – Australia](#)

*The D-Torch is performing very well. The ceramic outer has been in almost constant service 22 hours a day, 6 days a week since we purchased it and we have had no issues ... We are due to purchase a replacement ICP and will certainly be purchasing another D-Torch to go along with it.*

[Lubricating oils laboratory – Australia](#)

*The equipment works extraordinarily well. Keeping temperature at 5degC the noise drops to half as much as without the IsoMist. There is no problem at all with temperature stability and the signal is twice as much as the one obtained without the IsoMist.*

[University laboratory – Spain](#)

*I would like to thank you for an excellent service! The goods were delivered in three(!) working days from the other side of the world. I'm still in a state of disbelief.*

[Environmental laboratory – Finland](#)

*The Ceramic torch is quite excellent, mostly from a maintenance standpoint, it forms much less deposits on it and that which forms is usually very easy to clean ... I do think we'll continue buying ceramic torches mostly because they last much longer and are so much easier to keep clean.*

[Environmental laboratory – Sweden](#)

*We were very pleased with the Eluo - great idea and a lot easier than how we used to clean the nebulisers. Keep up with the great ideas.*

[Contract laboratory – New Zealand](#)

*We have had quite a few orders with your company recently and I wanted to let you know how nice it is to deal with a company and people that are as helpful as you all are from technical support to the shipping department. When we need rush orders, they always arrive the next day. Your customer service is outstanding and I think you all deserve some recognition for a job well done! Thank you very much and we look forward to doing business with you in the future! Keep up the good work!*

[Laboratory services company - USA](#)

**We welcome feedback from our customers and we are happy to publish comments in the Customer Comments section of our website.**

## APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-1-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>21-808-8214</b> Drain Device	
<b>20-808-8881HE</b> Tracey Spray Chamber with B14 Drain with Helix		<b>30-807-0534</b> Quartz Mini Torch for Shimadzu ICPE-9000	
		<b>30-808-1179</b> Standard Quartz Torch, 1.5mm injector for Shimadzu ICPS-7500/8100	






## Brines and salts

<b>ARG-1-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>30-807-0518</b> Quartz Torch ICPS-7500/8100/9000, 1.8mm injector for High TDS for Shimadzu	
<b>20-809-9119HE</b> Twister Spray Chamber with B14 Drain with Helix			
<b>21-808-8214</b> Drain Device		<b>70-808-1226</b> Capricorn Argon Humidifier with bypass	

## Clinical and forensic materials

<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>21-808-8214</b> Drain Device	
<b>20-809-9119HE</b> Twister Spray Chamber with B14 Drain with Helix			
		<b>30-807-0518</b> Quartz Torch ICPS-7500/8100/9000, 1.8mm injector for High TDS for Shimadzu	

## Geological with HF, Soil and sediment with HF

<b>ARG-1-DM1</b> DuraMist Nebulizer 1mL/min		<b>21-809-2540</b> HF Drain Device	
<b>20-809-2508</b> Tracey TFE Spray Chamber with B14 Drain and Helix		<b>21-809-2839</b> Mounting Bracket for HF Spray Chamber	
		<b>30-808-8039</b> Semi Demountable Torch with Alumina Injector for Shimadzu 7500/8100	

## Petrochemicals

## ARG-1-UM04

MicroMist U-Series Nebulizer 0.4mL/min



## 30-807-0519

Quartz Torch ICPS-7500/8100/9000,  
1.0mm injector for Organics for Shimadzu

## KT-1067

IsoMist Kit for Shimadzu



## Wear Metals in oil

## ARG-1-US6

Slurry U-Series Nebulizer 4mL/min



## 21-808-8214

Drain Device



## 20-809-9119HE

Twister Spray Chamber with B14 Drain  
with Helix

## 30-807-0519

Quartz Torch ICPS-7500/8100/9000,  
1.0mm injector for Organics for Shimadzu

## PRODUCT LIST

## Nebulizers

## Conikal

1mL/min uptake

ARG-1-UC1

## SeaSpray

2mL/min uptake

ARG-1-USS2

## Slurry

4mL/min uptake

ARG-1-US6



## MicroMist

400µL/min uptake

ARG-1-UM04

200µL/min uptake

ARG-1-UM02

100µL/min uptake

ARG-1-UM01

50µL/min uptake

ARG-1-UM005

## OpalMist

2mL/min uptake

ARG-1-PFA2

400µL/min uptake

ARG-1-PFA04

200µL/min uptake

ARG-1-PFA02

100µL/min uptake

ARG-1-PFA01

50µL/min uptake

ARG-1-PFA005



## DuraMist

1mL/min uptake

ARG-1-DM1

400µL/min uptake

ARG-1-DM04



## VeeSpray - Ceramic

Standard

ARG-1-CV6



## IsoMist

IsoMist Programmable  
Temperature Spray Chamber

IsoMist Kit Shimadzu KT-1067



## Spray Chambers

## Tracey

50mL Cyclonic

20-808-8881HE

With B14 gravity drain.



## Twister

50mL Cyclonic

20-809-9119HE

With B14 gravity drain.










## Twister


50mL Cyclonic






20-809-0222HE



## PRODUCT LIST

Spray Chambers (continued)		
<b>Cinnabar</b> 20mL Cyclonic	20-809-0164HE	
<b>Drain Device</b>	21-808-8214	
<b>Tracey TFE</b> 50mL Cyclonic Suitable for use with HF.	20-809-2506	
<b>Tracey TFE</b> 50mL Cyclonic With B14 gravity drain. Suitable for use with HF.	20-809-2508	
<b>HF Drain Device</b>	21-809-2540	
<b>Glass Transfer Tube, Spray Chamber to ICP-9000</b>	21-809-2846	
<b>Mounting bracket for HF Spray Chamber</b>	21-809-2839	

Torches		
<b>Semi Demountable Torch (HF)</b>	30-808-8039	
Comprises:		
Semi Demountable Torch Body	31-808-1258	
Semi Demountable Torch Adaptor	31-808-1260	
Tapered Alumina Injector 1.5mm	31-808-0013	
Joint Clip B14-Nickel	KCM-14	
GazFit Connectors (PKT 4) for 4mm OD side arms	GAZ-04	

Torches (continued)		
<b>HF Resistant Injectors</b>		
Tapered Alumina Injector 1.5mm	31-808-0013	
Tapered Alumina Injector 1.8mm	31-808-0015	
<b>Quartz Torches</b>		
Quartz Torch Standard 1.5mm Injector (Suitable for ICPS-7500/8100)	30-808-1179	
Quartz Torch for Organics, 1.0mm Injector (Suitable for ICPS-7500/8100/9000)	30-807-0519	
Quartz Torch for High TDS, 1.8mm Injector (Suitable for ICPS-7500/8100/9000)	30-807-0518	
<b>Quartz Torches</b>		
Quartz Torch 1.2mm Injector (Suitable for ICPM-8500)	30-808-9986	
Quartz Torch 1.5mm Injector (Suitable for ICPM-8500)	30-808-1090	
<b>Quartz Torches</b>		
Quartz Torch L Shape (Suitable for ICPS-7000)	30-808-1091	
<b>Quartz Torches</b>		
Quartz Mini Torch (Suitable for ICPE-9000)	30-807-0534	



# Tools and connectors to make life easier for the ICP operator



UniFit Connector – connects the sample tube to the nebulizer



GazFit Connectors – connect argon lines or sample line to the torch



Spray chamber drain connector



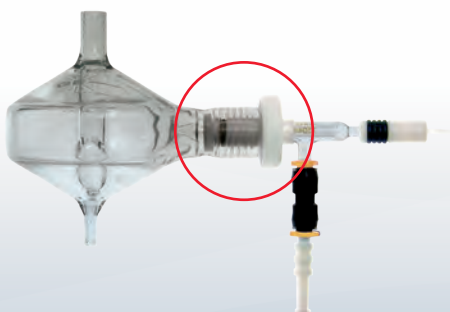
Reagent Tube with PTFE Sinkers (P/N 70-803-0752)



EzyLok Kit – connects the argon line to the nebulizer



O-Ring Removal Tool



Helix interface between nebulizer and spray chamber




Fluka RBS-25 Cleaning Solution (P/N FLUKA25)




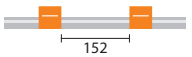


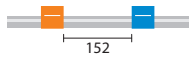

Eluo Nebulizer Cleaning Tool

## APPLICATION PACKAGES


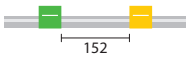
Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge


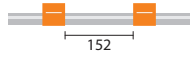
<p><b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min</p> 	<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 
<p><b>20-809-0439HE</b> Tracey Spray Chamber with Helix (Long Neck)</p> 	<p><b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)</p> 
<p><b>30-808-0317</b> Quartz Torch 2.5mm injector, 4mm OD side arms for Spectro EOP</p> 	<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p> 
	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 


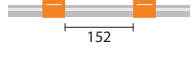

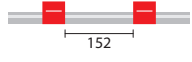


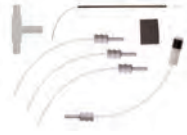
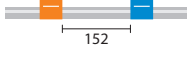
### Brines and salts




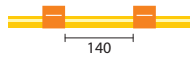
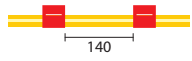
<p><b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min</p> 	<p><b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)</p> 
<p><b>20-809-0243HE</b> Twister Spray Chamber with Long Neck and Helix</p> 	<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p> 
<p><b>30-808-0317</b> Quartz Torch 2.5mm injector, 4mm OD side arms for Spectro EOP</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 
<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 	<p><b>70-803-0518</b> Capricorn Argon Humidifier with bypass for Spectro</p> 

### Clinical and forensic materials

<p><b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p> 	<p><b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)</p> 
<p><b>20-809-0243HE</b> Twister Spray Chamber with Long Neck and Helix</p> 	<p><b>0.44-GY-F</b> Contour Flared End PVC Pump Tube 2tag 0.44mm ID Green/Yellow (PKT 6)</p> 
<p><b>30-808-0317</b> Quartz Torch 2.5mm injector, 4mm OD side arms for Spectro EOP</p> 	<p><b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)</p> 
	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 





Drinking, ground and surface water			
<b>ARG-07-UC2</b> Conikal U-Series Nebulizer 2mL/min		<b>30-808-0317</b> Quartz Torch 2.5mm injector, 4mm OD side arms for Spectro EOP	
<b>20-809-0439HE</b> Tracey Spray Chamber with Helix (Long Neck)		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

Geological with HF, Soil and sediment with HF			
<b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>20-809-2506</b> Tracey TFE Spray Chamber with Helix		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
		<b>21-809-2582</b> PuraFlex Transfer Tube	
<b>30-808-1467</b> Semi Demountable Torch for Spectro EOP		<b>60-808-1150</b> Trident Internal Standard Kit for HF solutions	
<b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)			


Petrochemicals			
<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>30-808-8005</b> Quartz Torch 1.8mm injector for Spectro EOP	
<b>KT-1029</b> IsoMist Basic Kit EROL		<b>0.89-ORG-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>30-808-8005</b> Quartz Torch 1.8mm injector for Spectro EOP	
<b>20-809-0243HE</b> Twister Spray Chamber with Long Neck and Helix		<b>0.89-ORG-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	



## PRODUCT LIST




Nebulizers		
<b>Conikal</b>		
2mL/min uptake	ARG-07-UC2	
<b>SeaSpray</b>		
2mL/min uptake	ARG-07-USS2	
<b>Slurry</b>		
4mL/min uptake	ARG-07-US6	
<b>MicroMist</b>		
600µL/min uptake	ARG-07-UM06	
200µL/min uptake	ARG-07-UM02	
100µL/min uptake	ARG-07-UM01	
50µL/min uptake	ARG-07-UM005	
<b>OpalMist</b>		
2mL/min uptake	ARG-07-PFA2	
600µL/min uptake	ARG-07-PFA06	
200µL/min uptake	ARG-07-PFA02	
100µL/min uptake	ARG-07-PFA01	
50µL/min uptake	ARG-07-PFA005	
<b>DuraMist</b>		
1mL/min uptake	ARG-07-DM1	
400µL/min uptake	ARG-07-DM04	
<b>VeeSpray - Ceramic</b>		
Standard	ARG-07-CV6	

IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b>	
IsoMist Kit EROL	KT-1029



Spray Chambers		
<b>Tracey</b>		
50mL Cyclonic	20-809-0439HE	
<b>Twister</b>		
50mL Cyclonic	20-809-0243HE	

Spray Chambers (continued)		
<b>Tracey TFE</b>		
50mL Cyclonic	20-809-2506	
Suitable for use with HF. Requires Transfer Tube 21-809-2582.		
<b>PuraFlex Transfer Tube</b>		
	21-809-2582	

Torches		
<b>Quartz Torches</b>		
EOP Quartz Torch with 2.5mm Injector	30-808-0317	
<b>Quartz Torches</b>		
EOP Fixed Sheath Gas Torch with 3.0mm Injector	30-808-1165	
<b>Quartz Torches</b>		
EOP Quartz Torch with 1.8mm Injector	30-808-8005	
<b>Semi Demountable Torch (HF)</b>		
Semi Demountable Torch for Spectro EOP	30-808-1467	
<b>Comprises:</b>		
SDT Quartz Torch Body	31-808-1458	
Tapered Alumina Injector 2.4mm	31-808-1195	
SDT Adaptor	31-808-1459	

# APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch	
<b>20-808-8882HE</b> Tracey Spray Chamber with Helix		<b>31-800-1008</b> Quartz Bonnet	
		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	

## Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>31-800-1008</b> Quartz Bonnet	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-808-2973</b> Ceramic Outer Tube for Spectro Radial D-Torch		<b>70-803-0518</b> Capricorn Argon Humidifier with bypass for Spectro	
<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch			

## Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>31-800-1008</b> Quartz Bonnet	
		<b>0.44-GY-F</b> Contour Flared End PVC Pump Tube 2tag 0.44mm ID Green/Yellow (PKT 6)	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	





## Drinking, ground and surface water


<b>ARG-07-UC2</b> Conikal U-Series Nebulizer 2mL/min		<b>20-808-8882HE</b> Tracey Spray Chamber with Helix	
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# APPLICATION PACKAGES


Drinking, ground and surface water (continued)			
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
<b>31-800-1008</b> Quartz Bonnet			
Geological with HF, Soil and sediment with HF			
<b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min		<b>31-808-2963</b> Tapered Alumina Injector 1.8mm for Spectro Radial D-Torch	
<b>20-809-2506</b> Tracey TFE Spray Chamber with Helix		<b>31-800-1008</b> Quartz Bonnet	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>0.89-ORG-F</b> Contour Flared End PVC Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>31-808-2973</b> Ceramic Outer Tube for Spectro Radial D-Torch		<b>1.14-RED-F</b> Contour Flared End PVC Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
Petrochemicals			
<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch	
<b>KT-1029</b> IsoMist Basic Kit EROL		<b>31-800-1008</b> Quartz Bonnet	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>0.89-ORG-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>31-808-2973</b> Ceramic Outer Tube for Spectro Radial D-Torch		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	
Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>31-808-2974</b> Tapered Quartz Injector 1.8mm for Spectro Radial D-Torch	
<b>20-809-0222HE</b> Twister Spray Chamber with Helix		<b>31-800-1008</b> Quartz Bonnet	
<b>30-808-2928</b> D-Torch for Spectro Radial (without injector)		<b>0.89-ORG-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.89mm ID Orange/Orange (PKT 6)	
<b>31-808-2973</b> Ceramic Outer Tube for Spectro Radial D-Torch		<b>1.14-RED-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.14mm ID Red/Red (PKT 6)	








# PRODUCT LIST

Nebulizers		
<b>Conikal</b>		
2mL/min uptake	ARG-07-UC2	
<b>SeaSpray</b>		
2mL/min uptake	ARG-07-USS2	
<b>Slurry</b>		
4mL/min uptake	ARG-07-US6	
<b>MicroMist</b>		
600µL/min uptake	ARG-07-UM06	
200µL/min uptake	ARG-07-UM02	
100µL/min uptake	ARG-07-UM01	
50µL/min uptake	ARG-07-UM005	
<b>OpalMist</b>		
2mL/min uptake	ARG-07-PFA2	
600µL/min uptake	ARG-07-PFA06	
200µL/min uptake	ARG-07-PFA02	
100µL/min uptake	ARG-07-PFA01	
50µL/min uptake	ARG-07-PFA005	
<b>DuraMist</b>		
1mL/min uptake	ARG-07-DM1	
400µL/min uptake	ARG-07-DM04	
<b>VeeSpray - Ceramic</b>		
Standard	ARG-07-CV6	

IsoMist		
<b>IsoMist Programmable Temperature Spray Chamber</b>		
IsoMist Kit EROL	KT-1029	




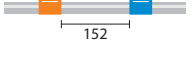

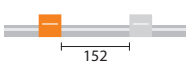

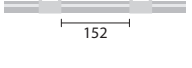


Spray Chambers		
<b>Tracey</b>		
50mL Cyclonic	20-808-8882HE	
<b>Twister</b>		
50mL Cyclonic	20-809-0222HE	
<b>Cinnabar</b>		
20mL Cyclonic	20-809-0164HE	

Spray Chambers (continued)		
<b>Tracey TFE</b>		
50mL Cyclonic	20-809-2506	
Suitable for use with HF.		

Torches		
<b>D-Torch</b>		
	30-808-2928	
<b>Comprises:</b>		
Base and Inner Tube	31-808-2942	
Quartz Outer Tube	31-808-2939	
Injector Adaptor	31-808-3177	
Injector Ferrule	31-808-2962	
Retaining Ring	31-808-2818	
<b>D-Torch Options</b>		
Tapered Quartz Injector 1.8mm	31-808-2974	
<b>D-Torch Options</b>		
Tapered Alumina Injector 1.8mm	31-808-2963	
<b>D-Torch Options</b>		
Ceramic Outer Tube	31-808-2973	
<b>Quartz Torches</b>		
Quartz Torch with 1.8mm Injector	30-808-0240	
Quartz Torch with 1.0mm Injector	30-808-1202	
Quartz Torch with 2.5mm Injector (with gas fittings)	30-807-0524	
<b>Semi Demountable Torch (HF)</b>		
	30-807-0535	
<b>Comprises:</b>		
Semi Demountable Torch Quartz Body	31-808-2795	
Tapered Alumina Injector 1.8mm	31-808-2793	
SDT Adaptor	31-808-2796	
<b>Components for Spectro designed Semi-Demountable Torch</b>		
Radial Demountable Torch Tube Assembly with 3 gas inlets	30-808-0488-3	
Quartz Injector for Spectro Demountable Torch 1.5mm	31-808-1203	
Quartz Injector for Spectro Demountable Torch 1.8mm	31-808-0071	
Quartz Injector for Spectro Demountable Torch 2.5mm	31-808-1204	

## APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<p><b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min</p> 	<p><b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000</p> 
<p><b>20-809-2665HE</b> Tracey Spray Chamber with Helix</p> 	<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 
<p><b>30-808-2844</b> D-Torch for iCAP 6000 Duo (Quartz Outer Tube)</p> 	<p><b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)</p> 
<p><b>31-808-2836</b> Capillary Quartz Injector 2.0mm (EMT)</p> 	<p><b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)</p> 
<p><b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 

### Brines and salts

<p><b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min</p> 	<p><b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000</p> 
<p><b>20-809-2951HE</b> Twister Spray Chamber with Helix</p> 	<p><b>0.25-OB-F</b> Contour Flared End PVC Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)</p> 
<p><b>30-808-2844</b> D-Torch for iCAP 6000 Duo (Quartz Outer Tube)</p> 	<p><b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)</p> 
<p><b>31-808-3079</b> Ceramic Outer Tube and Optic Fibre for iCAP 6000 Duo D-Torch</p> 	<p><b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)</p> 
<p><b>31-808-2836</b> Capillary Quartz Injector 2.0mm (EMT)</p> 	<p><b>60-808-1185</b> Trident Internal Standard Kit</p> 
<p><b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000</p> 	<p><b>70-803-0634</b> Capricorn Argon Humidifier with bypass for Thermo iCAP 6000</p> 

### Clinical and forensic materials

<p><b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min</p> 	<p><b>31-808-2836</b> Capillary Quartz Injector 2.0mm (EMT)</p> 
<p><b>20-809-2951HE</b> Twister Spray Chamber with Helix</p> 	<p><b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000</p> 
<p><b>30-808-2844</b> D-Torch for iCAP 6000 Duo (Quartz Outer Tube)</p> 	<p><b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000</p> 



**Clinical and forensic materials (continued)**

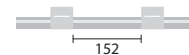
**0.19-OR-F**

Contour Flared End PVC Pump Tube 2tag  
0.19mm ID Orange/Red (PKT 6)



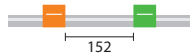
**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



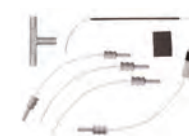
**0.38-OG-F**

Contour Flared End PVC Pump Tube 2tag  
0.38mm ID Orange/Green (PKT 6)



**60-808-1185**

Trident Internal Standard Kit



**Drinking, ground and surface water**

**ARG-07-UC2**

Conikal U-Series Nebulizer 2mL/min



**70-900-4002S**

RF Coil Silver for Thermo iCAP 6000



**20-809-2665HE**

Tracey Spray Chamber with Helix



**70-900-4002T**

RF Coil Installation Tool for Thermo iCAP 6000



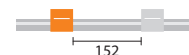
**30-808-2844**

D-Torch for iCAP 6000 Duo  
(Quartz Outer Tube)



**0.64-OW-F**

Contour Flared End PVC Pump Tube 2tag  
0.64mm ID Orange/White (PKT 6)



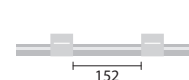
**31-808-2836**

Capillary Quartz Injector 2.0mm (EMT)



**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



**Geological with HF, Soil and sediment with HF**

**ARG-07-DM1**

DuraMist Nebulizer 1mL/min



**70-900-4002S**

RF Coil Silver for Thermo iCAP 6000



**20-809-3469**

Tracey TFE Spray Chamber with Helix



**70-900-4002T**

RF Coil Installation Tool for Thermo iCAP 6000



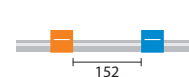
**30-808-2844**

D-Torch for iCAP 6000 Duo  
(Quartz Outer Tube)



**0.25-OB-F**

Contour Flared End PVC Pump Tube 2tag  
0.25mm ID Orange/Blue (PKT 6)



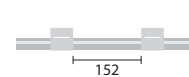
**31-808-3079**

Ceramic Outer Tube and Optic Fibre  
for iCAP 6000 Duo D-Torch



**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



**31-808-2835**

Alumina Injector 2.0mm (EMT)



**60-808-1150**

Trident Internal Standard Kit for HF solutions



**Petrochemicals**

**ARG-07-UM06**

MicroMist U-Series Nebulizer 0.6mL/min



**30-808-2844**

D-Torch for iCAP 6000 Duo  
(Quartz Outer Tube)



**KT-1015**

IsoMist Kit for Thermo iCAP 6000 Duo










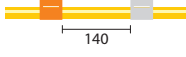
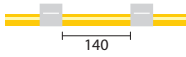
**31-808-3079**

Ceramic Outer Tube and Optic Fibre  
for iCAP 6000 Duo D-Torch







## APPLICATION PACKAGES

Petrochemicals (continued)			
<b>31-808-2833</b> Tapered Quartz Injector 1.0mm (EMT)		<b>0.64-OW-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000		<b>1.02-WHT-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000			

Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>31-808-2833</b> Tapered Quartz Injector 1.0mm (EMT)	
<b>20-809-2951HE</b> Twister Spray Chamber with Helix		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>30-808-2844</b> D-Torch for iCAP 6000 Duo (Quartz Outer Tube)		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>31-808-3079</b> Ceramic Outer Tube and Optic Fibre for iCAP 6000 Duo D-Torch		<b>0.64-OW-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
		<b>1.02-WHT-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.02mm ID White/White (PKT 6)	


## PRODUCT LIST

Nebulizers		
<b>Conikal</b> 2mL/min uptake	ARG-07-UC2	
<b>SeaSpray</b> 2mL/min uptake	ARG-07-USS2	
<b>Slurry</b> 4mL/min uptake	ARG-07-US6	
<b>MicroMist</b> 600µL/min uptake	ARG-07-UM06	
200µL/min uptake	ARG-07-UM02	
100µL/min uptake	ARG-07-UM01	
50µL/min uptake	ARG-07-UM005	
<b>OpalMist</b> 2mL/min uptake	ARG-07-PFA2	
600µL/min uptake	ARG-07-PFA06	
200µL/min uptake	ARG-07-PFA02	
100µL/min uptake	ARG-07-PFA01	
50µL/min uptake	ARG-07-PFA005	

Nebulizers (continued)		
<b>DuraMist</b> 1mL/min uptake	ARG-07-DM1	
400µL/min uptake	ARG-07-DM04	
<b>VeeSpray - Ceramic</b> Standard	ARG-07-CV6	








IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b> IsoMist Kit for Thermo iCAP 6000 Duo	KT-1015






Spray Chambers		
<b>Tracey</b> 50mL Cyclonic	20-809-2665HE	

# PRODUCT LIST

Spray Chambers (continued)		
<b>Twister</b> 50mL Cyclonic	20-809-2951HE	
<b>Tracey TFE</b> 50mL Cyclonic (Suitable for HF)	20-809-3469	
<b>Adaptor</b> Right Angle With Ball Joint	21-809-2761	

Torches		
<b>D-Torch Demountable Torch</b> D-Torch with Quartz Outer Tube	30-808-2844	
<b>Comprises:</b>		
Base and Inner Tube	31-808-2932	
Quartz Outer Tube	31-808-2840	
Retaining Ring	31-808-2707	
Injector Adaptor	31-808-2895	
Injector Ferrule	31-808-2897	
<b>Injectors for D-Torch &amp; EMT Torch</b>		
Tapered Quartz Injector 1.0mm	31-808-2833	
Tapered Quartz Injector 1.5mm	31-808-2834	
Capillary Quartz Injector 2.0mm	31-808-2836	
Alumina Injector 2.0mm	31-808-2835	
<b>Ceramic Outer Tube and Optic Fibre for D-Torch</b>	31-808-3079	
<b>Comprises:</b>		
Ceramic Outer Tube	31-808-2863	
Optic Fibre 170mm	31-808-2933	
Optic Fibre 450mm	31-808-3117	
<b>Quartz Torch</b> EMT Design	31-808-2811	
<b>Quartz Torch</b> Old Design	31-808-2676	
<b>Injectors for Old Design Torch</b>		
Tapered Quartz Injector 1.0mm	31-808-2719	
Tapered Quartz Injector 1.5mm	31-808-2702	
Capillary Quartz Injector 2.0mm	31-808-2675	

Torches (continued)		
Tapered Alumina Injector 1.5mm	31-808-2787	
Alumina Injector 2.0mm	31-808-2786	
Sapphire Injector 2.0mm	31-808-2804	
<b>Other Products</b>		
Duo Periscope Window	31-808-2677	

RF Coils		
<b>RF Coil</b> Gold, Teflon Coated	70-900-4002G	
<b>RF Coil</b> Silver, Teflon Coated	70-900-4002S	
<b>Installation Kit</b>	70-900-4002T	

## APPLICATION PACKAGES

Animal feed, Chemicals and fertilizers, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>20-809-2665HE</b> Tracey Spray Chamber with Helix		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
<b>31-808-2834</b> Tapered Quartz Injector 1.5mm (EMT)		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	

### Brines and salts

<b>ARG-07-USS2</b> SeaSpray U-Series Nebulizer 2mL/min		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>20-809-2951HE</b> Twister Spray Chamber with Helix		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
<b>31-808-2881</b> Ceramic Outer Tube for Radial iCAP 6000 D-Torch		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>31-808-2836</b> Capillary Quartz Injector 2.0mm (EMT)		<b>70-803-0634</b> Capricorn Argon Humidifier with bypass for Thermo iCAP 6000	

### Clinical and forensic materials

<b>ARG-07-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>20-809-2951HE</b> Twister Spray Chamber with Helix		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>0.38-OG-F</b> Contour Flared End PVC Pump Tube 2tag 0.38mm ID Orange/Green (PKT 6)	
<b>31-808-2836</b> Capillary Quartz Injector 2.0mm (EMT)		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	

Drinking, ground and surface water

<b>ARG-07-UC2</b> Conikal U-Series Nebulizer 2mL/min		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>20-809-2665HE</b> Tracey Spray Chamber with Helix		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
<b>31-808-2834</b> Tapered Quartz Injector 1.5mm (EMT)		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	

Geological with HF, Soil and sediment with HF

<b>ARG-07-DM1</b> DuraMist Nebulizer 1mL/min		<b>31-808-2835</b> Alumina Injector 2.0mm (EMT)	
<b>20-809-9198</b> Tracey TFE Spray Chamber with Helix		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>31-808-2881</b> Ceramic Outer Tube for Radial iCAP 6000 D-Torch		<b>0.64-OW-F</b> Contour Flared End PVC Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	





Petrochemicals


<b>ARG-07-UM06</b> MicroMist U-Series Nebulizer 0.6mL/min		<b>31-808-2833</b> Tapered Quartz Injector 1.0mm (EMT)	
<b>KT-1021</b> IsoMist Kit for Thermo iCAP 6000 Radial		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>31-808-2881</b> Ceramic Outer Tube for Radial iCAP 6000 D-Torch		<b>0.64-OW-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
		<b>1.02-WHT-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.02mm ID White/White (PKT 6)	





## APPLICATION PACKAGES

Wear Metals in oil			
<b>ARG-07-US6</b> Slurry U-Series Nebulizer 4mL/min		<b>31-808-2833</b> Tapered Quartz Injector 1.0mm (EMT)	
<b>20-809-2951HE</b> Twister Spray Chamber with Helix		<b>70-900-4002S</b> RF Coil Silver for Thermo iCAP 6000	
		<b>70-900-4002T</b> RF Coil Installation Tool for Thermo iCAP 6000	
<b>30-808-2877</b> D-Torch for iCAP 6000 Radial (Quartz Outer Tube)		<b>0.64-OW-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.64mm ID Orange/White (PKT 6)	
<b>31-808-2881</b> Ceramic Outer Tube for Radial iCAP 6000 D-Torch		<b>1.02-WHT-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.02mm ID White/White (PKT 6)	









## PRODUCT LIST




Nebulizers		
<b>Conikal</b> 2mL/min uptake ARG-07-UC2		
<b>SeaSpray</b> 2mL/min uptake ARG-07-USS2		
<b>Slurry</b> 4mL/min uptake ARG-07-US6		
<b>MicroMist</b> 600µL/min uptake ARG-07-UM06 200µL/min uptake ARG-07-UM02 100µL/min uptake ARG-07-UM01 50µL/min uptake ARG-07-UM005		
<b>OpalMist</b> 2mL/min uptake ARG-07-PFA2 600µL/min uptake ARG-07-PFA06 200µL/min uptake ARG-07-PFA02 100µL/min uptake ARG-07-PFA01 50µL/min uptake ARG-07-PFA005		
<b>DuraMist</b> 1mL/min uptake ARG-07-DM1 400µL/min uptake ARG-07-DM04		
<b>VeeSpray - Ceramic</b> Standard ARG-07-CV6		

IsoMist	
<b>IsoMist Programmable Temperature Spray Chamber</b> IsoMist Kit for Thermo iCAP 6000 Radial KT-1021	

Spray Chambers		
<b>Tracey</b> 50mL Cyclonic 20-809-2665HE		
<b>Twister</b> 50mL Cyclonic 20-809-2951HE		
<b>Tracey TFE</b> 50mL Cyclonic 20-809-9198 Suitable for use with HF.		
<b>Straight Ball Joint Adaptor</b> 21-809-2723		

# PRODUCT LIST

Torches		
<b>D-Torch Demountable Torch</b>		
	30-808-2877	
Comprises:		
Base and Inner Tube	31-808-2932	
Quartz Outer Tube	31-808-2878	
Retaining Ring	31-808-2707	
Injector Adaptor	31-808-2895	
Injector Ferrule	31-808-2897	
<b>Injectors for D-Torch &amp; EMT Torch</b>		
Tapered Quartz Injector 1.0mm (EMT)	31-808-2833	
Tapered Quartz Injector 1.5mm (EMT)	31-808-2834	
Capillary Quartz Injector 2.0mm (EMT)	31-808-2836	
Alumina Injector 2.0mm (EMT)	31-808-2835	
<b>Quartz Torch</b>		
Quartz Torch (EMT)	31-808-2810	
<b>Quartz Torch</b>		
Quartz Torch (Old Design)	31-808-2692	
<b>Injectors for Old Design Semi Demountable Torch</b>		
Tapered Quartz Injector 1.0mm	31-808-2719	
Tapered Quartz Injector 1.5mm	31-808-2702	
Capillary Quartz Injector 2.0mm	31-808-2675	
Tapered Alumina Injector 1.5mm	31-808-2787	
Alumina Injector 2.0mm	31-808-2786	
Sapphire Injector 2.0mm	31-808-2804	
<b>Options for D-Torch</b>		
Ceramic Outer Tube	31-808-2881	

RF Coils		
<b>RF Coil</b>		
Gold, Teflon Coated	70-900-4002G	
<b>RF Coil</b>		
Silver, Teflon Coated	70-900-4002S	
<b>Installation Kit</b>		
	70-900-4002T	

## APPLICATION PACKAGES





Animal feed, Chemicals and fertilizers, Drinking, ground and surface water, Food and drink, Geological without HF, Metals, Plants, Soil and sediment without HF, Waste water and sludge

<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>TG1022-Ni</b> Nickel Skimmer Cone, Xi, Xt	
<b>KT-1025</b> IsoMist Kit for Thermo X Series		<b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)	
<b>30-808-1279</b> Quartz Torch with 1.5mm Injector for X Series		<b>0.51-OY-F</b> Contour Flared End PVC Pump Tube 2tag 0.51mm ID Orange/Yellow (PKT 6)	
<b>31-808-2831</b> Quartz Bonnet for X-Series		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>TG1021-Ni/Cu</b> Nickel Sampler Cone, Copper Core		<b>60-808-1185</b> Trident Internal Standard Kit	

### Brines and salts

<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)	
<b>KT-1025</b> IsoMist Kit for Thermo X Series		<b>0.51-OY-F</b> Contour Flared End PVC Pump Tube 2tag 0.51mm ID Orange/Yellow (PKT 6)	
<b>30-807-0532</b> Quartz Torch with 2.0mm Injector for X Series		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>31-808-2831</b> Quartz Bonnet for X-Series		<b>60-808-1185</b> Trident Internal Standard Kit	
<b>TG1008-Pt</b> Platinum Micro-Skimmer Cone, Xs		<b>70-808-1226</b> Capricorn Argon Humidifier with bypass	
<b>TG1026A-Pt/Cu</b> Platinum Sampler Cone, Copper Core			

### Clinical and forensic materials

<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>30-807-0532</b> Quartz Torch with 2.0mm Injector for X Series	
<b>KT-1025</b> IsoMist Kit for Thermo X Series		<b>31-808-2831</b> Quartz Bonnet for X-Series	



Clinical and forensic materials (continued)

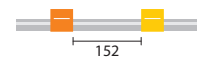
**TG1021-Ni/Cu**

Nickel Sampler Cone, Copper Core



**0.51-OY-F**

Contour Flared End PVC Pump Tube 2tag  
0.51mm ID Orange/Yellow (PKT 6)



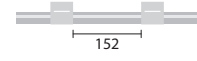
**TG1022-Ni**

Nickel Skimmer Cone, Xi, Xt



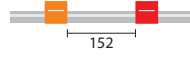
**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



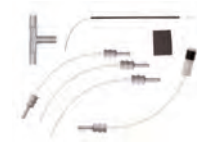
**0.19-OR-F**

Contour Flared End PVC Pump Tube 2tag  
0.19mm ID Orange/Red (PKT 6)



**60-808-1185**

Trident Internal Standard Kit



Geological with HF, Soil and sediment with HF

**ARG-1-PFA04**

OpalMist Nebulizer 0.4mL/min



**TG1026A-Pt/Cu**

Platinum Sampler Cone, Copper Core



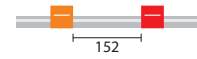
**KT-1025P**

IsoMist Kit with PFA Spray Chamber for Thermo X Series



**0.19-OR-F**

Contour Flared End PVC Pump Tube 2tag  
0.19mm ID Orange/Red (PKT 6)



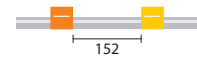
**30-808-0998**

Semi Demountable Torch with Alumina Injector for X-Series



**0.51-OY-F**

Contour Flared End PVC Pump Tube 2tag  
0.51mm ID Orange/Yellow (PKT 6)



**31-808-2831**

Quartz Bonnet for X-Series



**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



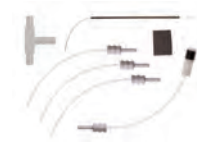
**TG1008-Pt**

Platinum Micro-Skimmer Cone, Xs



**60-808-1150**

Trident Internal Standard Kit for HF solutions



Isotopic Analysis of Minerals

**ARG-1-USS04**

SeaSpray U-Series Nebulizer 0.4mL/min



**TG1026A-Pt/Cu**

Platinum Sampler Cone, Copper Core



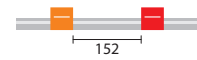
**KT-1025**

IsoMist Kit for Thermo X Series



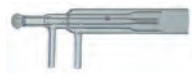
**0.19-OR-F**

Contour Flared End PVC Pump Tube 2tag  
0.19mm ID Orange/Red (PKT 6)



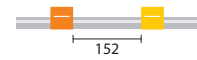
**30-807-0532**

Quartz Torch with 2.0mm Injector for X Series



**0.51-OY-F**

Contour Flared End PVC Pump Tube 2tag  
0.51mm ID Orange/Yellow (PKT 6)



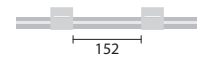
**31-808-2831**

Quartz Bonnet for X-Series



**1.02-WHT-F**

Contour Flared End PVC Pump Tube 2tag  
1.02mm ID White/White (PKT 6)



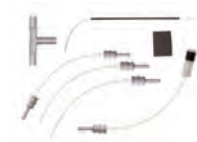
**TG1008-Pt**

Platinum Micro-Skimmer Cone, Xs





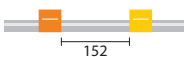









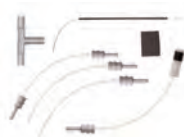


**60-808-1185**

Trident Internal Standard Kit



## APPLICATION PACKAGES

Semiconductors			
<b>ARG-1-PFA04</b> OpalMist Nebulizer 0.4mL/min		<b>TG1026A-Pt/Cu</b> Platinum Sampler Cone, Copper Core	
<b>KT-1025P</b> IsoMist Kit with PFA Spray Chamber for Thermo X Series		<b>0.19-OR-F</b> Contour Flared End PVC Pump Tube 2tag 0.19mm ID Orange/Red (PKT 6)	
<b>30-808-1257</b> Semi Demountable Torch (Platinum Injector) for X-Series		<b>0.51-OY-F</b> Contour Flared End PVC Pump Tube 2tag 0.51mm ID Orange/Yellow (PKT 6)	
<b>31-808-2831</b> Quartz Bonnet for X-Series		<b>1.02-WHT-F</b> Contour Flared End PVC Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>TG1008-Pt</b> Platinum Micro-Skimmer Cone, Xs		<b>60-808-1185</b> Trident Internal Standard Kit	
Petrochemicals			
<b>ARG-1-USS04</b> SeaSpray U-Series Nebulizer 0.4mL/min		<b>TG1022-Ni</b> Nickel Skimmer Cone, Xi, Xt	
<b>KT-1025</b> IsoMist Kit for Thermo X Series		<b>0.25-OB-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.25mm ID Orange/Blue (PKT 6)	
<b>30-808-1279</b> Quartz Torch with 1.5mm Injector for X Series		<b>0.51-OY-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 0.51mm ID Orange/Yellow (PKT 6)	
<b>31-808-2831</b> Quartz Bonnet for X-Series		<b>1.02-WHT-SF-F</b> Contour Flared End Solva Flex Pump Tube 2tag 1.02mm ID White/White (PKT 6)	
<b>TG1021-Ni/Cu</b> Nickel Sampler Cone, Copper Core		<b>60-808-1185</b> Trident Internal Standard Kit	

# PRODUCT LIST

## Nebulizers

### SeaSpray

400µL/min uptake ARG-1-USS04

### MicroMist

400µL/min uptake ARG-1-UM04

200µL/min uptake ARG-1-UM02

100µL/min uptake ARG-1-UM01

50µL/min uptake ARG-1-UM005

### OpalMist

400µL/min uptake ARG-1-PFA04

200µL/min uptake ARG-1-PFA02

100µL/min uptake ARG-1-PFA01

50µL/min uptake ARG-1-PFA005



## IsoMist

### IsoMist Programmable Temperature Spray Chamber

IsoMist Kit for Thermo X Series

KT-1025



## Spray Chambers

### Twister

50mL Cyclonic 20-809-0293HE



### Twinnabar

20mL Cyclonic 20-809-0536HE



## Torches

### Fixed Torch (Quartz One Piece)

Quartz Torch with 1.5mm Injector 30-808-1279

Quartz Torch with 2.0mm Injector 30-807-0532



### Semi Demountable Torch (HF)

30-808-0998

#### Comprises:

X-Series Semi Demountable Torch Body 31-808-1009

X-Series Semi Demountable Torch Adaptor 31-808-0984

Tapered Alumina Injector 1.5mm 31-808-1013

GazFit Connectors (PKT 4) GAZ-06



## Torches (continued)

### Injector Options

Tapered Alumina Injector 1.5mm 31-808-1013

Platinum Injector 1.5mm 31-808-1256

Sapphire Injector 2.0mm 31-808-3001

### Other Products

Quartz Bonnet 31-808-2831



## Cones

### Nickel Sampler, Copper Core

(Thermo p/n 3600812) TG1021-Ni/Cu



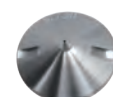
### Nickel Skimmer, Xi, Xt

(Thermo p/n 3600811) TG1022-Ni



### Nickel Skimmer, Xs

(Thermo p/n 3200860) TG1004-Ni



### Skimmer Interface

(Thermo p/n 3600813) TG1023-Cu



### Skimmer Interface, X Series II

(Thermo p/n 3601320) TG1023-Ni

### Platinum Micro-Skimmer Cone, Xs, Copper Core

(Thermo p/n 3201101) TG1008-Pt



### Platinum Sampler Cone, X Series, Copper Core

(Thermo p/n 3601289) TG1026A-Pt/Cu



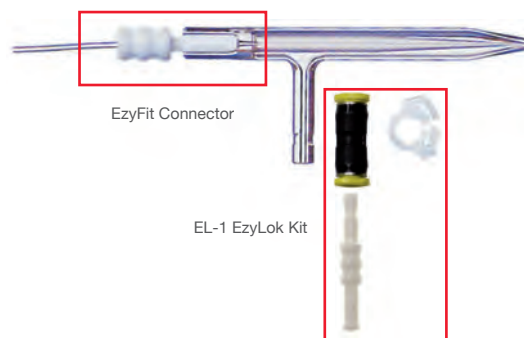
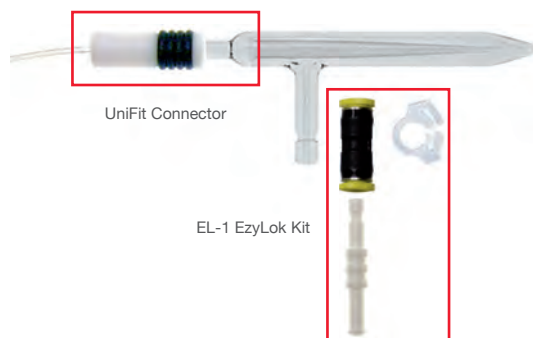
# NEBULIZER TUBING & CONNECTORS

## EzyLok Kit for Nebulizer Gas Side Arm

	EL-1
<b>Comprises:</b>	
EzyLok Connector for 4mm Tubing	QSM-4
EzyLok 6mm Hose Adaptor	70-808-0735
Hose Clip, 6mm	SNP-1

## Sample Tube Connectors (PKT 10)

	UniFit P/N	EzyFit P/N
0.25mm ID x 1.27mm OD x 700mm long	NFT-025	EZT-025
0.25mm ID x 1.27mm OD x 2000mm long	NFT2-025	EZT2-025
0.50mm ID x 1.27mm OD x 700mm long	NFT-050	EZT-050
0.50mm ID x 1.27mm OD x 2000mm long	NFT2-050	EZT2-050
0.75mm ID x 1.27mm OD x 700mm long	NFT-075	EZT-075
0.75mm ID x 1.27mm OD x 2000mm long	NFT2-075	EZT2-075
0.75mm ID x 1.27mm OD x 1500mm long	NFTS-075	EZTS-075
0.07mm ID x 1/16" OD x 700mm long	NFT-16-07	EZT-16-07
0.13mm ID x 1/16" OD x 700mm long	NFT-16-13	EZT-16-13
0.18mm ID x 1/16" OD x 700mm long	NFT-16-18	EZT-16-18
0.25mm ID x 1/16" OD x 700mm long	NFT-16-25	EZT-16-25
0.25mm ID x 1/16" OD x 1500mm long	NFTS-16-25	EZTS-16-25
0.50mm ID x 1/16" OD x 700mm long	NFT-16-50	EZT-16-50
0.50mm ID x 1/16" OD x 1500mm long	NFTS-16-50	EZTS-16-50
0.75mm ID x 1/16" OD x 700mm long	NFT-16-75	EZT-16-75
0.75mm ID x 1/16" OD x 1500mm long	NFTS-16-75	EZTS-16-75
Tefzel 0.5mm ID x 1.3mm OD x 700mm long	NFTFE-050	EZTFE-050
0.3mm ID x 0.75mm OD x 700mm long	NFT-0703	EZT-0703



## PFA Sample Tubing

0.25mm ID x 1.27mm OD x 10m long	STT-025
0.50mm ID x 1.27mm OD x 10m long	STT-050
0.75mm ID x 1.27mm OD x 10m long	STT-075
0.25mm ID x 1/16" OD x 10m long	STT-16-25
0.50mm ID x 1/16" OD x 10m long	STT-16-50
0.75mm ID x 1/16" OD x 10m long	STT-16-75
0.3mm ID x 0.75mm OD x 10m long	STT-0703
0.13mm ID x 1.27mm OD x 10m long	PFT-013
0.18mm ID x 1.27mm OD x 10m long	PFT-018
0.07mm ID x 1/16" OD x 10m long	PFT-16-07
0.13mm ID x 1/16" OD x 10m long	PFT-16-13
0.18mm ID x 1/16" OD x 10m long	PFT-16-18
1/8" ID x 1/4" OD x 1m long	1/4PFA-HW
Tefzel 0.5mm ID x 1.3mm OD x 10m long	TFE-050

## Other Tubing & Clips

VeeSpray Nebulizer Sample Tubing (PKT 10)	VSS-075
VeeSpray Screw & O-Rings Kit (PKT 10 of each)	VKT-0118
PolyCon/VeeSpray Sample Tube O-rings (PKT 10)	V-001
Nebulizer Pressure Hose Clips (PKT 10)	SNP-1
Sample tubing 0.25mm ID x 1.27mm OD x 700mm long, for 0.05 and 0.1ml/min OpalMist and PolyCon (PKT 10)	70-808-0360

# FITTINGS & CONNECTORS FOR SPRAY CHAMBERS

## O-Rings & Seals

Helix Seal (PKT 4)	70-100-0237
Helix Locking Screw	70-100-0152
Nebulizer Spacer	21-100-0246
O-ring set for Large Adaptor (Tracey, Twister)	70-808-0501
O-ring set for Small Adaptor (Cinnabar, Twinnabar)	21-808-0818
Teflon coated Viton O-Rings for spray chamber, nebulizer seal (PKT 10)	VT-009
Teflon coated Viton O-Rings for spray chamber, 12mm small adaptor seal (PKT 5)	VT-9/1.5
Teflon coated Viton O-Rings for spray chamber, 16mm large adaptor seal (PKT 10)	VT-10/2
Silicon o-rings for spray chamber, nebulizer seal (PKT 10)	S-009



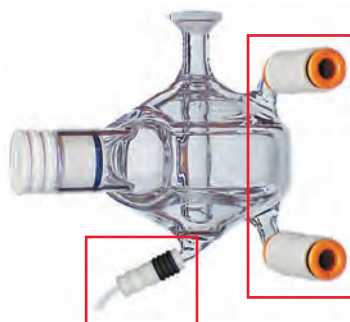
Helix Seal



Helix Locking Screw

## Clips & Connectors

Metal Ball Joint Clip (to connect spray chamber and torch)	JC-13
Nickel Joint Clip B14 (to connect spray chamber and drain adaptors)	KCM-14
Nickel Joint Clip KCM29 (to connect spray chamber and drain adaptors)	KCM-29
EzyLok Connector for Jacketed Spray Chamber Coolant Arm Tubing (PKT 4)	QSM-1/4-4
UniFit Connector with sample tube, 0.75mm ID x 1/16" OD x 700mm long (PKT 3)	UFT-16-75
UniFit Connector with sample tube, 0.75mm ID x 1.3mm OD x 700mm long (PKT 3)	UFT-075
UniFit Connector with sample tube, 0.86mm ID x 2mm OD x 480mm long (PKT 3)	UFT-2-86



UniFit

Suitable for use with 1/4" Nylon, Teflon, Polyamide or Polyurethane tubing.



JC-13

# CONNECTORS FOR TORCHES

## GazFit Connectors

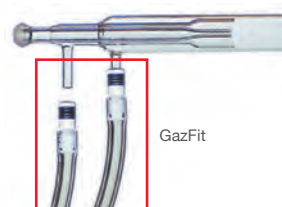
GazFit Connectors (PKT 2), for 8mm OD arm	GAZ-08
GazFit Connectors (PKT 4), for 6mm OD torch side arms	GAZ-06
GazFit Connectors (PKT 4), 2 for 6mm OD torch side arms, 2 for 4mm OD torch side arms	GAZ-0604
GazFit Connectors (PKT 4), for 5mm OD torch side arms	GAZ-05
GazFit Connectors (PKT 4), for 4mm OD torch side arms	GAZ-04

GazFit connectors are only suitable for torches with tolerances of no more than +/- 0.15mm on the diameter of the side arms.

All Glass Expansion torches meet this specification.

## O-Rings

Viton O-Rings for demountable torch ball joint connectors (PKT 10)	70-V-011
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GazFit

## PVC PERISTALTIC PUMP TUBING

All tubes made from Tygon R3603/R3607 or equivalent.  
Supplied in packs of 12 tubes.

**Special Properties:**  
Inexpensive all-round tubing for general laboratory applications.

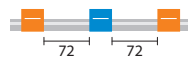
**Advantages:**  
Transparent.  
Resistant to almost all inorganic materials.  
Does not age.  
Low gas permeability.  
Smooth inner surface.

**Limitations:**  
Potential leaching of plasticizers.



**PVC, 2 Bridged**  
(152mm between tags)

Tag Colours	ID (mm)	P/N
orange/black	0.13	0.13-OBLK
orange/red	0.19	0.19-OR
orange/blue	0.25	0.25-OB
orange/green	0.38	0.38-OG
green/yellow	0.44	0.44-GY
orange/yellow	0.51	0.51-OY
white/yellow	0.57	0.57-WY
orange/white	0.64	0.64-OW
black/black	0.76	0.76-BLK
orange/orange	0.89	0.89-ORG
white/black	0.95	0.95-WBLK
white/white	1.02	1.02-WHT
white/red	1.09	1.09-WR
red/red	1.14	1.14-RED
red/grey	1.22	1.22-RGRY
grey/grey	1.30	1.30-GRY
yellow/yellow	1.42	1.42-YLW
yellow/blue	1.52	1.52-YB
blue/blue	1.65	1.65-BLU
blue/green	1.75	1.75-BG
green/green	1.85	1.85-GRN
purple/purple	2.06	2.06-PUR
purple/black	2.29	2.29-PBLK
purple/orange	2.54	2.54-PO
purple/white	2.79	2.79-PW
black/white	3.17	3.17-BLKW



**PVC, 3 Bridged**  
(72mm between tags)

Tag Colours	ID (mm)	P/N
orange/black	0.13	0.13-OBLK3B
orange/red	0.19	0.19-OR3B
orange/blue	0.25	0.25-OB3B
orange/green	0.38	0.38-OG3B
green/yellow	0.44	0.44-GY3B
orange/yellow	0.51	0.51-OY3B
white/yellow	0.57	0.57-WY3B
orange/white	0.64	0.64-OW3B
black/black	0.76	0.76-BLK3B
orange/orange	0.89	0.89-ORG3B
white/black	0.95	0.95-WBLK3B
white/white	1.02	1.02-WHT3B
white/red	1.09	1.09-WR3B
red/red	1.14	1.14-RED3B
red/grey	1.22	1.22-RGRY3B
grey/grey	1.30	1.30-GRY3B
yellow/yellow	1.42	1.42-YLW3B
yellow/blue	1.52	1.52-YB3B
blue/blue	1.65	1.65-BLU3B
green/green	1.85	1.85-GRN3B
purple/purple	2.06	2.06-PUR3B
purple/black	2.29	2.29-PBLK3B
purple/orange	2.54	2.54-PO3B
purple/white	2.79	2.79-PW3B
black/white	3.17	3.17-BLKW3B

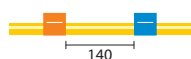
## SOLVA PERISTALTIC PUMP TUBING

All tubes made from Tygon 4040 or equivalent.  
Supplied in packs of 12 tubes.

**Special Properties:**  
Special tubing for hydrocarbons, petroleum products and distillates.

**Advantages:**  
Specially formulated to transport hydrocarbons, petroleum products and distillates.  
Ideal for gasoline, kerosene, heating oils, cutting liquids and coolants based on glycols.  
Low gas permeability.

**Limitations:**  
Not recommended for strong acids and alkalies, foodstuffs, beverages and medicines.  
Potential leaching of plasticizers.



**Solva, 2 Bridged**  
(140mm between tags)

Tag Colours	ID (mm)	P/N
orange/blue	0.25	0.25-OB-SF
orange/green	0.38	0.38-OG-SF
orange/yellow	0.51	0.51-OY-SF
orange/white	0.64	0.64-OW-SF
black/black	0.76	0.76-BLK-SF
orange/orange	0.89	0.89-ORG-SF
white/white	1.02	1.02-WHT-SF
red/red	1.14	1.14-RED-SF
grey/grey	1.30	1.30-GRY-SF

Tag Colours	ID (mm)	P/N
yellow/yellow	1.42	1.42-YLW-SF
yellow/blue	1.52	1.52-YB-SF
blue/blue	1.65	1.65-BLU-SF
green/green	1.85	1.85-GRN-SF
purple/purple	2.06	2.06-PUR-SF
purple/black	2.29	2.29-PBLK-SF
purple/orange	2.54	2.54-PO-SF
purple/white	2.79	2.79-PW-SF

# VITON® PERISTALTIC PUMP TUBING

All tubes made from Fluran HC F-5500-A or equivalent.

**Special Properties:**  
Special tubing for concentrated acids and corrosive solvents.

**Advantages:**  
High chemical resistance.  
Low gas permeability.  
Wide temperature range.

**Limitations:**  
Limited service life.



## Viton®, 2 Bridged (127mm between tags)

Tag Colours	ID (mm)	P/N
	0.51	VS0.51-OY
	0.64	VS0.64-OW
	0.76	VS0.76-BLK
	0.89	VS0.89-ORG
	1.02	VS1.02-WHT
	1.14	VS1.14-RED
	1.30	VS1.30-GRY
	1.42	VS1.42-YLW
	1.52	VS1.52-YB
	1.65	VS1.65-BLU
	1.85	VS1.85-GRN
	2.06	VS2.06-PUR
	2.29	VS2.29-PBLK
	2.54	VS2.54-PO
	2.79	VS2.79-PW

Supplied in packs of 12 tubes

## Viton® Tubing without Stoppers

ID (mm)	Wall (mm)	P/N
1.00	1.00	V-1
1.50	0.75	V-1.5
2.00	1.00	V-2
3.00	1.00	V-3

Supplied in rolls

# TYGON® MH PERISTALTIC PUMP TUBING

All tubes made from Tygon MHSL 2001.

**Special Properties:**  
Environmental-friendly tubing especially designed for solvents.  
Suitable for MIBK.

**Advantages:**  
High chemical resistance.  
Low gas permeability.  
Wide temperature range.

**Limitations:**  
Limited service life.



## Tygon® MH Tubing, 2 Bridged (152mm between tags)

Tag Colours	ID (mm)	P/N
	0.38	0.38-ORG-MH
	0.64	0.64-OW-MH
	1.02	1.02-WHT-MH
	1.52	1.52-YB-MH
	2.06	2.06-PUR-MH
	2.79	2.79-PW-MH

Supplied in packs of 6 tubes

## Tygon® MH Tubing, Continuous

ID (mm)	P/N
0.38	0.38-ORGM
0.64	0.64-OWM
1.02	1.02-WHTM
1.52	1.52-YBM
2.06	2.06-PURM
2.79	2.79-PWM

Supplied in rolls of 10 metres



## Tygon® MH Tubing, 2 Bridged (72mm between tags)

Tag Colours	ID (mm)	P/N
	0.38	0.38-ORG-MH3
	0.64	0.64-OW-MH3
	1.02	1.02-WHT-MH3
	1.52	1.52-YB-MH3
	2.06	2.06-PUR-MH3
	2.79	2.79-PW-MH3

Supplied in packs of 6 tubes

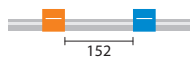
# CONTOUR FLARED END PVC PERISTALTIC PUMP TUBING

All tubes made from Tygon R3603/ R3607 or equivalent.  
Supplied in packs of 6 tubes.

**Special Properties:**  
Inexpensive all-round tubing for general laboratory applications.

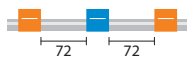
**Advantages:**  
Transparent.  
Resistant to almost all inorganic materials.  
Does not age.  
Low gas permeability.  
Smooth inner surface.

**Limitations:**  
Potential leaching of plasticizers.



**PVC, 2 Bridged**  
(152mm between tags)

Tag Colours	ID (mm)	P/N
orange/black	0.13	0.13-OBLK-F
orange/red	0.19	0.19-OR-F
orange/blue	0.25	0.25-OB-F
orange/green	0.38	0.38-OG-F
green/yellow	0.44	0.44-GY-F
orange/yellow	0.51	0.51-OY-F
white/yellow	0.57	0.57-WY-F
orange/white	0.64	0.64-OW-F
black/black	0.76	0.76-BLK-F
orange/orange	0.89	0.89-ORG-F
white/black	0.95	0.95-WBLK-F
white/white	1.02	1.02-WHT-F
white/red	1.09	1.09-WR-F
red/red	1.14	1.14-RED-F
red/grey	1.22	1.22-RGRY-F
grey/grey	1.30	1.30-GRY-F
yellow/yellow	1.42	1.42-YLW-F
yellow/blue	1.52	1.52-YB-F
blue/blue	1.65	1.65-BLU-F
blue/green	1.75	1.75-BG-F
green/green	1.85	1.85-GRN-F
purple/purple	2.06	2.06-PUR-F
purple/black	2.29	2.29-PBLK-F
purple/orange	2.54	2.54-PO-F
purple/white	2.79	2.79-PW-F
black/white	3.17	3.17-BLKW-F



**PVC, 3 Bridged**  
(72mm between tags)

Tag Colours	ID (mm)	P/N
orange/black	0.13	0.13-OBLK3B-F
orange/red	0.19	0.19-OR3B-F
orange/blue	0.25	0.25-OB3B-F
orange/green	0.38	0.38-OG3B-F
green/yellow	0.44	0.44-GY3B-F
orange/yellow	0.51	0.51-OY3B-F
white/yellow	0.57	0.57-WY3B-F
orange/white	0.64	0.64-OW3B-F
black/black	0.76	0.76-BLK3B-F
orange/orange	0.89	0.89-ORG3B-F
white/black	0.95	0.95-WBLK3B-F
white/white	1.02	1.02-WHT3B-F
white/red	1.09	1.09-WR3B-F
red/red	1.14	1.14-RED3B-F
red/grey	1.22	1.22-RGRY3B-F
grey/grey	1.30	1.30-GRY3B-F
yellow/yellow	1.42	1.42-YLW3B-F
yellow/blue	1.52	1.52-YB3B-F
blue/blue	1.65	1.65-BLU3B-F
green/green	1.85	1.85-GRN3B-F
purple/purple	2.06	2.06-PUR3B-F
purple/black	2.29	2.29-PBLK3B-F
purple/orange	2.54	2.54-PO3B-F
purple/white	2.79	2.79-PW3B-F
black/white	3.17	3.17-BLKW3B-F

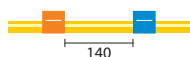
# CONTOUR FLARED END SOLVA PERISTALTIC PUMP TUBING

All tubes made from Tygon 4040 or equivalent.  
Supplied in packs of 6 tubes.

**Special Properties:**  
Special tubing for hydrocarbons, petroleum products and distillates.

**Advantages:**  
Specially formulated to transport hydrocarbons, petroleum products and distillates.  
Ideal for gasoline, kerosene, heating oils, cutting liquids and coolants based on glycols.  
Low gas permeability.

**Limitations:**  
Not recommended for strong acids and alkalies, foodstuffs, beverages and medicines.  
Potential leaching of plasticizers.



**Solva, 2 Bridged**  
(140mm between tags)

Tag Colours	ID (mm)	P/N
orange/blue	0.25	0.25-OB-SF-F
orange/green	0.38	0.38-OG-SF-F
orange/yellow	0.51	0.51-OY-SF-F
orange/white	0.64	0.64-OW-SF-F
black/black	0.76	0.76-BLK-SF-F
orange/orange	0.89	0.89-ORG-SF-F
white/white	1.02	1.02-WHT-SF-F
red/red	1.14	1.14-RED-SF-F
grey/grey	1.30	1.30-GRY-SF-F

Tag Colours	ID (mm)	P/N
yellow/yellow	1.42	1.42-YLW-SF-F
yellow/blue	1.52	1.52-YB-SF-F
blue/blue	1.65	1.65-BLU-SF-F
green/green	1.85	1.85-GRN-SF-F
purple/purple	2.06	2.06-PUR-SF-F
purple/black	2.29	2.29-PBLK-SF-F
purple/orange	2.54	2.54-PO-SF-F
purple/white	2.79	2.79-PW-SF-F



# CONTOUR FLARED END VITON® PERISTALTIC PUMP TUBING

All tubes made from Fluran HC F-5500-A or equivalent.

#### Special Properties:

Special tubing for concentrated acids and corrosive solvents.

#### Advantages:

High chemical resistance.  
Low gas permeability.  
Wide temperature range.

#### Limitations:

Limited service life.



## Viton®, 2 Bridged (127mm between tags)

Tag Colours	ID (mm)	P/N
orange/yellow	0.51	VS0.51-OY-F
orange/white	0.64	VS0.64-OW-F
black/black	0.76	VS0.76-BLK-F
orange/orange	0.89	VS0.89-ORG-F
white/white	1.02	VS1.02-WHT-F
red/red	1.14	VS1.14-RED-F
grey/grey	1.30	VS1.30-GRY-F
yellow/yellow	1.42	VS1.42-YLW-F
yellow/blue	1.52	VS1.52-YB-F
blue/blue	1.65	VS1.65-BLU-F
green/green	1.85	VS1.85-GRN-F
purple/purple	2.06	VS2.06-PUR-F
purple/black	2.29	VS2.29-PBLK-F
purple/orange	2.54	VS2.54-PO-F
purple/white	2.79	VS2.79-PW-F

Supplied in packs of 6 tubes

# CONTOUR FLARED END TYGON® MH PERISTALTIC PUMP TUBING

All tubes made from Tygon MHSL 2001.

#### Special Properties:

Environmental-friendly tubing especially designed for solvents. Suitable for MIBK.

#### Advantages:

High chemical resistance.  
Low gas permeability.  
Wide temperature range.

#### Limitations:

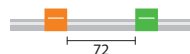
Limited service life.



## Tygon® MH Tubing, 2 Bridged (152mm between tags)

Tag Colours	ID (mm)	P/N
orange/green	0.38	0.38-ORG-MH-F
orange/white	0.64	0.64-OW-MH-F
white/white	1.02	1.02-WHT-MH-F
yellow/blue	1.52	1.52-YB-MH-F
purple/purple	2.06	2.06-PUR-MH-F
purple/white	2.79	2.79-PW-MH-F

Supplied in packs of 6 tubes



## Tygon® MH Tubing, 2 Bridged (72mm between tags)

Tag Colours	ID (mm)	P/N
orange/green	0.38	0.38-ORG-MH3-F
orange/white	0.64	0.64-OW-MH3-F
white/white	1.02	1.02-WHT-MH3-F
yellow/blue	1.52	1.52-YB-MH3-F
purple/purple	2.06	2.06-PUR-MH3-F
purple/white	2.79	2.79-PW-MH3-F

Supplied in packs of 6 tubes

## Contour Flared-end Peristaltic Pump Tubing

It can be quite difficult to insert the sample tubing into the peristaltic pump tubes. This is particularly so for pump tubing with a small ID. To facilitate this connection, Glass Expansion supplies Contour flared-end pump tubing. The flared end of this pump tubing allows the larger capillary tubing to be inserted into the smaller pump tubing.

Any of the pump tubing that we normally supply can be supplied with flared end. Simply add "-F" to the end of the part number (eg. 0.38-OG-F). The flared-end tubing is supplied in packs of 6.





# www.geicp.com



Capricorn



IsoMist



Niagara Plus



TruFlo



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