



The CRS Commitment



Service That Revolves Around You!

Our purpose at CRS is to meet our customer's requirements for quality, service, and value. Quality is every employee's responsibility and is the center of every job function.

The CRS Quality System complies with the standard of ISO9001: 2008 and all-applicable regulations. The Quality System is evaluated and improved on a regular basis.

Chromatography Research Supplies, Inc. is known in the chemical analytical industry worldwide as a company that specializes in supplies for gas chromatography. CRS sells products under its own brand name and distributes products under other brand names. A substantial part of CRS sales are exported, and the company ships to all markets around the world.

The main products designed and manufactured at CRS are electronic and manual crimping and decapping tools, gas purifiers, ferrules and injection port septa. CRS also provides sample vials, caps and seals, and other GC accessories for sample injection and capillary GC columns.

Table of Contents



Product by GC Manufacturer 2



Ferrules 12



Gas Purifiers 18



Kits & Accessories 32



Sample Preparation..... 34



Septa..... 42



Vials, Caps, Seals & Crimping Tools 48

Item Number Index 90

Product Index..... 94

Product by GC Manufacturer

For Agilent Instruments



211105

Ferrules - Graphite - Upper temp. 450°C

Packages of 10

Description		Item No.
Capillary Column Ferrules	For Capillary Sizes - ID	
1/16 in to 0.4 mm	0.25 mm	211104
1/16 in to 0.5 mm	0.32 mm	211105
1/16 in to 0.8 mm	0.53 mm	211108
1/16 in to 1.0 mm	0.65 mm	211110
1/16 in to 1.2 mm	0.75 mm	211112



211164

Short Ferrules for Agilent Inlets*

1/16 in to 0.4 mm	0.18 mm	211164
1/16 in to 0.5 mm	0.25 - 0.32 mm	211165
1/16 in to 0.8 mm	0.53 mm	211168
1/16 in to 1.0 mm	0.53 - 0.65 mm	211160



213105

Ferrules - Vespel®/Graphite (60% Vespel/40% Graphite) - Upper temp. 400°C

Packages of 10

Description		Item No.
Capillary Column Ferrules	For Capillary Sizes - ID	
1/16 in to 0.3 mm	0.10 mm	213103
1/16 in to 0.5 mm	0.25 mm	213105
1/16 in to 0.8 mm	0.53 mm	213108
1/16 in to 1.0 mm	0.65 mm	213110



213164

Short Ferrules for Agilent Inlets*

1/16 in to 0.3 mm	0.10 mm	213163
1/16 in to 0.4 mm	0.25 mm	213164
1/16 in to 0.5 mm	0.32 mm	213165
1/16 in to 0.8 mm	0.53 mm	213168

*Short ferrules for Agilent inlet systems: 5890, 6890 and 7890.



216635

Liner Seals; O-Ring

Graphite liner seals are designed for Agilent-style liners, in two different IDs. The O-Ring seal is made of Fluoroelastomer.



216973

Description	Qty	Item No.
Graphite Liner Seal, 6.4 mm ID	10/pk	216635
Graphite Liner Seal, 6.5 mm ID	10/pk	216652
O-Ring made of Fluoroelastomer	12/pk	216973

Premium Septa

Agilent Instrument	Septum Size
5880A, 5890, 6890, 6850, 7820, 7820A, 7890A	11 mm
On-column injection	5 mm

BTO® - Maximum temperature 400°C, low bleed

Description	Qty	Item No.
5 mm with CenterGuide™	50/pk	298787
11 mm with CenterGuide	50/pk	298717
11 mm with CenterGuide	100/pk	298718



298717

Advanced Green 3™ - Maximum temperature 350°C, low bleed

Description	Qty	Item No.
5 mm with CenterGuide	50/pk	246525
11 mm with CenterGuide	50/pk	246225
11 mm with CenterGuide	100/pk	246228



246225

Marathon™ - Maximum temperature 350°C, prepierced septa resist coring

Description	Qty	Item No.
5 mm with CenterGuide	50/pk	239597
11 mm with CenterGuide	50/pk	239297
11 mm with CenterGuide	100/pk	239888



239297

Product by GC Manufacturer

For Bruker Instruments (former Varian)



211112

Ferrules - Graphite - Upper temp. 450°C

Packages of 10

Description		Item No.
Capillary Column Ferrules	For Capillary Sizes - ID	
1/16 in to 0.4 mm	0.25 mm	211104
1/16 in to 0.5 mm	0.32 mm	211105
1/16 in to 0.8 mm	0.53 mm	211108
1/16 in to 1.0 mm	0.65 mm	211110
1/16 in to 1.2 mm	0.75 mm	211112



213110

Ferrules - Vespel®/Graphite (60% Vespel/40% Graphite) - Upper temp. 400°C

Packages of 10

Description		Item No.
Capillary Column Ferrules	For Capillary Sizes - ID	
1/16 in to 0.3 mm	0.10 mm	213103
1/16 in to 0.4 mm	0.25 mm	213104
1/16 in to 0.5 mm	0.32 mm	213105
1/16 in to 0.8 mm	0.53 mm	213108
1/16 in to 1.0 mm	0.65 mm	213110

Liner Ferrule

Graphite liner ferrule is designed for Varian.

Description	Qty	Item No.
Graphite Liner Ferrule	each	211550

Premium Septa

Varian Instrument	Septum Size
1177	9 mm
1040/41/60/61	3/8" (9.5 mm)
1075/77/78, 1079, 1093/94 SPI	11.5 mm

BTO® - Maximum temperature 400°C, low bleed

Description	Qty	Item No.
9 mm with CenterGuide™	50/pk	298713
9.5 mm	50/pk	298705
11.5 mm with CenterGuide	50/pk	298777



Advanced Green 3™ - Maximum temperature 350°C, low bleed

Description	Qty	Item No.
9 mm with CenterGuide	50/pk	246713
9.5 mm	50/pk	246124
11.5 mm with CenterGuide	50/pk	246725



Marathon™ - Maximum temperature 350°C, pierced septa resist coring

Description	Qty	Item No.
9 mm with CenterGuide	50/pk	239597
11.5 mm with CenterGuide	50/pk	239798



Product by GC Manufacturer

For PerkinElmer Instruments



211205

Ferrules - Graphite - Upper temp. 450°C

Packages of 10

Description		Item No.
Reducing Ferrules	For Capillary Sizes - ID	
1/8 in to 0.4 mm	0.25 mm	211204
1/8 in to 0.5 mm	0.32 mm	211205
1/8 in to 0.8 mm	0.53 mm	211208
1/8 in, two-hole, 0.5 mm each	0.32 mm	211222
	For Capillary Sizes - OD	
1/8 in to 1/16 in	1/16 in	211210



213105

Ferrules - Vespel®/Graphite (60% Vespel/40% Graphite) - Upper temp. 400°C

Packages of 10

Description		Item No.
Reducing Ferrules	For Capillary Sizes - ID	
1/8 in to 0.4 mm	0.25 mm	213204
1/8 in to 0.5 mm	0.32 mm	213205
1/8 in to 0.8 mm	0.53 mm	213208
1/8 in, two-hole, 0.5 mm each	0.32 mm	213222
1/8 in, two-hole, 0.8 mm each	0.53 mm	213228
	For Capillary Sizes - OD	
1/8 in to 1/16 in	1/16 in	212210

O-Ring

Graphite O-Ring for PerkinElmer Autosys XL or Clarus.

Description	Item No.
Graphite O-Ring	216637

Premium Septa

PerkinElmer Instrument	Septum Size
Sigma Series, 900, 990, 8000 Series	11 mm
Auto SYS™, Auto SYS XL	11 mm

BTO® - Maximum temperature 400°C, low bleed

Description	Qty	Item No.
11 mm with CenterGuide™	50/pk	298717
11 mm with CenterGuide	100/pk	298718



298717

Advanced Green 3™ - Maximum temperature 350°C, low bleed

Description	Qty	Item No.
11 mm with CenterGuide	50/pk	246225
11 mm with CenterGuide	100/pk	246228



246225

Marathon™ - Maximum temperature 350°C, prepierced septa resist coring

Description	Qty	Item No.
11 mm with CenterGuide	50/pk	239297
11 mm with CenterGuide	100/pk	239888



239297

Product by GC Manufacturer

For Shimadzu Instruments



211500

Ferrules - Graphite - Upper temp. 450°C
Packages of 10

Style	Item No.
5 mm, Shimadzu 5 mm OD columns	211500



211174

Description	Item No.	
Capillary Column Ferrules	For Capillary Sizes - ID	
Shimadzu 17A, 2010, & 2014 GCs, 0.4 mm	0.25 mm and less	211174
Shimadzu 17A, 2010, & 2014 GCs, 0.5 mm	0.32 mm	211175
Shimadzu 17A, 2010, & 2014 GCs, 0.8 mm	0.53 mm	211178



216638

Liner Seals; O-Ring

Graphite liner seals are designed for Shimadzu. Graphite O-Ring for Shimadzu 17A, 2010 and 2014 Splitless.

Description	Qty	Item No.
Graphite Liner Seal	10/pk	211195
Graphite O-Ring, Split	10/pk	216638
Graphite O-Ring, Splitless	10/pk	216639

Premium Septa

Shimadzu Instrument	Septum Size
9A, 14, 15A, 16, 17A	Plug
2010, 2014	Plug

BTO® - Maximum temperature 400°C, low bleed

Description	Qty	Item No.
Plug Septa	50/pk	298735



298735

Advanced Green 3™ - Maximum temperature 350°C, low bleed

Description	Qty	Item No.
Plug Septa	50/pk	246424



246424

Marathon™ - Maximum temperature 350°C, prepierced septa resist coring

Description	Qty	Item No.
Plug Septa	50/pk	239498



239498

Product by GC Manufacturer

For Thermo Instruments



211905

Ferrules - Graphite - Upper temp. 450°C
Packages of 10



211983-10

Style	Item No.
Thermo Instrument Ferrules - M8 Nut	
0.5 mm ID	211905
0.8 mm ID	211908

Cup Ferrules - M4 Nut

	For Capillary Sizes - ID	
0.28 mm ID	0.10 mm	211982-10
0.38 mm ID	0.25 mm	211983-10
0.48 mm ID	0.32 mm	211984-10
0.80 mm ID	0.53 mm	211988-10



216949

Graphite Liner Seal - Thermo Instruments Trace GC



216948

Description	Item No.
5 mm Graphite Seal, 2/pk	216949
8 mm Graphite Liner Seal, each	216948

Premium Septa

Thermo Instrument	Septum Size
9001, GCQ	9 mm
Trace 1300 Series	11 mm
PTV Injector	1/2" (12.7 mm)
Fisons/Carlo Erba 8000 Series, Trace, Focus Split/Splitless	17 mm

BTO® - Maximum temperature 400°C*, low bleed

Description	Qty	Item No.
9 mm with CenterGuide™	50/pk	298713
7/16" (11 mm) with CenterGuide	50/pk	298717
7/16" (11 mm) with CenterGuide	100/pk	298718
1/2" (12.7 mm) with CenterGuide	50/pk	298727
17 mm with CenterGuide*	50/pk	298817

* For 17 mm injectors the maximum is 350°; for extended use 330°C.



298817

Advanced Green 3™ - Maximum temperature 350°C*, low bleed

Description	Qty	Item No.
9 mm with CenterGuide	50/pk	246713
7/16" (11 mm) with CenterGuide	50/pk	246225
7/16" (11 mm) with CenterGuide	100/pk	246228
1/2" (12.7 mm) with CenterGuide	50/pk	246325
17 mm with CenterGuide*	50/pk	246624

* For 17 mm injectors the maximum is 300°C.



246624

Marathon™ - Maximum temperature 350°C*, prepierced septa resist coring

Description	Qty	Item No.
9 mm with CenterGuide	50/pk	239779
7/16" (11 mm) with CenterGuide	50/pk	239297
7/16" (11 mm) with CenterGuide	100/pk	239888
1/2" (12.7 mm) with CenterGuide	50/pk	239397
17 mm*	50/pk	239698

* For 17 mm injectors the maximum is 300°C.



239698

Ferrules

CRS provides a wide range of ferrules made from Vespel®, Vespel/Graphite, Graphite and PTFE. Ferrule sizes refer to the size of the compression fittings into which they fit.



Graphite Ferrules



1/16 in Graphite Ferrules:
Blank, 0.5 mm ID, Straight



211165

Graphite Ferrules - Upper temp. 450°C

Packages of 10; except as noted

Description	Item No.	
Straight Ferrules - for tubing with ODs listed		
1/16 in	211100	
1/8 in	211200	
1/4 in	211400	
3/8 in	211600	
1/2 in, 5/pk	211800	
3/4 in, 5/pk	211120	
Blank Ferrules - no holes		
1/16 in	2111XX	
1/8 in	2112XX	
1/4 in	2114XX	
Capillary Column Ferrules		
	For Capillary Sizes - ID	
1/16 in to 0.4 mm	0.25 mm	211104
1/16 in to 0.5 mm	0.32 mm	211105
1/16 in to 0.8 mm	0.53 mm	211108
1/16 in to 1.0 mm	0.65 mm	211110
1/16 in to 1.2 mm	0.75 mm	211112
1/16 in, two-hole, 0.5 mm; each	0.32 mm	211125
Short Ferrules for Agilent Inlets*		
1/16 in to 0.4 mm	0.18 mm	211164
1/16 in to 0.5 mm	0.25 - 0.32 mm	211165
1/16 in to 0.8 mm	0.53 mm	211168
1/16 in to 1.0 mm	0.53 - 0.65 mm	211160
*Short ferrules for Agilent inlet systems: 5890, 6890 and 7890.		
For Tubing (Fitting Size to Tubing OD)		
1/16 in to 1/16 in straight ferrule	1/16 in	211170

Reducing Ferrules	For Capillary Sizes - ID	
1/8 in to 0.4 mm	0.25 mm	211204
1/8 in to 0.5 mm	0.32 mm	211205
1/8 in to 0.8 mm	0.53 mm	211208
1/8 in, two-hole, 0.5 mm; each	0.32 mm	211222
1/4 in to 0.5 mm	0.32 mm	211405
1/4 in to 0.8 mm	0.53 mm	211408



211205

	For Tubing Sizes - OD	
1/8 in to 1/16 in	1/16 in	211210
1/4 in to 4 mm	4 mm	211440
1/4 in to 6 mm	6 mm	211406
1/4 in to 1/16 in	1/16 in	211410
1/4 in to 1/8 in	1/8 in	211420



211410

Shimadzu Ferrules		
5 mm, Shimadzu 5 mm OD columns		211500



211500

Capillary Column Ferrules	For Capillary Sizes - ID	
Shimadzu 17A, 2010, & 2014 GCs 0.4 mm	0.25 mm and less	211174
Shimadzu 17A, 2010, & 2014 GCs 0.5 mm	0.32 mm	211175
Shimadzu 17A, 2010, & 2014 GCs 0.8 mm	0.53 mm	211178



211174

Thermo Instrument Ferrules - M8 Nut		
0.5 mm ID		211905
0.8 mm ID		211908



211905

Cup Ferrules - M4 Nut	For Capillary Sizes - ID	
0.28 mm ID	0.10 mm	211982-10
0.38 mm ID	0.25 mm	211983-10
0.48 mm ID	0.32 mm	211984-10
0.80 mm ID	0.53 mm	211988-10



211983-10

Ferrules



216973

Liner Seals; O-Rings - Graphite and Fluoroelastomer

Description	Similar Part No.	Qty	Item No.
For Agilent Instruments			
Graphite Liner Seal, 6.4 mm ID	5180-4168	10	216635
Graphite Liner Seal, 6.5 mm ID	5180-4173	10	216652
O-Ring made of Fluoroelastomer		12	216973

For Varian Instruments 1078/1079

Graphite Liner Ferrule		10	211550
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For PerkinElmer Instruments

Graphite O-Ring		10	216637
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For Shimadzu Instruments

Graphite Liner Seal		10	211195
Graphite O-Ring, Split	221-48393-91	10	216638
Graphite O-Ring, Splitless	221-47222-91	10	216639



216949



216948

For Thermo Instruments Trace GC

5 mm Graphite Seal		2	216949
8 mm Graphite Liner Seal		each	216948



Vespel® Ferrules

Vespel® Ferrules - Upper temp. 350°C

Packages of 10

Description	Item No.
Straight Ferrules - for tubing with ODs as listed	
1/16 in	212100
1/8 in	212200
1/4 in	212400
Blank Ferrules - no holes	
1/16 in	2121XX
1/8 in	2122XX
1/4 in	2124XX



1/16 in Vespel Ferrules:
Blank, 0.5 mm ID, Straight

Capillary Column Ferrules	For Capillary Sizes - ID	
1/16 in to 0.3 mm	0.10 - 0.18 mm	212103
1/16 in to 0.4 mm	0.25 mm	212104
1/16 in to 0.5 mm	0.32 mm	212105
1/16 in to 0.8 mm	0.53 mm	212108
1/16 in to 1.0 mm	0.65 mm	212110
1/16 in to 1.2 mm	0.75 mm	212112
1/16 in, two-hole, 0.4 mm; each	0.25 mm	212124
1/16 in, two-hole, 0.5 mm; each	0.32 mm	212125



212104

Short Ferrules for Agilent Inlets*		
1/16 in to 0.4 mm	0.25 mm	212164
1/16 in to 0.5 mm	0.32 mm	212165
1/16 in to 0.8 mm	0.53 mm	212168



212165

*Short ferrules for Agilent inlet systems: 5890, 6890 and 7890.

Reducing Ferrules for Capillary Columns		
1/8 in to 0.4 mm	0.25 mm	212204
1/8 in to 0.5 mm	0.32 mm	212205
1/8 in to 0.8 mm	0.53 mm	212208
1/8 in, two-hole, 0.5 mm; each	0.32 mm	212222



212222

Reducing Ferrules for Tubing (Fitting Size to Tubing OD)		
1/8 in to 1/16 in	1/16 in	212210
1/4 in to 1/16 in	1/16 in	212410
1/4 in to 1/8 in	1/8 in	212420

Please note for all ferrules:

- 0.4 mm ID ferrules fit 0.25 mm ID capillary columns
- 0.5 mm ID ferrules fit 0.32 mm ID capillary columns
- 0.8 mm ID ferrules fit 0.53 mm ID capillary columns
- Straight ferrules are used for packed columns

Ferrule Remover

These are effective tools for removing ferrules. The threaded end locks in the ferrule hole to allow a good grip. Two tools are supplied for ferrules from 0.4 mm to 0.8 mm ID.

Description	Item No.
Ferrule Remover	205315



205315

Ferrules



VespeL/Graphite Ferrules



213200



213105



213164

VespeL®/Graphite Ferrules - Upper temp. 400°C

Packages of 10; except as noted

- Precision drilled ID

Description		Item No.
Straight Ferrules - for tubing with ODs as listed		
1/16 in		213100
1/8 in		213200
1/4 in		213400
1/2 in, 5/pk		213800
Blank Ferrules - no holes		
1/16 in		2131XX
1/8 in		2132XX
1/4 in		2134XX
Capillary Column Ferrules		
	For Capillary Size - ID	
1/16 in to 0.3 mm	0.10 mm	213103
1/16 in to 0.4 mm	0.25 mm	213104
1/16 in to 0.5 mm	0.32 mm	213105
1/16 in to 0.8 mm	0.53 mm	213108
1/16 in to 1.0 mm	0.65 mm	213110
1/16 in, two-hole, 0.4 mm; each	0.25 mm	213124
1/16 in, two-hole, 0.5 mm; each	0.32 mm	213125
Short Ferrules for Agilent Inlets*		
1/16 in to 0.3 mm	0.10 mm	213163
1/16 in to 0.4 mm	0.25 mm	213164
1/16 in to 0.5 mm	0.32 mm	213165
1/16 in to 0.8 mm	0.53 mm	213168
<i>*Short ferrules for Agilent inlet systems: 5890, 6890 and 7890.</i>		
Reducing Ferrules		
1/8 in to 0.4 mm	0.25 mm	213204
1/8 in to 0.5 mm	0.32 mm	213205
1/8 in to 0.8 mm	0.53 mm	213208
1/8 in, two-hole, 0.5 mm; each	0.32 mm	213222
1/8 in, two-hole, 0.8 mm; each	0.53 mm	213228
1/4 in to 0.4 mm	0.25 mm	213404
1/4 in to 0.5 mm	0.32 mm	213405
1/4 in to 0.8 mm	0.53 mm	213408
For Tubing Sizes - OD		
1/8 in to 1/16 in	1/16 in	213210
1/4 in to 1/16 in	1/16 in	213410
1/4 in to 6 mm	6 mm	213406
1/4 in to 1/8 in	1/8 in	213420

PTFE Ferrules - Upper temp. 250°C

Packages of 10

• 100% PTFE

Description		Item No.
Straight Ferrules - for tubing with ODs as listed		
1/16 in		214100
1/8 in		214200
3/16 in		214300
1/4 in		214400
Blank Ferrules - no holes		
1/16 in		2141XX
1/8 in		2142XX
1/4 in		2144XX
Capillary Column Ferrules	For Capillary Sizes - OD	
1/16 in to 0.3 mm	0.10 mm	214103
1/16 in to 0.4 mm	0.25 mm	214104
1/16 in to 0.5 mm	0.32 mm	214105
1/16 in to 0.8 mm	0.53 mm	214108
1/16 in to 1.0 mm	0.65 mm	214110
1/16 in to 1.2 mm	0.75 mm	214112
Reducing Ferrules		
1/8 in to 0.4 mm	0.25 mm	214204
1/8 in to 0.5 mm	0.32 mm	214205
1/8 in to 0.8 mm	0.53 mm	214208
	For Tubing Sizes - ID	
1/8 in to 1/16 in	1/16 in	214210
1/4 in to 6 mm	6 mm	214406
1/4 in to 1/16 in	1/16 in	214410
1/4 in to 1/8 in	1/8 in	214420
1/4 in to 3/16 in	3/16 in	214430



PTFE Ferrules



214300



2144XX



214410

Gas Purifiers

AFS Purifiers



AFS Purifiers I & II



AFS Manifold

- Clean flow path, gas contacts only metal, glass and fluoroelastomer seals
- High capacity and efficiency in a single cartridge
- Easy cartridge replacement with twist on/off assembly knob
- Double seal construction for safety, especially when using hydrogen gas
- Check valves protect gas lines during cartridge replacement
- Includes mounting hardware for wall or bench
- Stainless steel fittings
- Reconditioning program allows for recycling of cartridge

Innovative Design

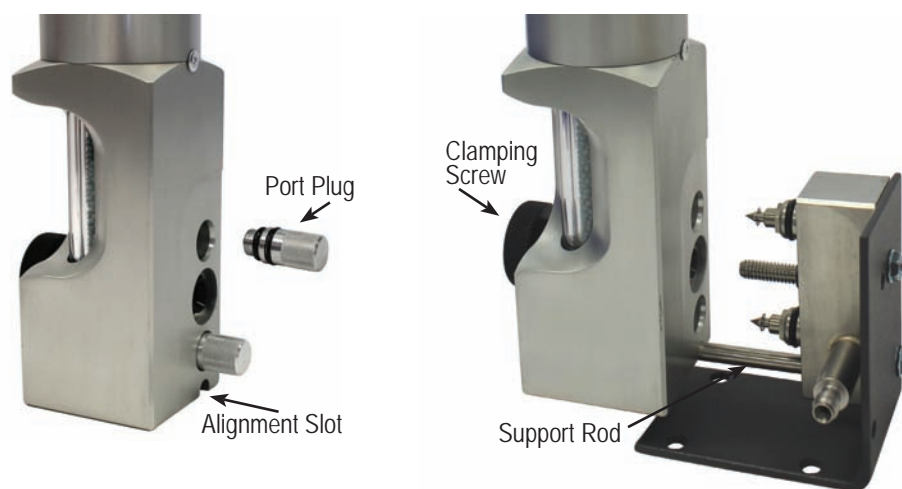
Two part system includes a small stainless steel manifold and a high capacity purifier cartridge.

The manifold mounts to a laboratory wall or bench with brackets included in the installation kit and connects to the gas lines with stainless steel compression fittings.

The cartridge easily attaches and detaches from the manifold with an assembly knob. To change the cartridge, simply twist the knob to disconnect the cartridge from the manifold and slide on a new cartridge. Twist the knob back for a tight, secure fit. Check valves close when the cartridge is removed.

Both the AFS Purifier I and AFS Purifier II have very high capacity and can be expected to supply four GCs for at least one year when used with 99.995% pure gas supplies (provided reasonable care is taken during tank changes).

Recommended maximum flow rate is 2 L/min and 200 psi maximum operating pressure.



First photo shows the port plugs; second photo shows how to mount the AFS purifier to the manifold. Manifold shown attached to benchmount bracket; wall mount also supplied.

AFS Purifier I

- Removes O₂, H₂O and Hydrocarbons (>C₄) from inert gases and hydrogen
- Two high sensitivity indicators, for oxygen and moisture
- High capacity and efficiency for oxygen, water and hydrocarbons
- Suitable for multiple GC installations

Common applications for the AFS I include:

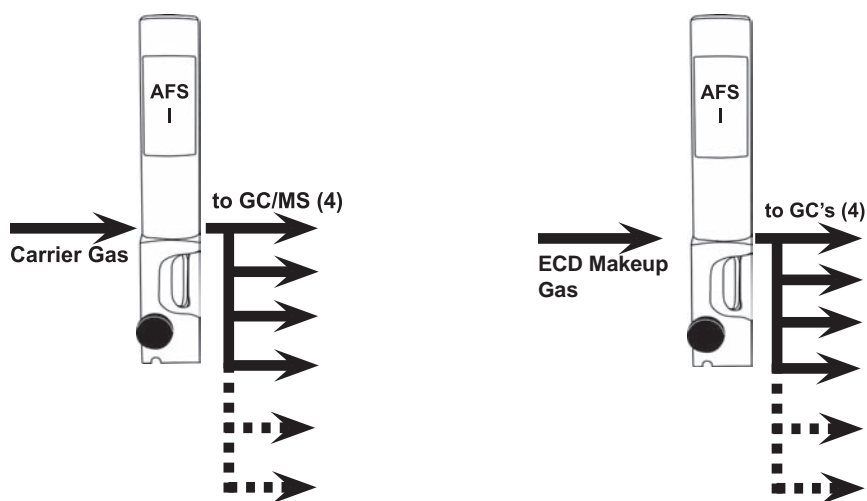
- GC and GC/MS carrier gas
- ECD make up gas
- ICP



AFS Purifier I;
oxygen and moisture indicator

Description	Item No.
AFS Purifier I, 1/8 in Fittings, Complete Kit	202900
AFS Purifier I, 1/4 in Fittings, Complete Kit	202902
Replacement Cartridge, AFS Purifier I	202910
Reconditioned Cartridge*, AFS Purifier I	202920
<i>*Requires exchange of depleted cartridge.</i>	
1/8 in AFS Purifier Manifold	202900MN
1/4 in AFS Purifier Manifold	202902MN

Some AFS purifiers and cartridges require special shipping and handling. Please contact CRS for instructions before returning any item for replacement.



Use of AFS Purifier I to protect multiple carrier gas lines or multiple ECD detectors.

Gas Purifiers

AFS Purifiers



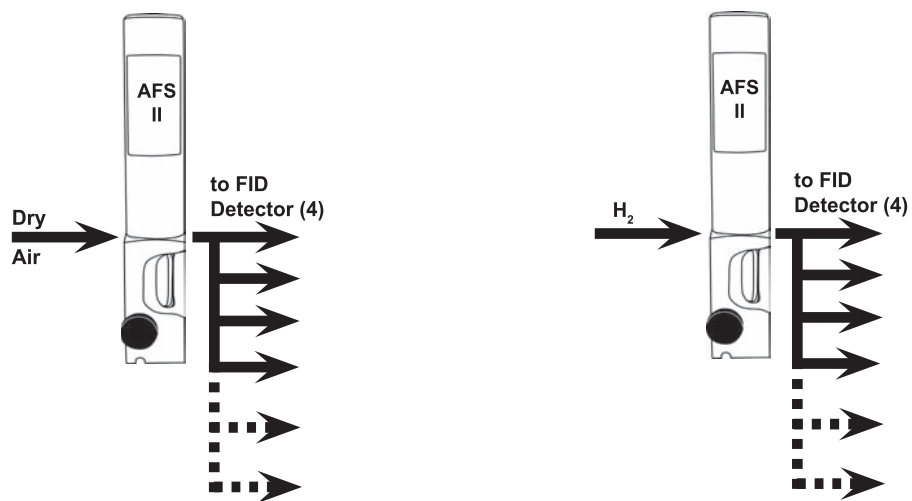
AFS Purifier II;
moisture indicator

AFS Purifier II

- Removes H₂O and Hydrocarbons, (>C₄) from dry air, hydrogen and inert gas
- High sensitivity indicator for moisture
- Intended to reduce baseline noise in FID detection
- Suitable for multiple GC installations

Description	Item No.
AFS Purifier II, 1/8 in Fittings, Complete Kit	202903
AFS Purifier II, 1/4 in Fittings, Complete Kit	202904
Replacement Cartridge, AFS Purifier II	202950
Reconditioned Cartridge*, AFS Purifier II	202930
<small>*Requires exchange of depleted cartridge.</small>	
1/8 in AFS Purifier Manifold	202900MN
1/4 in AFS Purifier Manifold	202902MN

Some AFS purifiers and cartridges require special shipping and handling. Please contact CRS for instructions before returning any item for replacement.



Use of 2 AFS Purifier II to protect multiple FID detectors.

ZPure™ Purifiers

- Compact design fits many existing installations that use small aluminum purifiers
- Available with brass or stainless steel compression fittings, 1/8 in or 1/4 in
- Stainless steel bodies with 10 µm stainless steel frits at both ends to protect against dust
- High quality activated adsorbents for long purifier life and efficient contaminant removal
- Oxygen purifiers use advanced adsorbent technology developed by CRS
- Dimensions 2.5 cm diameter x 28 cm length, including fittings

ZPure Dual Purifier

- High efficiency - reduces O₂ and water contamination to low ppb levels
- High capacity
- Compact purifier design for use with GC/MS



ZPure Dual Purifier

The CRS ZPure Dual Purifier is a compact purifier designed for GC/MS carrier gas lines. It will protect the column's stationary phase from oxygen and water degradation, for improved baseline and sensitivity. It is also recommended for other point-of-use applications that require ultra-pure inert gas. Oxygen and water are removed to very low levels from He, Ar, N₂, H₂ or methane, at flow rates up to 2 L/min. Gas lines are protected from dust by 10 µm frits at both ends of the purifier. Advanced adsorbent technology allows high removal capacities for both oxygen and water.

Description	Brass	Stainless
ZPure Dual Purifier, 1/8 in Fittings	202206-B	202206-SS
ZPure Dual Purifier, 1/4 in Fittings	202207-B	202207-SS
ZPure Dual Purifier, Reconditioned, 1/8 in Fittings	202206R-B	202206R-SS
ZPure Dual Purifier, Reconditioned, 1/4 in Fittings	202207R-B	202207R-SS

Some CRS gas purifiers for oxygen and carbon dioxide removal require special shipping and handling. Please contact CRS for instructions before returning any item for replacement.

Gas Purifiers

ZPure™ Purifiers



ZPure H₂O Purifier

ZPure H₂O Purifier

- High capacity - reduces moisture to low ppb levels

The CRS ZPure H₂O Purifier removes water from inert gases, air or hydrogen at flow rates up to 2 L/min. Gas lines are protected from dust by 10 µm frits at both ends of the purifier.

Description	Brass	Stainless
ZPure H ₂ O Purifier, 1/8 in Fittings	202230-B	202230-SS
ZPure H ₂ O Purifier, 1/4 in Fittings	202231-B	202231-SS
ZPure H ₂ O Purifier, Reconditioned, 1/8 in Fittings	202230R-B	202230R-SS
ZPure H ₂ O Purifier, Reconditioned, 1/4 in Fittings	202231R-B	202231R-SS



ZPure O₂ Purifier

ZPure O₂ Purifier

- High efficiency - reduces O₂ to low ppb levels
- Outstanding capacity in a small high performance design
- Recommended for GC/MS carrier gases

The CRS ZPure O₂ Purifier is an ultra-high capacity purifier for oxygen removal in a small, high performance package. Superior results are made possible with our advanced adsorbent technology. It will remove oxygen at ambient conditions to low ppb levels from He, Ar, N₂, H₂ or methane at flow rates up to 2 L/min. Gas lines are protected from dust by 10 µm frits at both ends of the purifier. It is recommended for GC/MS carrier gases to protect the column's stationary phase from oxygen degradation.

Description	Brass	Stainless
ZPure O ₂ Purifier, 1/8 in Fittings	202216-B	202216-SS
ZPure O ₂ Purifier, 1/4 in Fittings	202217-B	202217-SS
ZPure O ₂ Purifier, Reconditioned, 1/8 in Fittings	202216R-B	202216R-SS
ZPure O ₂ Purifier, Reconditioned, 1/4 in Fittings	202217R-B	202217R-SS

Some CRS gas purifiers for oxygen and carbon dioxide removal require special shipping and handling. Please contact CRS for instructions before returning any item for replacement.

ZPure HC Purifier

- High capacity and efficiency - reduces hydrocarbons to low ppb levels
- Recommended for use with FID gas lines

The CRS ZPure HC Purifier removes C5 weight and heavier hydrocarbons from inert gases, air or hydrogen. It is recommended for use with FID gas lines to improve baseline noise and sensitivity. Gas lines are protected from dust by 10 µm frits at both ends of the purifier.

Description	Brass	Stainless
ZPure HC Purifier, 1/8 in Fittings	202232-B	202232-SS
ZPure HC Purifier, 1/4 in Fittings	202233-B	202233-SS
ZPure HC Purifier, Reconditioned, 1/8 in Fittings	202232R-B	202232R-SS
ZPure HC Purifier, Reconditioned, 1/4 in Fittings	202233R-B	202233R-SS



ZPure HC Purifier

ZPure™ XL Purifiers

ZPure XL HC Purifier

- Extra-large capacity hydrocarbon purifier
- Reduces C5 weight and heavier hydrocarbons to low ppb levels
- Dimensions 5 cm diameter x 50 cm length including fittings

Description	Brass	Stainless
ZPure XL HC Purifier, 1/8 in Fittings	202232XL-B	202232XL-SS
ZPure XL HC Purifier, 1/4 in Fittings	202233XL-B	202233XL-SS



ZPure XL HC Purifier

ZPure XL H₂O Purifier

- Extra-large capacity moisture purifier
- Removes residual water from dry air or inert gases to low ppb levels
- Dimensions 5 cm diameter x 50 cm length including fittings

Description	Brass	Stainless
ZPure XL H ₂ O Purifier, 1/8 in Fittings	202230XL-B	202230XL-SS
ZPure XL H ₂ O Purifier, 1/4 in Fittings	202231XL-B	202231XL-SS



ZPure XL H₂O Purifier

ZPure™ Glass Purifiers



ZPure Glass Indicating O₂ Purifier

ZPure Glass Indicating O₂ Purifier

This glass purifier is an improved, compact indicating purifier for high-efficiency oxygen removal, suitable for use with chromatography carrier gas streams. It removes oxygen to low ppb levels, with an indicator that changes color from green to gray when adsorption capacity is depleted. The adsorbent forms copper oxide in the presence of oxygen; no gas is generated.

The ZPure Glass Indicating Oxygen Purifier is recommended as a downstream indicator for high-capacity traps such as the ZPure Dual or ZPure O₂. It can be used with non-oxidizing gases such as He, Ar, N₂, H₂ or CH₄. Dual seal design (see box below). Gas lines are protected from dust by 10 μm frits at both ends of the purifier. Maximum pressure is 6.8 bar (100 psig). Dimensions are 3.5 cm diameter x 26 cm length including fittings.

Description	Brass	Stainless
ZPure Glass Indicating Oxygen Purifier, 1/8 in Fittings	202236-B	202236-SS
ZPure Glass Indicating Oxygen Purifier, 1/4 in Fittings	202237-B	202237-SS
Reconditioned, 1/8 in Fittings	202236R-B	202236R-SS
Reconditioned, 1/4 in Fittings	202237R-B	202237R-SS



ZPure Glass H₂O/HC Purifier

ZPure Glass H₂O/HC Purifier

Removes water and C5 weight and heavier hydrocarbons from air or inert gases. The inner glass tube contains activated carbon, Co-Free™ moisture indicator and molecular sieve. Dual seal design (see box below). Dimensions are 3.5 cm diameter x 26 cm length including fittings; maximum pressure 6.8 bar (100 psig). Gas lines are protected from dust by 10 μm frits at both ends of the purifier.

Description	Brass	Stainless
ZPure Glass H ₂ O/HC Purifier, 1/8 in Fittings	202256-B	202256-SS
ZPure Glass H ₂ O/HC Purifier, 1/4 in Fittings	202257-B	202257-SS
Reconditioned, 1/8 in Fittings	202256R-B	202256R-SS
Reconditioned, 1/4 in Fittings	202257R-B	202257R-SS

Dual Seal Design

The glass inner tube is protected by a sealed outer plastic tube. Even if the glass tube fails, the gas system is fully protected against leaks.

ZPure Glass High Sensitivity Moisture Purifier

This gas purifier has an advanced design for applications requiring high-efficiency moisture removal with a highly sensitive moisture indicator. The adsorbing materials, HSMI™ and Molecular Sieve 5A, are held in a sturdy glass tube. The gas to be purified contacts only glass, metal, fluoroelastomer and the adsorbents. The moisture indicator turns color from light blue to gray at less than 1 ppm water to signal when capacity is reached.

The glass tube is sealed with a special dual sealing system to prevent leaks. An internal frit at each end prevents particulate contamination. The inner glass tube in the ZPure Glass High Sensitivity Moisture Purifier is enclosed in a plastic outer tube for safety. Dimensions are 3.5 cm diameter x 26 cm length including fittings, maximum pressure 6.8 bar (100 psig).

Description	Brass	Stainless
ZPure Glass High Sensitivity Moisture Purifier, 1/8 in Fittings	202283-B	202283-SS
ZPure Glass High Sensitivity Moisture Purifier, 1/4 in Fittings	202284-B	202284-SS



ZPure Glass High Sensitivity Moisture Purifier

ZPure Glass Moisture Purifier

This gas purifier is suitable for applications requiring high-efficiency moisture removal, with the benefit of low-sensitivity depletion indicator. Up to 6 grams water is removed to low ppb levels. The adsorbing materials, Molecular Sieve 5A and cobalt-free CoFree™ indicator, are held in a sturdy glass tube. Dual seal design (see box on previous page). Gas lines are protected from dust by 10 µm frits at both ends of the purifier.

CoFree changes color at about 5% relative humidity to signal leaks in the system; the molecular sieve removes moisture to trace levels. An internal frit at each end prevents particulate contamination. The inner glass tube in the CRS ZPure Moisture Purifier is enclosed in a plastic outer tube for safety. Dimensions are 3.5 cm diameter x 26 cm length including fittings, maximum pressure 6.8 bar (100 psig).

Description	Brass	Stainless
ZPure Glass Moisture Purifier, 1/8 in Fittings	202234-B	202234-SS
ZPure Glass Moisture Purifier, 1/4 in Fittings	202235-B	202235-SS
Reconditioned, 1/8 in Fittings	202234R-B	202234R-SS
Reconditioned, 1/4 in Fittings	202235R-B	202235R-SS



ZPure Glass Moisture Purifier

Gas Purifiers

Oxygen Purifiers



Model 1000

Model 1000 Oxygen Purifier

- High-capacity
- Exceptional efficiency
- Brass fittings

High capacity oxygen purifier, for long term protection of capillary column stationary phases against oxidation at GC operating temperatures. The Model 1000 is intended for use with non-oxidizing gases such as He, Ar, N₂, H₂ or CH₄, containing less than 0.1% oxygen. The adsorbent binds covalently with oxygen; no gas is generated from this reaction. Maximum pressure is 69 bar (1000 psig). Dimensions are 5 cm diameter x 37 cm length with fittings. Weight is 1.2 kg. Regeneration service is available.

Description	Item No.
Model 1000 Oxygen Purifier, 1/8 in Fittings	202200
Model 1000 Oxygen Purifier, 1/4 in Fittings	202202
Regeneration Service, 1/8 in	202204
Regeneration Service, 1/4 in	202205

Some CRS gas purifiers for oxygen and carbon dioxide removal require special shipping and handling. Please contact CRS for instructions before returning any item for regeneration.

Moisture Purifiers

Model 500 Moisture Purifier

- Contains molecular sieve 5A for high-efficiency drying
- Recommended for detector support gases and carrier gases
- Brass fittings

500 cc of molecular sieve in this metal purifier reduces moisture to very low levels. Internal frits at each end prevent particle contamination. Maximum pressure is 69 bar (1000 psig). Regeneration service is available. Dimensions are 5 cm diameter x 37 cm length with fittings. Weight is 1.2 kg.



Model 500

Description	Item No.
Model 500, Molecular Sieve Drying Purifier, 1/8 in Fittings	202270
Model 500, Molecular Sieve Drying Purifier, 1/4 in Fittings	202272
Regeneration Service	202254

Gas Purifiers

Hydrocarbon Purifiers



Model 300

Model 300 High Pressure Hydrocarbon Purifier

This is a high-pressure metal cylinder filled with 500 cc of activated charcoal. It will remove C5 and heavier hydrocarbons at room temperature from your FID air and H₂ lines to minimize noise and extraneous peaks in the signal. It is also recommended for use with purge and trap apparatuses and with GC carrier gases for trace analyses. Frits in each end prevent particulates from entering the gas stream. Maximum pressure is 69 bar (1000 psig). Dimensions are 5 cm diameter x 37 cm length with fittings. Weight is 1.0 kg. Regeneration service is available.

Description	Item No.
Model 300 Hydrocarbon Purifier, 1/8 in Fittings	202330
Model 300 Hydrocarbon Purifier, 1/4 in Fittings	202332
Regeneration Service	202254

Moisture/Oil/Dust Purifiers

Gas-Dry Purifier

The Gas Dry Purifier is a moisture and dust purifier suitable for drying laboratory air or central air supplies. It has a high-strength polycarbonate body with aluminum endcaps and standard brass compression fittings. The purifier is filled with molecular sieve and a cobalt-free moisture indicator that changes color in the presence of water. This purifier is not recommended for high purity GC applications. Maximum pressure is 6.9 bar (100 psig). Dimensions are 3.5 cm diameter x 26 cm length with fittings.



202238-B

Description	Brass	Stainless
Gas-Dry Purifier, 1/8 in fittings	202238-B	202238-SS
Gas-Dry Purifier, 1/8 in fittings - Long	202238L-B	202238L-SS
Gas-Dry Purifier, 1/4 in fittings	202239-B	202239-SS
Gas-Dry Purifier, 1/4 in fittings - Long	202239L-B	202239L-SS

Big Purifier

The Big Purifier has a 400 cc total volume of molecular sieve 5A and indicator in a clear acrylic tube. Available with CoFree cobalt-free indicator. The indicator changes color at low relative humidity. Maximum pressure is 6.9 bar (100 psig). Dimensions are 6 cm diameter x 43 cm length including fittings. Weight is 1.0 kg. For high-efficiency moisture removal, the Model 500, page 27, is recommended. For carrier gas purification, the AFS Purifier I, page 19, is recommended.



202290

Description	Item No.
Big Purifier, CoFree Indicator, 1/8 in fittings	202290
Big Purifier, CoFree Indicator, 1/4 in fittings	202292
Refill Kit	202298

Gas Purifiers

Split Vent Purifier



- Remove organics before they reach the lab atmosphere
- Filled with activated charcoal, a highly-efficient adsorbent
- Attaches to GC split vent

Contains 1200 mg of activated charcoal. Weekly or biweekly replacement of the charcoal tubes is recommended, depending on GC use. The split vent purifier consists of glass adsorbent tubes, 1/8 in end fittings and a clear plastic protective sleeve. Each purifier comes with 3 replacement charcoal tubes. Length 16 cm.

Description	Item No.
Injector Split Vent Purifier	202346
Replacement Split Vent Tubes, 3/pk	202348
1/8 in PTFE Ferrules, 10/pk	214200
1/8 in to 1/16 in PTFE Reducing Ferrules, 10/pk	214210

CO₂ Purifier

Removes carbon dioxide from the gas stream. High-capacity; it will irreversibly bind 100 g of carbon dioxide (cannot be regenerated). It's unique design uses NaOH blended with molecular sieve to scrub out CO₂. The reaction produces water which is adsorbed by the molecular sieve. When downstream water is a concern, it is recommended to use a second moisture purifier in line as a safety measure. Not recommended for GC use. Maximum pressure is 69 bar (1000 psig). Dimensions are 5 cm diameter x 37 cm length with fittings. Weight is 1.3 kg.



202350

Description	Item No.
Carbon Dioxide Purifier, 1/8 in Fittings	202350
Carbon Dioxide Purifier, 1/4 in Fittings	202352

Some CRS gas purifiers for oxygen and carbon dioxide removal require special shipping and handling. Please contact CRS for instructions before returning any item for regeneration.

Kits & Accessories

Kits



205220

FID Cleaning Kit

Use this kit to clean both the jet tip and collector. It includes three jet reamers, 0.016 in, 0.019 in, and 0.024 in OD; one mini-drill bit 0.0102 in OD; two wire mini-brushes, one brass and one stainless steel; and a dual-ended handle for the reamers and brushes.

Description	Item No.
FID Cleaning Kit	205220



205215

Injection Liner Cleaning Kit

The Injection Liner Cleaning Kit includes four different sizes of nylon brushes to clean most liners, and one foot of pipe cleaner. The 4 mm and 2 mm diameter brushes clean standard liners; the 1 mm and 0.5 mm diameter brushes can reach inside reversible tapered liners.

Description	Item No.
Injection Liner Cleaning Kit	205215

Accessories

Universal Fused Silica Connectors

These quartz connectors will join columns from 0.25 mm to 0.53 mm ID. Procedure: cut the capillary column with a ceramic column scribe; be sure the end is cut squarely. Insert the column into the appropriate leg of the connector to make a snug fit. Heat in the GC oven under carrier gas flow for one hour at 250°C, to fuse the column's polyimide coating to the wall of the union.

Description	Item No.
Universal Quartz Connector, 5/pk	207950
Universal Y-Splitter, each	207960



Universal Quartz Connector;
Universal Y-Splitter

Column Scribe

Used to cut capillary tubing. Simply pull one smooth edge of the hard ceramic scribe (tilted about 45°) across the column to lightly score the fused silica. Bend the column opposite the score and the column separates cleanly.

Description	Item No.
Column Scribe, 10/pk	205312



205312

Ferrule Remover

Two tools are supplied for capillary ferrules from 0.4 mm to 0.8 mm ID. The tip has a spiral-cut ratchet design that twists into the ferrule easily then grabs on the way out.

Description	Item No.
Ferrule Remover, 2/pk	205315



205315

Sample Preparation

Solid Phase Extraction



SPE Cartridges

Solid Phase Extraction cartridges from CRS provide fast and efficient sample clean-up and concentration prior to analysis. Cartridges use medical grade polypropylene tubes, porous polyethylene frits, and highly reproducible sorbents. SPE syringe cartridges are equipped with male luer tips, for versatility in connections and processing.

Choosing the Proper Packing Type

Reversed Phase - C18, C8, and Phenyl bonded phases are available and offer a variety of selectivities. Non-polar to moderately polar compounds in a polar matrix are retained by reversed-phase sorbents. Reversed-phase packings require conditioning with an organic solvent followed by an aqueous solvent prior to use. Elution of moderately polar compounds is often accomplished with mid-polarity solvents while non-polar compounds require less polar solvents.

Normal Phase - Silica, Florisil, Amino, Cyano, Diol and Alumina are usually used to retain polar compounds from non-polar matrices. Conditioning is carried out with a non-polar solvent. Elution is accomplished with more polar solvents. Compounds with pH basic functional groups are readily retained by silica. However, very polar compounds such as carbohydrates can be irreversibly retained on silica surface. In this case, a bonded and mid-polarity phase such as Diol or Amino is a better choice.

Ion Exchange - Strong anion (SAX) and cation (SCX) exchangers are available. Anions and cations are retained on the corresponding resin by exchanging the anion or cation in the buffers, 0.1 M - 0.5 M, or by changing the pH of elution solvent such that the sample compound is no longer charged. These resins are silica based and lose some exchange capacity with increasing organic solvent content in the sample.

Reverse Phase SPE Cartridges, Non-Polar

Description	Qty	Item No.
C18 (ODS)		
C18, 100 mg/1 mL	100/pk	186311
C18, 200 mg/3 mL	50/pk	186312
C18, 500 mg/3 mL	50/pk	186313
C18, 500 mg/6 mL	50/pk	186314
C18, 1000 mg/6 mL	30/pk	186315
C8 (Octyl)		
C8, 100 mg/1 mL	100/pk	186321
C8, 200 mg/3 mL	50/pk	186322
C8, 500 mg/3 mL	50/pk	186323
C8, 500 mg/6 mL	50/pk	186324
C8, 1000 mg/6 mL	30/pk	186325
Phenyl		
Phenyl, 100 mg/1 mL	100/pk	186341
Phenyl, 200 mg/3 mL	50/pk	186342
Phenyl, 500 mg/3 mL	50/pk	186343
Phenyl, 500 mg/6 mL	50/pk	186344
Phenyl, 1000 mg/6 mL	30/pk	186345



SPE Cartridges

Sample Preparation

Solid Phase Extraction



Non-Silica SPE Cartridges

Description	Qty	Item No.
Alumina A		
Alumina A, 100 mg/1 mL	100/pk	186461
Alumina A, 200 mg/3 mL	50/pk	186462
Alumina A, 500 mg/3 mL	50/pk	186463
Alumina A, 500 mg/6 mL	50/pk	186464
Alumina A, 1000 mg/6 mL	30/pk	186465
Alumina B		
Alumina B, 100 mg/1 mL	100/pk	186471
Alumina B, 200 mg/3 mL	50/pk	186472
Alumina B, 500 mg/3 mL	50/pk	186473
Alumina B, 500 mg/6 mL	50/pk	186474
Alumina B, 1000 mg/6 mL	30/pk	186475
Alumina N		
Alumina N, 100 mg/1 mL	100/pk	186481
Alumina N, 200 mg/3 mL	50/pk	186482
Alumina N, 500 mg/3 mL	50/pk	186483
Alumina N, 500 mg/6 mL	50/pk	186484
Alumina N, 1000 mg/6 mL	30/pk	186485
Florisil™		
Florisil, 100 mg/1 mL	100/pk	186491
Florisil, 200 mg/3 mL	50/pk	186492
Florisil, 500 mg/3 mL	50/pk	186493
Florisil, 500 mg/6 mL	50/pk	186494
Florisil, 1000 mg/6 mL	30/pk	186495

Normal Phase SPE Cartridges, Polar

Description	Qty	Item No.
Silica		
Silica, 100 mg/1 mL	100/pk	186361
Silica, 200 mg/3 mL	50/pk	186362
Silica, 500 mg/3 mL	50/pk	186363
Silica, 500 mg/6 mL	50/pk	186364
Silica, 1000 mg/6 mL	30/pk	186365
Diol		
Diol, 100 mg/1 mL	100/pk	186391
Diol, 200 mg/3 mL	50/pk	186392
Diol, 500 mg/3 mL	50/pk	186393
Diol, 500 mg/6 mL	50/pk	186394
Diol, 1000 mg/6 mL	30/pk	186395
Cyano (CN)		
Cyano, 100 mg/1 mL	100/pk	186381
Cyano, 200 mg/3 mL	50/pk	186382
Cyano, 500 mg/3 mL	50/pk	186383
Cyano, 500 mg/6 mL	50/pk	186384
Cyano, 1000 mg/6 mL	30/pk	186385
Amino (NH₂)		
Amino, 100 mg/1 mL	100/pk	186371
Amino, 200 mg/3 mL	50/pk	186372
Amino, 500 mg/3 mL	50/pk	186373
Amino, 500 mg/6 mL	50/pk	186374
Amino, 1000 mg/6 mL	30/pk	186375



Sample Preparation

Solid Phase Extraction



Ion Exchange SPE Cartridges

Description	Qty	Item No.
SAX		
SAX, 100 mg/1 mL	100/pk	186411
SAX, 200 mg/3 mL	50/pk	186412
SAX, 500 mg/3 mL	50/pk	186413
SAX, 500 mg/6 mL	50/pk	186414
SAX, 1000 mg/6 mL	30/pk	186415
SCX		
SCX, 100 mg/1 mL	100/pk	186421
SCX, 200 mg/3 mL	50/pk	186422
SCX, 500 mg/3 mL	50/pk	186423
SCX, 500 mg/6 mL	50/pk	186424
SCX, 1000 mg/6 mL	30/pk	186425

Mininert® Valves & Reaction Vials

Mininert Valves

These are unique push-button PTFE vial closures featuring inertness and syringe access without exposure of the vial contents. When used with a glass vial, only PTFE and glass are in contact with the sample. A silicone rubber gasket above the PTFE valve stem (isolated from the contents) provides a seal for the needle and prevents leakage or exposure of the contents during sampling. Push the green button to open, insert the needle and take sample, withdraw the needle, then push the red button to close. The needle seal septum may be replaced as needed with the valve closed to avoid exposing contents. Mininert valves can be used up to 105°C. Packages of 12.

Description	Thread Size	Item No.
13 mm Screw Cap Mininert Valve	13-425	614158
15 mm Screw Cap Mininert Valve	15-425	614160
18 mm Screw Cap Mininert Valve	18-400	614161
20 mm Screw Cap Mininert Valve	20-400	614170
24 mm Screw Cap Mininert Valve	24-400	614163
20 mm Crimp Cap Mininert Valve	NA	614250
Replacement Septa, 50/pk	NA	644350
Septum Installing Tool, each	NA	644850



614163



614250

Reaction Vials

These are useful for micro and semi-micro scale reactions or concentration work. The vials have thick walls, conical tapered interiors and come complete with PTFE-faced silicone liners and open-hole screw caps. Vials have graduation marks. Made from borosilicate glass. Packages of 12.

Description	Thread Size	Item No.
1.0 mL Clear Reaction Vials	13-425	099420
3.0 mL Clear Reaction Vials	20-400	099430
5.0 mL Clear Reaction Vials	20-400	099440
10.0 mL Clear Reaction Vials	24-400	099450



099440 and 099420

Sample Preparation

Syringe Filters, Disposable Syringes



Syringe Filters

Syringe Filters

CRS offers a wide range of syringe filters for most sample clean up applications. Filter housings are made from polypropylene and have luer hubs to fit all luer lock syringes. Two membrane materials are available; Nylon (hydrophilic) for general filtration of aqueous samples and many solvents, and PTFE for gases, virtually all solvents, and highly corrosive acids and bases. PTFE can be used with aqueous samples by pre-wetting with methanol.

- 4 mm size - Low sample hold-up of less than 10 μ L. 100/pk
- 17 mm size - For general laboratory sampling. Filters have higher sample capacity than the 4 mm size. Maximum pressure for filtering is 5 bar (75 psig). 100/pk
- 30 mm size - For all around lab use. The 30 mm diameter allows greater throughput when hold-up of some sample is not critical. Maximum pressure is 5 bar (75 psig). 100/pk

Description	Item No.
4 mm Nylon Filter, 0.2 micron	189000
4 mm Nylon Filter, 0.45 micron	189001
4 mm PTFE Filter, 0.2 micron	189002
4 mm PTFE Filter, 0.45 micron	189003
17 mm Nylon Filter, 0.2 micron	186502
17 mm Nylon Filter, 0.45 micron	186503
17 mm PTFE Filter, 0.2 micron	186500
17 mm PTFE Filter, 0.45 micron	186501
30 mm Nylon Filter, 0.2 micron	186055
30 mm Nylon Filter, 0.45 micron	186054
30 mm PTFE Filter, 0.2 micron	186057
30 mm PTFE Filter, 0.45 micron	186058



Disposable Syringe

Disposable Syringes

Useful for sample preparation, especially when used with CRS syringe filters. Syringes are made from polypropylene and polyethylene and are silicone-free. Extractables are minimized when compared against rubber-tipped plunger syringes. Syringes are individually wrapped in sterile "peel packs." Packages of 100.

Description	Item No.
3 mL Disposable Syringe	186603
5 mL Disposable Syringe	186605
10 mL Disposable Syringe	186610
20 mL Disposable Syringe	186620

Sample Concentration, Evaporators

Adjustable Mini-Vap

This is a versatile concentrator/evaporator for use with a single container. Adjustable design allows use with any size vessel from mini-vial to 250 mL beaker. It is nickel-plated for resistance to solvents and dilute acids. Instructions included.

Description	Item No.
Single, Adjustable Mini-Vap	201001



201001

6-Port Mini-Vap

This concentrator/evaporator handles up to six miniature vials or containers simultaneously. It comes with six stainless steel needles, a nickel-plated needle valve, and 3 feet of plastic tubing. The needle valve allows fine control of the nitrogen or dry air flow for the evaporator. Instructions are included.

Measurements: Base is 7 in wide x 1.5 in deep x 3/4 in height; Ports are 1 in apart; 4 in Luer Lock Needles.

Description	Item No.
6-Port Mini-Vap	201006



201006

Replacement Parts

4 in Stainless Steel Luer Needles, 6/pk	201007
Spare Luer Lock Adapters, 6/pk	201114
O-Ring Seal, 6/pk	201115
Plastic End Caps, 100/pk	205122

Premium Septa

Premium Septa are preconditioned for low bleed, plasma-coated to reduce sticking and packed in glass jars. Premium septa generally have much lower bleed than general purpose septa.

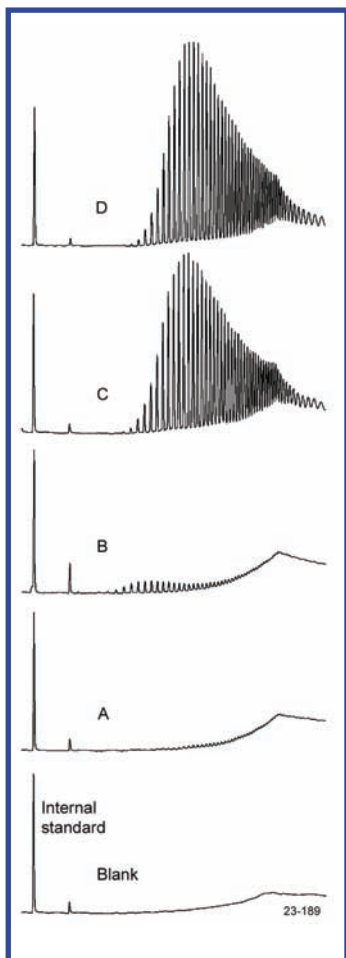
CenterGuide™

- Center point guides the needle for easy penetration
- Reduce needle bending
- Precision molding assures accurate fit
- Available in selected sizes

Precision-molded septa have a recess on the injection side, to guide the syringe needle to the same point with every injection. The CenterGuide design requires less force for initial penetration, for a smoother feel. Septum life may be enhanced in some applications by minimizing tearing and coring.

Plasma Coating

- Non-stick surface treatment
- Easy to change, even after high-temperature use
- Stays clean. Does not attract dust.



Septa BTO has the lowest bleed of any septa we have tested. Solvent extracts of residual silicones:

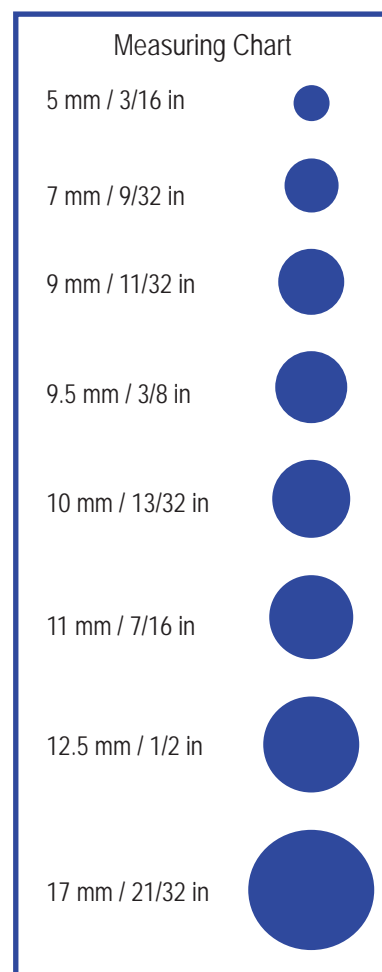
- A) BTO
- B) AG3
- C) Competitor's high-temp red septa
- D) Competitor's low-bleed green septa

Septum	High Temperature	Pre-pierced	Ultra-Low Bleed	Suggested Applications
Marathon™	✓	✓	•	Autosampler use; prepierced for greater reliability, trace analysis
BTO®	✓	•	✓	High injection port temperature, lowest bleed, trace analysis
Advanced Green 3™	✓	•	•	Routine use; low sticking

Upper Temperature Limit: Septa BTO can be used at 400°C; Marathon and Advanced Green 3 can be used at 350°C and injector set point temperatures in most instruments. Slight sticking may occur in new injection ports when holding septa above 300°C over many days.

Septa Cross Reference

Instrument	Septum Size
Agilent/HP	
5880A, 5890, 6850, 6890, 7890, 7890A , & 7820A	11 mm
5700 series, 5830/40	9.5 mm
On-column injection	5 mm
Purged packed column	11 mm
Bruker (former Varian)	
1177 Injector	9 mm
1040/41/60/61	9.5 mm
1075/77/78, 1079, 1093/94 SPI	11.5 mm
Fisons/Carlo Erba	
8000 Series	17 mm
PerkinElmer	
Sigma Series, 8000 Series, Clarus	11 mm
AutoSystem/AutoSystem XL	11 mm
Shimadzu	
9A, 14, 15A, 16, 17A, 2010 & 2014	Plug
Thermo	
Trace, Focus Split/Splitless, 8000 Series	17 mm
Trace 1300 Series	11 mm
9001, GCQ	9 mm
PTV Injector	12.7 mm





BTO 11 mm Septa

Septa BTO®

- Extended temperature range, low-bleed
- Maximum temperature 400°C*
- Virtually eliminates injection-port sticking
- Pre-conditioned; packaged in glass to prevent contamination
- Each batch GC-FID tested
- Ideal for use with low-bleed capillary columns and GC/MS

Septa BTO is Bleed and Temperature Optimized for today's most demanding GC and GC/MS applications. Septa BTO is formulated to extend low-bleed and outstanding mechanical properties of premium GC septa to the highest-temperature applications. It retains remarkable softness and pierceability at high temperatures, with extremely low bleed. Septa are 3 mm thick, except Shimadzu-style plug septa, and are packaged in glass vials.

Description	Qty	Item No.
5 mm BTO CenterGuide™	50/pk	298787
1/4 in (6.4 mm) BTO	50/pk	298755
9 mm BTO CenterGuide	50/pk	298713
3/8 in (9.5 mm) BTO	50/pk	298705
10 mm BTO	50/pk	298745
7/16 in (11 mm) BTO CenterGuide	50/pk	298717
7/16 in (11 mm) BTO CenterGuide	100/pk	298718
11.5 mm BTO CenterGuide	50/pk	298777
1/2 in (12.7 mm) BTO CenterGuide	50/pk	298727
17 mm BTO CenterGuide*	50/pk	298817
BTO for Shimadzu	50/pk	298735

* For 17 mm injectors the maximum is 350°; for extended use 330°C.

Advanced Green 3™

- True low-bleed, high temperature green septum
- Maximum temperature 350°C*

The CRS Advanced Green 3 Septum was specifically created to combine significantly longer injection life, low bleed and low injection port adhesion. The result is a green septum that should be used for all critical analyses. Advanced Green 3 Septa are packaged in glass vials for high purity. Septa are 3 mm thick, except Shimadzu-style plug septa.



AG3 11 mm Septa

Description	Qty	Item No.
5 mm AG3 CenterGuide™	50/pk	246525
9 mm AG3 CenterGuide	50/pk	246713
3/8 in (9.5 mm) AG3	50/pk	246124
7/16 in (11 mm) AG3 CenterGuide	50/pk	246225
7/16 in (11 mm) AG3 CenterGuide	100/pk	246228
11.5 mm AG3 CenterGuide	50/pk	246725
1/2 in (12.7 mm) AG3 CenterGuide	50/pk	246325
17 mm AG3 CenterGuide*	50/pk	246624
AG3 for Shimadzu	50/pk	246424

* For 17 mm injectors the maximum is 300°C.

Marathon™

- Excellent performance with long injection life
- Premium septum for autosamplers
- CenterGuide™ Marathon are prepierced for extremely reliable performance
- Recommended for SPME
- Maximum temperature setting 350°C*

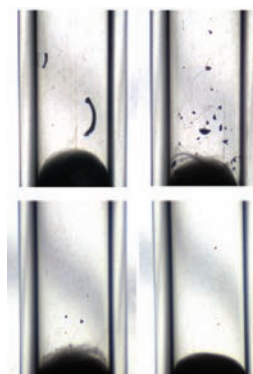
The CenterGuide versions of Marathon are prepierced to channel the needle through the same spot with each injection, which helps eliminate the common type of coring that may occur on the first injection. The Marathon septum is also ideal for standard manual-injection GC and GC/MS. Septa are 3 mm thick, except Shimadzu-style plug septa.



Marathon 11 mm Septa

Description	25/pk	50/pk	100/pk
5 mm Marathon CenterGuide	239587	239597	
9 mm Marathon CenterGuide	239778	239779	
7/16 in (11 mm) Marathon CenterGuide	239287	239297	239888
11.5 mm Marathon CenterGuide	239787	239798	
1/2 in (12.7 mm) Marathon CenterGuide	239387	239397	
17 mm Marathon*	239688	239698	
Marathon for Shimadzu	239488	239498	

* For 17mm injectors the maximum is 300°C.



Injection port liners after piercing septa 200 times with an SPME needle assembly. Top row, competitor's pre-drilled septa for SPME; bottom row, Marathon with CenterGuide.

General-Purpose Septa



Economy Blue Septa

Economy Blue Septa

CRS Blue Septa are designed for routine applications. They are easy to penetrate and made from silicone. Maximum temperature is 275°C.

Description	50/pk	100/pk
5 mm Economy Blue Septa	234106	234105
1/4 in (6.4 mm) Economy Blue Septa	234626	234625
9 mm Economy Blue Septa	234108	234109
3/8 in (9.5 mm) Economy Blue Septa	234906	234905
10 mm Economy Blue Septa	234111	234110
7/16 in (11 mm) Economy Blue Septa	234116	234115
11.5 mm Economy Blue Septa	234216	234215
1/2 in (12.7 mm) Economy Blue Septa	234126	234125
17 mm Economy Blue Septa	234118	234117
Shimadzu Economy Blue Septa	234121	234120



Puresep T

Puresep T™

- FEP/polyimide faced septum
- 3 mm thick
- Recommended maximum temperature is 225°C

Description	Qty	Item No.
1/4 in (6.4 mm) Puresep T	50/pk	230665
3/8 in (9.5 mm) Puresep T	50/pk	230675
7/16 in (11 mm) Puresep T	50/pk	230685
11.5 mm Puresep T	50/pk	230697
1/2 in (12.7 mm) Puresep T	50/pk	230695
13 mm Puresep T	50/pk	230698

Puresep P™

- Made from silicone rubber coated with a layer of high-temperature polyimide
- 3 mm thick
- Recommended maximum temperature is 300°C

Description	Qty	Item No.
1/4 in (6.4 mm) Puresep P	50/pk	230630
3/8 in (9.5 mm) Puresep P	50/pk	230640
7/16 in (11 mm) Puresep P	50/pk	230650
11.5 mm Puresep P	50/pk	230670
1/2 in (12.7 mm) Puresep P	50/pk	230660
13 mm Puresep P	50/pk	230680



Puresep P

Accessories

Septa Pick

The Septa Pick is useful for removing small pieces of septa lodged in the threads and corners of the septum cap or injection port. It can also be used to remove small bits of graphite ferrule from the cap and fittings of column connectors; other small cleaning jobs.

Description	Item No.
Septa Pick	205465



205465

Vials, Caps, Seals & Crimping Tools

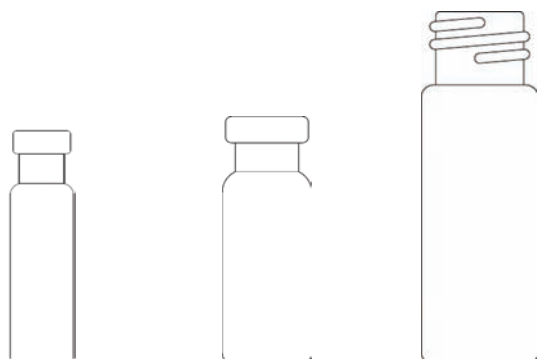
Vial Selection Process

Most GC and HPLC autosamplers use one of the three size vials:

8 x 30 mm
(0.8 mL)

12 x 32 mm
(1.8 mL)

15 x 45 mm
(4 mL)



These vials are available in the following:

Screw Top

Crimp Top

Snap Top

Shell Styles



Inserts can be used in vials when only a small amount of sample is available or needed. Small springs are sometimes used to support the insert. In addition, one piece reduced-volume vials with same external volume of the standard vial and the "sleeve system" of supporting micro vials in plastic sleeves can also be used with small volume samples. The sleeves have the same outer dimensions as the standard vials and fit many popular autosamplers.

Headspace Autosamplers come in four sizes, 23 x 38 mm (6 mL), 23 x 46 mm (10 mL), 23 x 75 mm (20 mL) and 30 x 60 mm (27 mL).

Caps

Screw Caps: Open hole design, seals hold firmly while allowing autosampler needles to penetrate. Usually made from polypropylene.

Crimp Caps: Open hole design; Lacquered aluminum, or steel magnetic caps.

Plug Caps made from Polyethylene: Used for shell vials. Sampling needle pierces the cap directly.

Screw Thread Measurements: Screw thread dimensions are designated by a two part number, for example 8-425. The first number indicates the diameter of the threads across the mouth of the vial, here 8 mm. The second

number is a standardized specification for the thread styles, set by the Glass Packaging Institute (GPI) and are uniform among American manufacturers.

Seals

Seal Thickness: Some references express thickness in mils (thousands of an inch). In general, thicker facing on the seal is better since thicker materials are less permeable to volatile compounds. One trade-off, however, is that thicker facings are more difficult to pierce with an autosampler syringe needle.

Standard Seal

- Synthetic rubber, faced with PTFE
- Resealable for short-term sample storage
- For crimp caps

Seal ST

- High-grade resealable seal
- Silicone faced with PTFE
- Available for screw tops only

TruSeal™

- High quality silicone seal
- Coated with pure PTFE
- Reduced permeability and lower bleed than natural rubber
- For crimp and screw caps

Seal TT

- Premium grade, resealable
- Silicone faced with PTFE
- Minimizes coring and the subsequent plugging of column inlets
- Recommended for HPLC users

Seal PTFE

- Not resealable
- Recommended for one time use
- Soft and easy to penetrate
- Disks of pure PTFE cut to the correct cap diameter

Polyethylene Plug Seal

- Good chemical resistance
- Seal is pierced directly by the autosampler syringe
- Not resealable

Materials

Type 1 Borosilicate Glass

- Includes Type A and B glasses specified in ASTM E438 "Glasses in Laboratory Apparatus"
- 33-expansion glass has a coefficient of expansion of $33 \times 10^{-6} \text{ cm/cm}^\circ\text{C}$ and is commonly used Type A glass. Sold under trademark Pyrex, Kimas and Duran.
- 51-expansion glass is Type B and is popular in many laboratories
- CRS uses only Type 1 borosilicate glass in the autosampler, EPA and headspace vials

Type II Glass

- Lower grade glass, known as flint or soda-lime glass
- Has lower softening point than borosilicate glass

Polypropylene

- Used for disposable autosampler vials because of its good chemical resistance and physical toughness
- Recommended for ion chromatography because of its extremely low metal content and excellent cleanability with dilute acid followed by deionized water rinse
- Translucent and autoclavable
- Continuous use temperature limit is 105°C

TPX (Polymethylpentene)

- Popular plastic for vials and general laboratory use because it is nearly as clear as glass
- Chemical resistance approaches that of polypropylene, except with some aromatics and chlorinated hydrocarbons
- Withstands repeated autoclaving up to 150°C
- Fairly brittle at room temperature; may crack or break if dropped

Chemical Properties of Seal Materials

FEP - Fluorinated Ethylene Propylene

- A fluorocarbon with inertness similar to PTFE
- Clear and more flexible than PTFE; an ideal sealing material

PTFE - Polytetrafluoroethylene

- Extremely inert
- Excellent sealing material and has good cleanability for metals

Silicone

- Outstanding thermal stability, resilience and flexibility
- Can seal repeatedly after multiple needle piercings

Rubber

- Good seal material with moderate resealing capabilities

Chlorobutyl Rubber

- Synthetic rubber that offers excellent resistance to most solvents
- High puncture tolerance and resists coring
- Usable temperature range is -40°C to 125°C

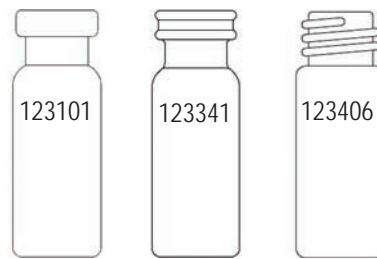


Vials, Caps, Seals & Crimping Tools

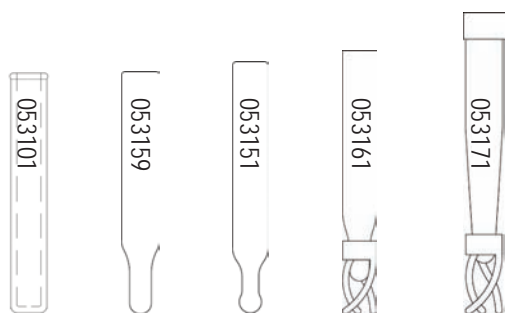
12x32 mm Standard Mouth



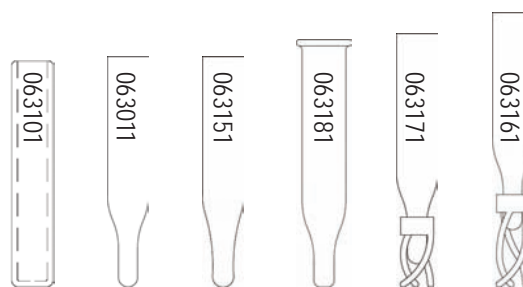
12x32 mm Wide Mouth



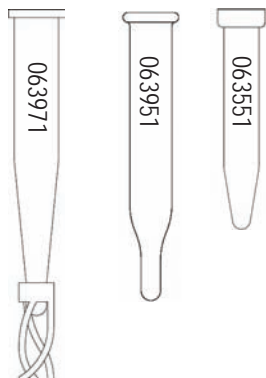
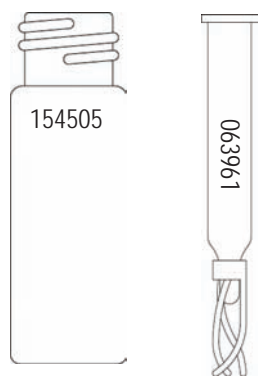
Standard Mouth Vial Inserts



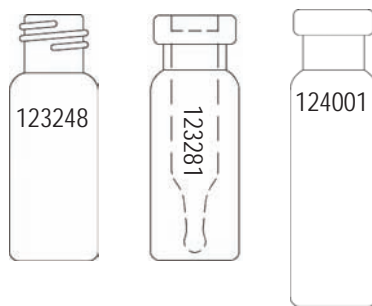
Wide Mouth Vial Inserts



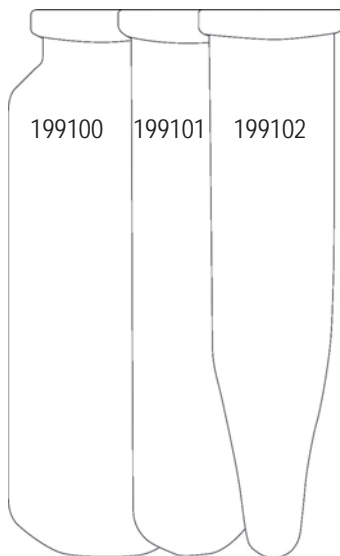
15x45 mm Vials and Inserts



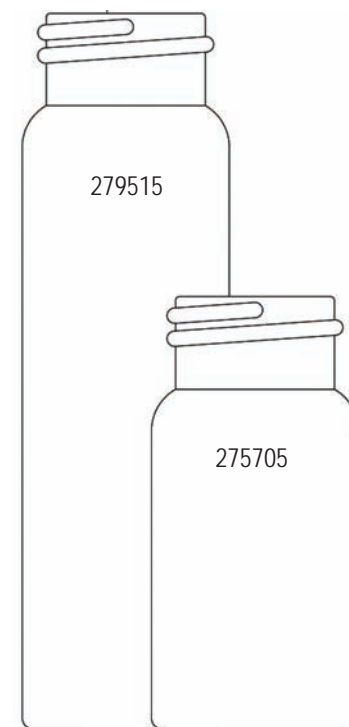
Misc. Vials



Microwave Vials



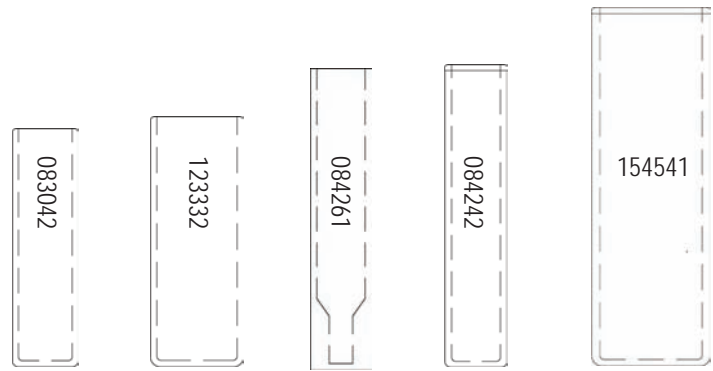
EPA Vials



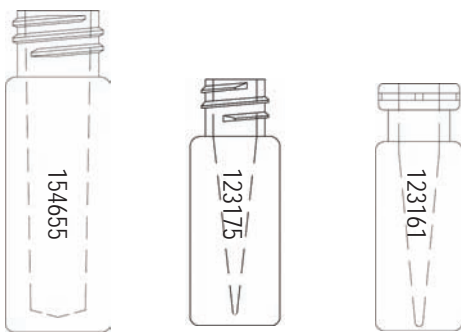
Sample Vials



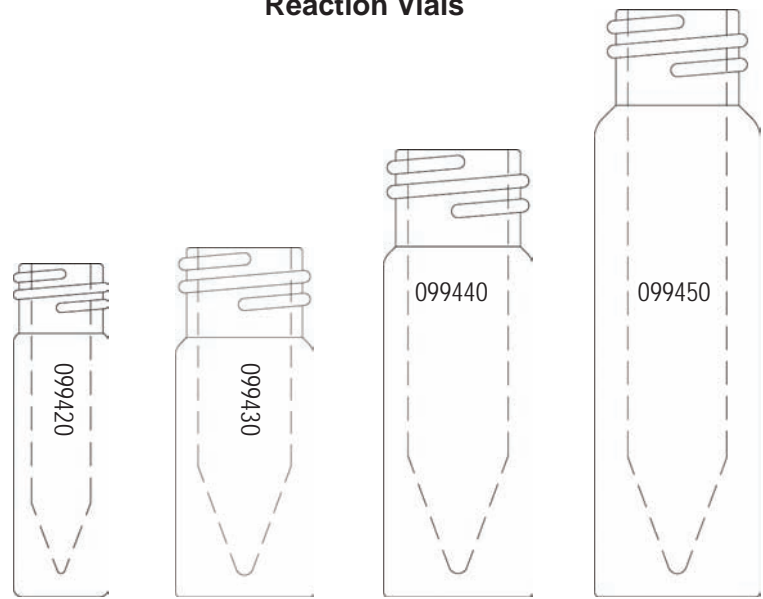
Shell Vials



Conical / Limited Volume Vials

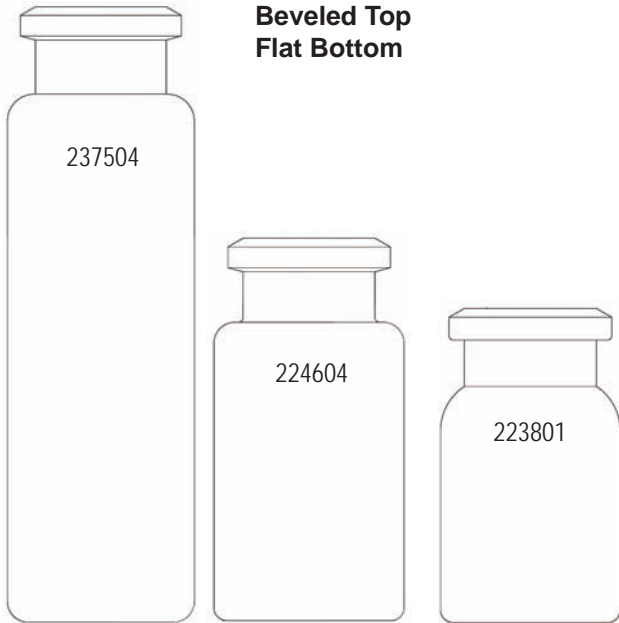


Reaction Vials

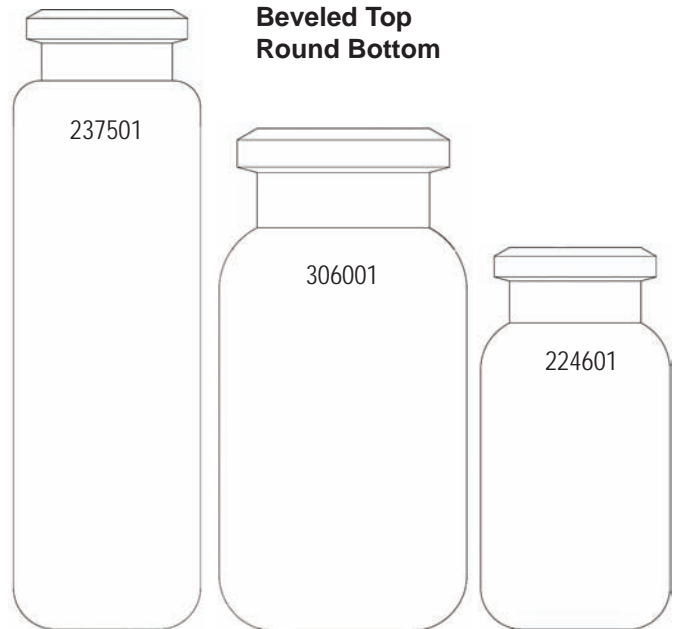


Headspace Vials

**Beveled Top
Flat Bottom**



**Beveled Top
Round Bottom**



Vials, Caps, Seals & Crimping Tools

12 x 32 mm Crimp, Standard Mouth



123201 123211



123411 123212L



123202 123203

1.8 mL Crimp Top Vials

- Compatible with most GC and HPLC autosamplers using 12 x 32 mm (1.8 mL) vials
- Standard width mouth
- All vials are made from Type 1 borosilicate glass

Description	Qty	Item No.
1.8 mL Clear Crimp Vial	100/pk	123201
Combo Pack: Clear Vial, Cap, Std. Seal	100/pk	123221
1.8 mL Amber Crimp Vial	100/pk	123211
1.8 mL Clear Label Crimp Vial	100/pk	123411
1.8 mL Amber Label Crimp Vial	100/pk	123212L
1.8 mL Clear Graduated Crimp Vial	100/pk	123202
1.8 mL Amber Graduated Crimp Vial	100/pk	123203
Combo Pack: Clear Graduated Vial, Cap, Std. Seal	100/pk	123491



A) 053101 B) 053159 C) 053151
D) 053161 E) 053171

Inserts

- Allows use of microliter-size samples
- Fits inside standard-mouth 12 x 32 mm, 1.8 mL vials
- Mandrel- or pulled-point tip available
- Inserts measure 5 x 31 mm except TriSpring inserts 5 x 29 mm
- TriSpring inserts have a plastic spring already attached, to center the insert and absorb shocks to minimize needle damage
- Type 1 Borosilicate glass except as noted

Description	Qty	Item No.
250 μ L Flat Bottom Insert	100/pk	053101
100 μ L Pulled Point Insert	100/pk	053159
100 μ L Mandrel Point Insert	100/pk	053151
100 μ L TriSpring Insert	100/pk	053161
100 μ L TriSpring Insert, Polypropylene	100/pk	053171

11 mm Crimp Caps and Seals for 1.8 mL Vials

- Caps are made from lacquered aluminum and have an open-hole design
- Pre-stuffed with seals listed below

Standard Seal - Good for routine use; self-sealing.

Seal S - A better-quality PTFE/silicone seal.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

TruSeal™ - A Silicone/PTFE seal offers lower permeability and bleed than natural rubber, and resists degradation to 250°C. Because the TruSeal is soft, lower crimping force is recommended.

Description	Material	Qty	Item No.
11 mm Cap and Std. Seal	PTFE/Rubber	100/pk	311001
11 mm Blue Cap and Std. Seal	PTFE/Rubber	100/pk	311001B
11 mm Green Cap and Std. Seal	PTFE/Rubber	100/pk	311001G
11 mm Gold Cap and Std. Seal	PTFE/Rubber	100/pk	311001GO
11 mm Orange Cap and Std. Seal	PTFE/Rubber	100/pk	311001O
11 mm Purple Cap and Std. Seal	PTFE/Rubber	100/pk	311001PU
11 mm Red Cap and Std. Seal	PTFE/Rubber	100/pk	311001R
11 mm Yellow Cap and Std. Seal	PTFE/Rubber	100/pk	311001Y
11 mm Steel Cap		100/pk	311002
11 mm Cap and Seal S	PTFE/Silicone	100/pk	311201
11 mm Cap and Seal TT	PTFE/Silicone/PTFE	100/pk	311401
11 mm Cap and TruSeal	PTFE/Silicone	100/pk	311231



311001B, 311001G, 311001GO, 311001O,
311001PU, 311001R, 311001Y



311001



311201



311401



311231

Vials, Caps, Seals & Crimping Tools

12 x 32 mm Crimp, Wide Mouth



123101

123211A



123222

123224

1.8 mL Wide Crimp Top Vials

- Wider opening minimizes bent autosampler needles, especially when using inserts
- All vials are made from Type 1 Borosilicate glass

Caps and Seals - Wide-mouth vials use the same caps and seals as CRS standard mouth vials on page 53.

Description	Qty	Item No.
1.8 mL Clear Wide Crimp Vial	100/pk	123101
Combo Pack: Clear Wide Vial, Cap, Std. Seal	100/pk	123121
1.8 mL Amber Wide Crimp Vial	100/pk	123211A
1.8 mL Amber Wide Label Crimp Vial	100/pk	123211L
Clear Graduated Wide Crimp Vial	100/pk	123222
Amber Graduated Wide Crimp Vial	100/pk	123224



123341

123343

123244



3111251

311261



311271

1.8 mL Snap/Crimp Wide Mouth Vials

- Easy to use
- Type 1 Borosilicate glass

Caps for Snap/Crimp Vials - Polyethylene caps, available with a variety of septum materials.

Description	Qty	Item No.
1.8 mL Snap/Crimp Clear Vial	100/pk	123341
1.8 mL Snap/Crimp Amber Vial	100/pk	123343
1.8 mL Snap/Crimp Clear Graduated Vial	100/pk	123371
1.8 mL Snap/Crimp Clear Label Vial with 250 µL Insert	100/pk	123344
	Seal Material	
Snap Cap for Snap/Crimp Vial	PTFE	100/pk 311251
Snap Cap for Snap/Crimp Vial	PTFE/Rubber	100/pk 311261
Snap Cap for Snap/Crimp Vial	PTFE/Silicone	100/pk 311271
Snap Cap for Snap/Crimp Vial	Polyethylene	100/pk 311281

0.25 mL Pre-Inserted Crimp Vial

- Unique one-piece design for easy microsampling in autosampler
- Recommended for Agilent 7673 A/B; 7683 A/B
- Vials have a permanently-attached insert
- Wide mouth design; uses 11 mm crimp caps and seals
- Type 1 Borosilicate glass

Description	Qty	Item No.
Pre-Inserted Clear Vial	100/pk	123281
Pre-Inserted Clear Vial with Label	100/pk	123284
Pre-Inserted Amber Vial with Label	100/pk	123286



123281

123284

123286

Inserts

- Allows use of microliter-size samples
- Fit inside wide-mouth 12 x 32 mm, 1.8 mL vials
- Mandrel- or pulled-point tip available
- Inserts measure 6 x 31 mm except TriSpring inserts 6 x 29 mm
- TriSpring inserts have a plastic spring already attached, to center the insert and absorb shocks to minimize needle damage
- Type 1 Borosilicate glass except as noted

Description	Qty	Item No.
350 μ L Flat Bottom Insert	100/pk	063101
250 μ L Pulled Point Insert	100/pk	063011
250 μ L Mandrel Point Insert	100/pk	063151
250 μ L TriSpring Insert	100/pk	063161
250 μ L TriSpring Insert, Polypropylene	100/pk	063171
250 μ L Tapered Hanging Insert	100/pk	063181



A

B

C

D

E

F

A) 063101 B) 063011 C) 063151

D) 063161 E) 063171 F) 063181



Wide-mouth vial with Hanging Insert 063181

Vials, Caps, Seals & Crimping Tools

12 x 32 mm, Special Crimp Vials



0.1 mL Conical Vials

- For microsampling without inserts, simply place in autosampler
- External dimensions are the same as regular 12 x 32 mm crimp top vials
- Standard mouth design
- Type 1 Borosilicate glass
- Uses caps and seals on page 53

Plastic

- Economical alternative to solid glass vials; disposable
- Polypropylene is translucent white in color
- TPX (polymethylpentene) has properties similar to polypropylene, but with transparency close to that of glass

Description	Qty	Item No.
0.1 mL Polypropylene Crimp Vial	100/pk	123161
Combo Pack: Poly Vial, Cap, Std. Seal	100/pk	123181
0.1 mL TPX Crimp Vial	100/pk	123171



2.5 mL, 12 x 40 mm Vial

- Fits Thermo Instruments AS 800, ICI LC1600, Pharmacia LKB 2157-020
- Uses standard 11 mm crimp cap and seals
- Type 1 Borosilicate glass

Description	Qty	Item No.
2.5 mL Clear Crimp Vial	100/pk	124001

Manual Hand Crimper and Decapper

- Easily viewed adjustment knob
- Strong light-weight plastic body
- Bottom-pull handle design
- Curved high-strength plastic handles
- For flip-off caps, available in 13 mm and 20 mm sizes

Innovative Design Body

The body is constructed of tough, light glass-filled plastic for strength. CRS's high-strength handle design conforms to natural hand grip. Greatly improves comfort over blocky metal grips.

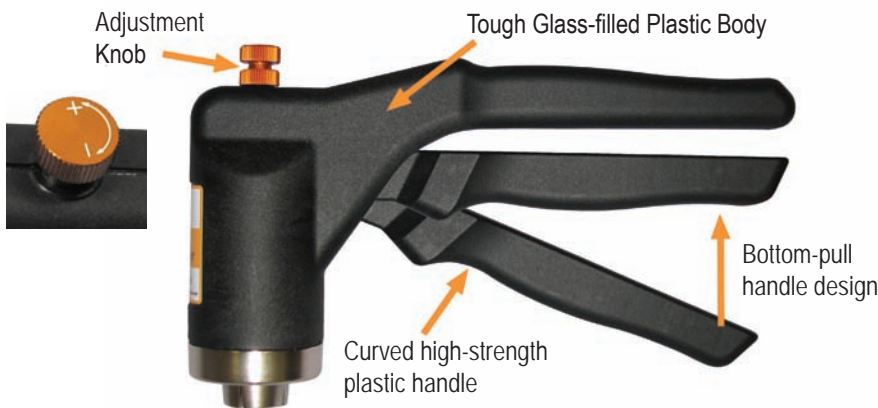
The bottom-pull handle design is steadier to hold than top-push handle designs. The head does not wobble and is easy to hold the tapered jaws of the crimper in a stable position as the bottom handle is pulled up.

Adjusting the Crimp Setting

The adjustment knob is conveniently positioned at the head of the crimper, clearly displays + and - symbols along with directional arrows. This simplifies adjusting the intensity of crimp desired. No more "extra squeeze" necessary! Allows to clearly see the crimp setting has been reached when the knob touches the crimper body.



311990



Description	Item No.
8 mm Easy Grip Manual Crimper	308990
11 mm Easy Grip Manual Crimper	311990
13 mm Easy Grip Manual Crimper	313990
13 mm Easy Grip Manual Crimper for Flip Off Caps	313992
20 mm Easy Grip Manual Crimper	320990
20 mm Easy Grip Manual Crimper for Flip Off Caps	320992
11 mm Easy Grip Manual Decapper	311991
13 mm Easy Grip Manual Decapper	313991
20 mm Easy Grip Manual Decapper	320991

Vials, Caps, Seals & Crimping Tools

6.4 Volt Electronic Crimping Tool



5A11C0

- Powerful motor with a fast cycle
- Long lasting battery with Lithium Ion technology
- Advanced charging system including warning light when recharging is necessary
- Can be operated while charging
- Convenient controls on top of unit to adjust crimp
- For flip-off caps, available in 13 mm and 20 mm sizes
- Optional base and mounting kit (see next page)

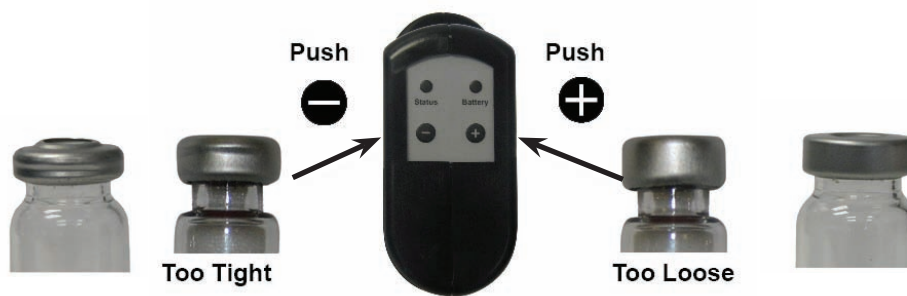
CRS electronic crimpers and decappers fit standard laboratory vials and seals with aluminum or two-part aluminum/steel caps. The electronically adjustable cycle is accurate and reproducible and can be adjusted with the control pad on top of the unit. The tools are ergonomically designed to reduce strain and arm injury associated with many manual crimping tools. Available in 8 mm (crimper only), 11 mm, 13 mm, and 20 mm cap sizes.

Rechargeable

The tools can be recharged in one to two hours with the universal power supply included. The power supply includes a plug set for operation in most countries.



Power Supply and Plug Set



Description	Item No.
8 mm Electronic Crimper	5A08C0
11 mm Electronic Crimper	5A11C0
13 mm Electronic Crimper	5A13C0
13 mm Electronic Crimper for Flip Off Caps	5A13F0
20 mm Electronic Crimper	5A20C0
20 mm Electronic Crimper for Flip Off Caps	5A20F0
11 mm Electronic Decapper	5A11D0
13 mm Electronic Decapper	5A13D0
20 mm Electronic Decapper	5A20D0
Base and Mounting Kit (see next page)	5ABAS0
Replacement Battery	
6.4 Volt Lithium Ion Battery	HPB6-A

High Power Electronic Crimping Tool

- High power version of electronic crimping tool with fixed power supply and cord. (No battery)
- Uses interchangeable jaw sets
- Stores separate programs for different caps and seals
- Strong enough for all steel and magnetic caps
- For flip-off caps, available in 13 mm and 20 mm sizes
- Optional base and mounting kit

The HPS crimping tool is fast and powerful; it easily crimps 20 mm steel caps. It is powered by a universal power supply and uses interchangeable jaws sets.



5AHPS0



Display Panel



Power Cord and Supply



Base and Mounting Kit

Description	Item No.
High Power Electronic Crimping Tool	5AHPS0
Base and Mounting Kit*	5ABAS0
* Base for HPS crimping tool or battery-powered tools	
8 mm Crimper Jaw Set	308955
11 mm Crimper Jaw Set	311955
13 mm Crimper Jaw Set	313955
13 mm Crimper Jaw Set for Flip Off Caps	313956
20 mm Crimper Jaw Set	320955
20 mm Crimper Jaw Set for Flip Off Caps	320956
11 mm Decapper Jaw Set	311965
13 mm Decapper Jaw Set	313965
20 mm Decapper Jaw Set	320965

Vials, Caps, Seals & Crimping Tools

12 x 32 mm Screw, Standard Mouth



1.8 mL Screw Top Vials

- Compatible with most GC and HPLC autosamplers requiring 1.8 mL, 12 x 32 mm vials; 12 x 35 mm with cap
- Vials use 8 mm, 8-425 caps
- Combo packs include vial and pre-stuffed cap with PTFE/Silicone seal
- Type 1 Borosilicate glass

Description	Qty	Item No.
Clear Screw Vial	100/pk	123205
Combo Pack: Vial, Cap, PTFE/Silicone Seal	100/pk	123225
Amber Screw Vial	100/pk	123215
Combo Pack: Vial, Cap, PTFE/Silicone Seal	100/pk	123135



1.8 mL Screw Top Vials with Label

- Mark vials with an ordinary pen or pencil on permanent ceramic patch
- Graduated label vials show the approximate volume of contents
- 8-425 threads
- Type 1 Borosilicate glass



Description	Qty	Item No.
Clear Label Screw Vial	100/pk	123315
Combo Pack: Label Vial, Cap, PTFE/Silicone	100/pk	123385
Amber Label Screw Vial	100/pk	123215L
Clear Graduated Screw Vial	100/pk	123340
Amber Graduated Screw Vial	100/pk	123342



A) 053101 B) 053159 C) 053151
D) 053161 E) 053171

Inserts

- Allows use of microliter-size samples
- Fit inside standard-mouth 12 x 32 mm, 1.8 mL vials
- Mandrel- or pulled-point tip available
- Inserts measure 5 x 31 mm except TriSpring inserts 5 x 29 mm
- TriSpring inserts have a plastic spring already attached, to center the insert and absorb shocks to minimize needle damage
- Type 1 Borosilicate glass except as noted

Description	Qty	Item No.
250 μ L Flat Bottom Insert	100/pk	053101
100 μ L Pulled Point Insert	100/pk	053159
100 μ L Mandrel Point Insert	100/pk	053151
100 μ L TriSpring Insert	100/pk	053161
100 μ L TriSpring Insert, Polypropylene	100/pk	053171

Caps and Seals

- Caps have open hole design; 8-425 threads
- Available individually or pre-stuffed with seals to save time and effort
- Pierceable screw caps are for single-time use. They have a polypropylene seal molded into the cap, so it cannot fall out

Note: Shimadzu, Hitachi and Jasco autosamplers require a special wide-lip cap, listed below or use wide mouth vials with these autosamplers.

Standard Seal - Good for routine use; self-sealing.

Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

TruSeal™ - A Silicone/PTFE seal offers lower permeability and bleed than natural rubber, and resists degradation to 250°C. Because the TruSeal is soft, lower crimping force is recommended.

Slit Seal - Recommended for Hitachi, Jasco and Shimadzu autosamplers. Prescored for easy needle penetration. Use with standard mouth vials and wide lip caps.

Description	Material	Qty	Item No.
8 mm Black Screw Cap	Polypropylene	100/pk	308115
8 mm Wide-Lip Screw Cap	Black Polypropylene	100/pk	309115
8 mm Wide-Lip Screw Cap	White Polypropylene	100/pk	309415
8 mm Silicone Seal ST	PTFE/Silicone	100/pk	308515
8 mm Seal TT	PTFE/Silicone/PTFE	100/pk	308715
8 mm Slit Seal	PTFE/Silicone	100/pk	309715
8 mm TruSeal	PTFE/Silicone	100/pk	308565

Pre-Assembled Open-Hole Screw Caps

8 mm (8-425) Cap with Seal ST	PP/PTFE/Silicone	100/pk	309525
8 mm (8-425) Cap with Seal TT	PP/PTFE/Silicone/PTFE	100/pk	309585
8 mm Pierceable Screw Cap	Polypropylene/Poly Seal	100/pk	309915



308115

309115



8 mm Seals: ST, TT, PTFE



309715



309525

Vials, Caps, Seals & Crimping Tools

12 x 32 mm Screw, Standard Mouth



123425

1.8 mL Pre-assembled Screw Top Vials

- Completely pre-assembled with PTFE/Silicone seal and open-hole screw cap
- Cap is made from polypropylene
- Type 1 Borosilicate glass

Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

Description	Qty	Item No.
1.8 mL Pre-assembled Vial ST	100/pk	123425
1.8 mL Pre-assembled Vial TT	100/pk	123435



123165

123175

0.1 mL Conical Vials

- Standard dimensions of 12 x 32 mm, yet 100 μ L capacity for small sample sizes
- Standard mouth design with 8-425 threads
- Type 1 Borosilicate glass
- Use standard 8-425 thread screw caps and seals

Plastic Vials

- Polypropylene is translucent white in color
- TPX (polymethylpentene) has properties similar to polypropylene, but with transparency close to that of glass

Description	Qty	Item No.
0.1 mL Poly Screw Top Vial	100/pk	123165
0.1 mL TPX Screw Top Vial	100/pk	123175



123255

1.1 mL Univial in cut-away sleeve

1.1 mL Tapered Bottom Vial

- Microsampling and analysis with one vial
- Tapered bottom lets you concentrate samples into the tip by solvent evaporation
- Standard mouth design; 8-425 threads
- Type 1 Borosilicate glass

Description	Qty	Item No.
1.1 mL Screw Top Tapered Vial*	100/pk	123255

* 5 pack minimum order

12 x 32 mm Screw, Wide Mouth

1.8 mL Screw Top Vials

- 40% larger opening than our standard vial
- Minimizes risk of bent needles; especially when using small volume inserts
- Compatible with most GC/HPLC autosamplers requiring 1.8 mL, 12 x 32 mm vials
- Type 1 Borosilicate glass

Description	Qty	Item No.
1.8 mL Clear Screw Vial	100/pk	123405
Combo Pack: Vial, Cap, PTFE/Silicone	100/pk	123415
1.8 mL Amber Screw Vial	100/pk	123406



Caps and Seals

- 10 mm, 10-425 thread caps fits the thread dimensions of 1.8 mL wide mouth vials
- Made from polypropylene; open-hole design
- Wide mouth vials are recommended for use with autosamplers that require vials to be suspended by the cap, including Shimadzu, Hitachi and Jasco (not recommended for the Agilent 7673 or 7683 A/B)
- Cap uses 9 mm seals



310115

Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

Seal PTFE - Disk is pure PTFE; not resealable.

Slit Seal - Recommended for Hitachi, Jasco and Shimadzu autosamplers. Pre-scored for easy needle penetration. Use with standard mouth vials and wide lip caps.



9 mm Seals: ST, TT, PTFE

Description	Material	Qty	Item No.
10 mm Black Screw Cap	Polypropylene	100/pk	310115
9 mm Silicone Seal ST	PTFE/Silicone	100/pk	310515
9 mm Seal TT	PTFE/Silicone/PTFE	100/pk	310615
9 mm Seal PTFE	PTFE	100/pk	310005
9 mm Slit Seal	PTFE/Silicone	100/pk	310815



310815

Vials, Caps, Seals & Crimping Tools

12 x 32 mm Screw, Wide Mouth



1.8 mL Vials with Graduated Label

- Mark vials with an ordinary pen or pencil on permanent ceramic patch
- Graduated label vials show the approximate volume of contents
- 10-425 threads
- Type 1 Borosilicate glass

Description	Qty	Item No.
Clear Graduated Screw Vial	100/pk	123408
Amber Graduated Screw Vial	100/pk	123409



Cap and Seals

- 10 mm, 10-425 thread cap fits the thread dimensions of 1.8 mL wide mouth vial
- Made from polypropylene; open-hole design
- Cap uses 9 mm seals



Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

Description	Material	Qty	Item No.
10 mm Black Screw Cap	Polypropylene	100/pk	310115
9 mm Silicone Seal ST	PTFE/Silicone	100/pk	310515
9 mm Seal TT	PTFE/Silicone/PTFE	100/pk	310615

Inserts for 12 x 32 mm Vials

For use when you only have a small amount of sample available for analysis.

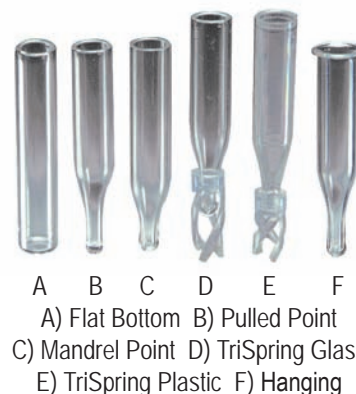
- Available in a variety of styles, to fit both standard and wide mouth 1.8 mL, 12 x 32 mm vials
- Inserts for standard mouth vials measure 5 mm in diameter, while wide mouth inserts measure 6 mm in diameter. Inserts measure 31 mm in length, except for TriSpring inserts measure 29 mm.

Flat Bottom Inserts - have the largest capacity. They are placed directly in the host vial.

Tapered Bottom Inserts - allow sampling of just microliters of liquid, with nearly complete withdrawal from the tip. They are also set directly into the host vial. The tips are either drawn during manufacture ("pulled point") or formed ("mandrel point").

TriSpring Inserts - have a plastic spring already attached to the tapered bottom. The spring centers the insert in the host vial and acts as a shock absorber if the insert is touched by the autosampler needle.

Hanging Insert - has a lip that rests on top of a wide mouth crimp or screw vial. The septum seals directly and positively against the insert, reducing the risk of solvent evaporation. Not available for standard mouth vials.

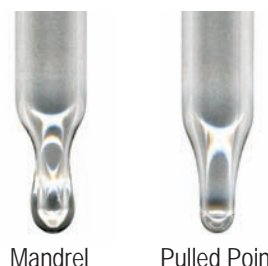


063181 Hanging Insert; Hanging insert in wide-mouth screw vial.

Description	Qty	Item No.
Inserts for Standard Mouth 1.8 mL Vials, Type 1 Borosilicate Glass		
250 µL Flat Bottom Insert	100/pk	053101
100 µL Pulled Point Insert	100/pk	053159
100 µL Mandrel Point Insert	100/pk	053151
100 µL TriSpring Insert	100/pk	053161
Inserts for Standard Mouth 1.8 mL Vials, Polypropylene		
100 µL TriSpring Insert	100/pk	053171
Inserts for Wide Mouth 1.8 mL Vials, Type 1 Borosilicate Glass		
350 µL Flat Bottom Insert	100/pk	063101
250 µL Pulled Point Insert	100/pk	063011
250 µL Mandrel Point Insert	100/pk	063151
250 µL TriSpring Insert	100/pk	063161
250 µL Tapered Hanging Insert	100/pk	063181
Inserts for Wide Mouth 1.8 mL Vials, Polypropylene		
250 µL TriSpring Insert, Polypropylene	100/pk	063171

Tapered Inserts Mandrel vs. Pulled Point

Tapered glass inserts are manufactured in different ways. The point can either be flame-drawn and pulled (pulled point) or shaped over a die (mandrel point). The pulled point is less costly to produce, while the mandrel point typically has more accurate dimensional tolerances.



Mandrel

Pulled Point

Vials, Caps, Seals & Crimping Tools

9 mm Screw Thread Vials - Certified



123245

1.8 mL Screw Thread Vials

- Large opening vials
- 9 mm finish
- Certification for dimension and cleanliness
- For use with Agilent 7673 and other robotic arm autosamplers that use 12 x 32 mm crimp top vials
- Excellent for long term storage
- Clear Vials Type 1, 33 expansion glass
- Amber Vials for light sensitive samples

Description	Qty	Item No.
9 mm Clear Vial with Certification	100/pk	123245
Combo Pack: 9 mm Clear Vial, Cap #309047* with Certification	100/pk	123262
Combo Pack: 9 mm Clear Vial, Cap #309049* with Certification	100/pk	123267
9 mm Amber Screw Vial with Certification	100/pk	123265
Combo Pack: 9 mm Amber Vial, Cap #309047* with Certification	100/pk	123263

*See below for full description

Pre-Stuffed Caps for 9 mm Vials

- Fits 9 mm screw thread vials for Agilent 7673 and other robotic arm autosamplers that use 12 x 32 mm crimp top vials
- Caps available pre-stuffed with several seal materials

Description	Material	Qty	Item No.
Pre-Stuffed Caps	Red PTFE/White Sil. Slit Seal w/ Cert.	100/pk	309047
Pre-Stuffed Caps	Bonded Red PTFE/White Sil. w/ Cert.	100/pk	309049

9 mm Screw Thread Vials

1.8 mL Screw Thread Vials

- Large-opening vials
- 9 mm finish
- For use with Agilent 7673 and other robotic arm autosamplers that use 12 x 32 mm crimp top vials
- Excellent for long-term storage
- Clear Vials Type 1, 33 expansion glass
- Amber Vials for light sensitive samples



123242



123253

Description	Qty	Item No.
9 mm Clear Screw Vial	100/pk	123242
Combo Pack: 9 mm Vial, Cap, PTFE/Rubber Seal	100/pk	123243
Combo Pack: 9 mm Vial, Cap, PTFE/Silicone/PTFE	100/pk	123247
9 mm Clear Screw Vial with Label	100/pk	123248
Combo Pack: 9 mm Label Vial, Cap, PTFE/Silicone	100/pk	123250
Combo Pack: 9 mm Label Vial, Cap, Slit PTFE/Silicone	100/pk	123252
9 mm Amber Screw Vial with Label	100/pk	123253
Combo Pack: 9 mm Label Amber, Cap, Std. Seal	100/pk	123254
9 mm Clear Screw Vial with Label, Silanized	100/pk	123308L
9 mm Amber Screw Vial, Silanized	100/pk	123338
9 mm Amber Screw Vial with Label, Silanized	100/pk	123338L

Pre-Stuffed Caps for 9 mm Vials

- Fits 9 mm screw thread vials for Agilent 7673 and other robotic arm autosamplers that use 12 x 32 mm crimp top vials
- Caps available pre-stuffed with several seal materials



309042

Description	Material	Qty	Item No.
Pre-Stuffed Caps	PTFE	100/pk	309041
Pre-Stuffed Caps	PTFE/Silicone Rubber	100/pk	309042
Pre-Stuffed Caps	PTFE/Pre-slit Silicone	100/pk	309044
Pre-Stuffed Caps	PTFE/Silicone/PTFE	100/pk	309045

Vials, Caps, Seals & Crimping Tools

HPLC Vials



1.2 mL Waters® 96 Style Shell Vial

- Matches the Waters vial design; 8 x 40 mm (8 x 45 mm with cap, included)
- Made from Type 1 borosilicate glass
- Polyethylene cap is pre-scored in a star design for easier syringe penetration
- Insert available for small-volume sampling; fits into the cap



1 mL Tapered-Bottom Polypropylene Shell Vial

- Has the same 8 x 40 mm external dimensions as the glass vial above
- Comes with pre-scored polyethylene cap
- Type 1 borosilicate glass

Description	Qty	Item No.
Combo Pack: 1.2 mL Clear Shell Vial with Polyethylene Cap	100/pk	084242
Combo Pack: 1.2 mL Amber Shell Vial with Plug	100/pk	084252
200 µL Insert, Type 1 Borosilicate Glass	200/pk	053852
Combo Pack: 1 mL PP Tapered Shell Vial with PP Cap	100/pk	084261
8 mm Snap Plug for Waters 96 Vial	100/pk	308051



1 mL, 8 x 40 mm Crimp Top Vials

- For Waters 96 Vial Tray
- Flat bottom or tapered bottom for microsampling work
- Use standard 8 mm aluminum crimp caps or polyethylene plug caps
- Vials are made from Type 1 borosilicate glass

Standard Seal - Good for routine use; self-sealing.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.



Description	Material	Qty	Item No.
1.0 mL Tapered Crimp Top Vial*		125/pk	084051
8 mm Crimp Cap and Std. Seal	PTFE/Rubber	100/pk	308001
8 mm Crimp Cap and Seal TT	PTFE/Silicone/PTFE	100/pk	308401
Combo Pack: 1.0 mL Vial, Cap, Std. Seal*		100/pk	084071
Combo Pack: 1.0 mL, with PE Plug Cap*		100/pk	084091
Plug Cap for 8 mm Vials	Polyethylene	100/pk	308021

* 5 pack minimum order

Miscellaneous Vials

0.7 mL, 7 x 40 mm Crimp Top Vials

- Tapered bottom for microsampling work
- Vials use standard 8 mm crimp caps and seals
- Type 1 borosilicate glass

Description	Qty	Item No.
0.7 mL Clear Crimp Vials	100/pk	074051

0.8mL, 8 x 30 mm Shell Vials

- A handy alternative to crimp-top vials
- Comes complete with polyethylene plug cap; just push to seal
- Cap has 0.5 mm thickness in needle penetration zone for easy piercing
- Not for use with autosamplers that pressurize the vial
- Type 1 borosilicate glass

Description	Qty	Item No.
0.8 mL Shell Vial and Polyethylene Plug	100/pk	083042



083042

12 x 32 mm Shell Vials

- Alternative to crimp or screw top vials; just push in the cap
- Can be used in most autosamplers except robot arm types, and autosamplers that pressurize the vial (Not usable with Agilent 7673/83A and 1090A autosamplers)
- Polyethylene plug cap included; the needle pierces the cap directly
- Type 1 Borosilicate glass

Description	Qty	Item No.
2 mL Clear Shell Vial with Plug Cap	100/pk	123332
2 mL Amber Shell Vial with Plug Cap	100/pk	123362



123332

123362

12 x 32 mm Shell Vial, Insert and Plug Cap

Vials, Caps, Seals & Crimping Tools

Miscellaneous Vials and Seal



Reaction Vials: 5 mL, 1 mL

Reaction Vials

These minivials are useful for micro and semi-micro scale reactions or concentration work. The vials have thick walls, conical tapered interiors and come complete with PTFE-faced silicone liners and open-hole screw caps. Vials have graduation marks (0.1 mL and 0.3 mL vials are not graduated), and are made from Type 1 Borosilicate glass.

Description	Thread Size	Qty	Item No.
1.0 mL Clear Reaction Vials	13-425	12/pk	099420
3.0 mL Clear Reaction Vials	20-400	12/pk	099430
5.0 mL Clear Reaction Vials	20-400	12/pk	099440
10.0 mL Clear Reaction Vials	24-400	12/pk	099450

Amber Reaction Vials

10.0 mL Amber Reaction Vials	24-400	12/pk	099452
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322545

Soil Sample Septa

- GC-quality septa; specially developed for purge-and-trap analysis using soil sample jars in DynaSoils®, DynaTrap® and similar instruments
- Conditioned to be free of volatiles
- Also superior for EPA sampling
- 22 mm diameter and 3 mm thick, coated on one side with PTFE

Description	Qty	Item No.
22 mm Soil Sample Septa	100/pk	322545

15 x 45 mm Screw Vials

4.0 mL Vials

- Ideal for your most demanding sampling needs
- Recommended for pH-sensitive work and other highly critical applications
- Type 1 Borosilicate glass

Description	Qty	Item No.
4.0 mL Clear Screw Vial	100/pk	154505
Combo Pack: Clear Vial, Cap, Seal ST	100/pk	154525
Combo Pack: Clear Vial, Cap, Seal PTFE	100/pk	154545
4.0 mL Amber Screw Vial	100/pk	154515
Combo Pack: Amber Vial, Cap, Seal ST	100/pk	154535

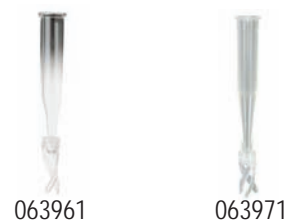
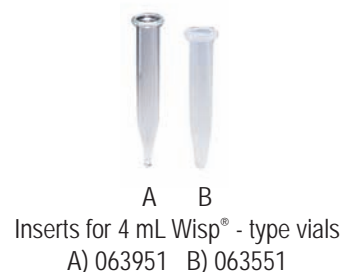


Inserts

- Allows small volume sampling in 15 x 45 mm vials
- Shell inserts fit directly into the vial; 8 x 42 mm
- Tapered glass (6 x 41 mm) and tapered polyethylene (6 x 35 mm) inserts require a spring for support; the spring is reusable
- TriSpring inserts have a plastic support spring permanently attached
- Type 1 Borosilicate glass, except as noted

Description	Qty	Item No.
300 µL Tapered Insert*	100/pk	063951
250 µL Tapered Insert, Polyethylene*	100/pk	063551
300 µL TriSpring Insert	100/pk	063961
250 µL TriSpring Insert, Polypropylene	100/pk	063971

*Requires spring for support



Pre-assembled Vials

- Completely pre-assembled with PTFE/Silicone seal and open-hole screw cap
- Cap is made from polypropylene
- Type 1 Borosilicate glass

Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

Description	Qty	Item No.
4.0 mL Pre-assembled Vial ST	100/pk	154565
4.0 mL Pre-assembled Vial PTFE	100/pk	154575

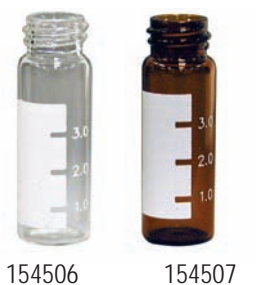


Vials, Caps, Seals & Crimping Tools



154555

154515L



154506

154507

4.0 mL Screw Vials with Label

- Mark vials with an ordinary pen or pencil on permanent ceramic patch
- Graduated label vials show the approximate volume of contents
- 13-425 threads
- Uses caps and seals listed below
- Type 1 Borosilicate glass

Description	Qty	Item No.
4.0 mL Clear Label Screw Vial	100/pk	154555
4.0 mL Amber Label Screw Vial	100/pk	154515L
4.0 mL Clear Graduated Screw Vial	100/pk	154506
4.0 mL Amber Graduated Screw Vial	100/pk	154507

Caps and Seals for 15 x 45 mm Screw Vials

- Caps are made from polypropylene; open-hole design
- 12 mm caps (13-425 threads) fit the threads of 15 x 45 mm vials



312115



12 mm Seals: ST, TT, PTFE

Silicone Seal ST - Made from white silicone rubber faced with a PTFE layer.

Seal PTFE - 12 mm disk of pure PTFE. For one-time use; not resealable.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

TruSeal™ - A Silicone/PTFE seal offers lower permeability and bleed than natural rubber, and resists degradation to 250°C. Because the TruSeal is soft, lower crimping force is recommended.

Description	Material	Qty	Item No.
12 mm Screw Cap	Polypropylene	100/pk	312115
12 mm Silicone Seal ST	PTFE/Silicone	100/pk	312515
12 mm Seal TT	PTFE/Silicone/PTFE	100/pk	311715
12 mm Seal PTFE	PTFE	100/pk	312005
12 mm TruSeal	PTFE/Silicone	100/pk	312565

15 x 45 mm Vials

4 mL Shell Vial

- No need to crimp or assemble screw caps
- Polyethylene plug cap included; just push in to seal
- The polypropylene shell vial has a tapered bottom, for small volume sampling
- Type 1 Borosilicate glass

Insert

- For glass shell vial; dimensions 8 x 42 mm
- Type 1 Borosilicate glass



Description	Qty	Item No.
4 mL Shell Vial with Plug	100/pk	154541

1.2 mL, 2.5 mL Reduced Volume Polypropylene Vials

- Screw top polypropylene vial fits WISP® and other autosamplers directly
- Reduced volume and non-ionic makes it ideal for IC and HPLC applications
- Interior is tapered at the bottom to allow nearly complete sample withdrawal
- Uses the same 12 mm screw caps and seals listed on previous page

Inserts

- Use with 2.5 mL vials for sampling small volumes
- Spring is automatically adjusted to the center of the vial
- Polyethylene



Caps and Seals - screw polypropylene vials use the same 12 mm (13-425) screw caps and seals as listed on previous page.

Description	Qty	Item No.
2.5 mL Polypropylene Screw Vial	100/pk	154655
Combo Pack: 2.5 mL Vial, Cap, PTFE Seal	100/pk	154675
250 µL Tapered Insert (requires support)	100/pk	063551



Vials, Caps, Seals & Crimping Tools

Sample Vials



Sample Vials

Sample Vials

- Ideal for sample storage; available in several sizes
- Vials are made from Type 1 Borosilicate glass
- Use PTFE-lined screw caps shown below

Description	Dia. x Ht, mm	Cap Size	Qty	Item No.
Clear Sample Vials				
1.8 mL	12 x 32	8-425	100/pk	123205
4 mL	15 x 45	13-425	100/pk	154505
8 mL	17 x 60	15-425	100/pk	176003
12 mL	19 x 65	15-425	200/pk	196503
16 mL	21 x 70	18-400	200/pk	217003
24 mL	27 x 57	24-400	100/pk	275705
40 mL	27 x 98	24-400	100/pk	279505

Amber Sample Vials

1.8 mL	12 x 32	8-425	100/pk	123215
4 mL	15 x 45	13-425	100/pk	154515
8 mL	17 x 60	15-425	100/pk	176005
12 mL	19 x 65	15-425	144/pk	196505
40 mL	27 x 98	24-400	100/pk	279515



PTFE Line Screw Caps

PTFE Lined Screw Caps

- Solid (no-hole) replacement screw caps for all of your sample vials and jars
- PTFE-faced foam seals are ultrasonically bonded to the inside of the caps
- Not autoclavable

Description	Qty	Item No.
8-425 Thread Screw Cap	100/pk	309925
13-425 Thread Screw Cap	100/pk	309935
15-425 Thread Screw Cap	100/pk	520110
18-400 Thread Screw Cap	100/pk	520310
22-400 Thread Screw Cap	100/pk	520410
24-400 Thread Screw Cap	100/pk	520510
38-400 Thread Screw Cap	100/pk	520810
48-400 Thread Screw Cap	100/pk	521110

Headspace Vials - Crimp Top

Rounded Bottom Vials

- Vial lip has a beveled shape (slightly raised inner edge) for better, tighter seals
- Type 1 Borosilicate glass
- Dimensions are: 10 mL, 23 x 46 mm; 20 mL, 23 x 75 mm; 27 mL, 30 x 60 mm
- Vials use standard 20 mm aluminum crimp caps and seals shown on next page

Description	Qty	Item No.
10 mL Headspace Vial	100/pk	224601
Combo Pack: 10 mL Vial, Cap, Septum 3	100/pk	224621
Combo Pack: 10 mL Vial, Precleaned, press release seal	100/pk	224621A
20 mL Headspace Vial	100/pk	237501
Combo Pack: 20 mL Vial, Cap, Septum 3	100/pk	237521
Combo Pack: 20 mL Vial, Precleaned, press release seal	100/pk	237521A
27 mL Headspace Vial	100/pk	306001



10 mL, 27 mL, 20 mL Headspace Vials

Flat Bottom Vials

- Flat bottom headspace vials for those who cannot use the rounded bottom style
- Vials use standard 20 mm aluminum crimp caps and seals
- Dimensions are: 6 mL, 23 x 38 mm; 10 mL, 23 x 46 mm; 20 mL, 23 x 75 mm

Description	Qty	Item No.
6 mL Headspace Vial	100/pk	223801
Combo Pack: 6 mL Vial, Cap, Septum 3	100/pk	223821
Combo Pack: 6 mL Vial, Precleaned, press release seal	100/pk	223821A
10 mL Headspace Vial	100/pk	224604
20 mL Headspace Vial	100/pk	237504



224604

Vials, Caps, Seals & Crimping Tools

20 mm Caps and Seals



20 mm Safety Crimp Caps



20 mm Magnetic Crimp Caps



20 mm Magnetic Ring Crimp Caps

20 mm Caps

Standard Cap - Made from lacquered aluminum with an open hole design. It fits the 6 mL, 10 mL, 20 mL and 27 mL headspace vials.

Safety Cap - Specially designed to vent high-pressure gas at approximately 5 bar (78 psig). The safety cap is aluminum.

Magnetic Cap - Nickel plated steel cap is for use with autosamplers made by LEAP and CTC, and other autosamplers using a magnetic pick-up arm.

Magnetic Ring Crimp Cap - This is a 20 mm aluminum crimp cap, pre-assembled with an internal steel ring. The steel ring allows use with magnetic pick-up autosamplers while the aluminum cap can be crimped with the 20 mm manual crimper and rechargeable electronic crimper on page 57 and 58.

Description	Qty	Item No.
20 mm Crimp Cap ¹	100/pk	320001
20 mm Safety Crimp Cap ¹	100/pk	320301
20 mm Magnetic Crimp Cap ²	100/pk	320605
20 mm Magnetic Ring Crimp Cap ¹	100/pk	320607

¹ Suitable for use with manual and battery powered crimpers (pages 57, 58).

² High Power Crimper (page 59) recommended.

20 mm Seals



Bellows Seal; Septum 3;
Chorobutyl Seal



320201



320545

Septum 3 - Pure silicone rubber, 3 mm thick, coated with PTFE.

Septum 2 - 2.4 mm thick silicone faced with PTFE.

Soil Sample Septa - This is a 20 mm version of our popular seal for soil sampling. Suitable for your most sensitive analysis; it is pre-conditioned to be free from volatiles. Layer of PTFE on silicone; 3 mm total thickness.

Chlorobutyl Septum - Gray. This is made from pure chlorobutyl rubber, 3 mm thick.

Butyl Septum - Black. Available pre-stuffed in the standard aluminum cap; see next page.

Bellows Seal - Chlorobutyl rubber faced with PTFE for superior sample protection. Only PTFE contacts the sample, while the soft outer ring of rubber makes a tight seal.

Description	Qty	Item No.
20 mm Septum 3	100/pk	320101
20 mm Soil Sample Septum	100/pk	320545
20 mm Septum 2	100/pk	320201
20 mm Chlorobutyl Septum (Gray)	100/pk	320401
20 mm Bellows Seal	100/pk	320501

20 mm Pre-Stuffed Caps

Seals are pre-stuffed for added convenience and lower contamination risk. These fit all standard 6 mL, 10 mL, 20 mL and 27 mL headspace vials. Aluminum caps may be crimped using the 20 mm electronic crimper.

Standard Cap - Made from lacquered aluminum; open hole design.

Safety Cap - Specially designed to vent high-pressure gas at approximately 5 bar (78 psig). The safety cap is aluminum.

Magnetic Cap - Made from nickel-plated steel for use with magnetic pick-up arm autosamplers. Not suitable for use with the rechargeable 20 mm electronic crimper or decapper.

Septum 3 - Pure silicone rubber coated with PTFE.

Septum 2 - Silicone faced with PTFE.

Butyl Septum - Black. Standard butyl rubber (not chlorobutyl) available pre-stuffed in the aluminum cap. Good for routine use.

Bellows Seal - Chlorobutyl rubber faced with PTFE for superior sample protection. Only PTFE contacts the sample, while the outer ring of rubber makes a tight seal.

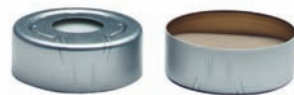
Description	Qty	Item No.
20 mm Septum 3/Aluminum Crimp Cap ¹	100/pk	320121
20 mm Septum 3/Safety Crimp Cap ¹	100/pk	320122
20 mm Septum 3/Magnetic Crimp Cap ²	100/pk	320123
20 mm Septum 2/Aluminum Crimp Cap ¹	100/pk	320221
20 mm Septum 2/Safety Crimp Cap ¹	100/pk	320222
20 mm Septum 2/Magnetic Crimp Cap ²	100/pk	320223
20 mm Black Butyl/Aluminum Crimp Cap ¹	100/pk	320421
20 mm Bellows Seal/Aluminum Crimp Cap ¹	100/pk	320521

¹ Suitable for use with manual and battery powered crimpers (pages 57, 58).

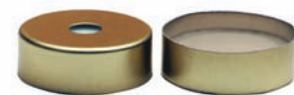
² High Power Crimper (page 59) recommended.



320121



320122



320123



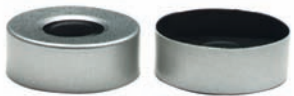
320221



320222



320223



320421



320521

Vials, Caps, Seals & Crimping Tools

Headspace Vials - Screw Top



224608



224609



237508



237509

Precision-Thread Vials

- Made from Borosilicate glass

Vials can be used either for traditional headspace analyses or SPME. Use with magnetic screw caps and seals shown below. Vials have rounded bottoms and 18 mm diameter necks. Dimensions are: 10 mL, 46 x 23 mm; 20 mL, 76 x 23 mm.

Description	Qty	Item No.
10 mL Clear Screw Headspace Vial	100/pk	224608
Combo Pack: 10 mL, Cap, PTFE/Silicone	100/pk	224611
10 mL Amber Screw Headspace Vial	100/pk	224609
20 mL Clear Screw Headspace Vial	100/pk	237508
Combo Pack: 20 mL, Cap, PTFE/Silicone	100/pk	237511
20 mL Amber Screw Headspace Vial	100/pk	237509

Magnetic Precision-Thread Screw Caps with Seals

- Use with precision-thread vials above
- Flat upper surface assures strong magnetic bond
- Seals available in a range of hardness
- 8 mm center hole also suitable for SPME



320125



320128



320124



320126

Caps come with 18 mm liners already installed. Liners are available in a range of hardness, as measured by Shore A durometer. Liners are thinner than typical crimp top headspace liner seals, so they may be more easily pierced by SPME sampling systems.

Description	Thickness	Shore A	Qty	Item No.
White PTFE/Blue Silicone	1.3 mm	35	100/pk	320125
Gray PTFE/Red Butyl Rubber	1.6 mm	55	100/pk	320128
Red PTFE/White Silicone	1.3 mm	45	100/pk	320124
Blue PTFE/White Silicone	1.5 mm	55	100/pk	320126
Chlorobutyl			100/pk	320129

Microwave Vials and Caps

Microwave Vials

- Heavy wall, Type 1, 33-expansion glass
- Reactions take place in one vial
- 3 vial sizes; 0.5 - 2 mL tapered (17 x 83 mm); 2 - 5 mL round bottom (17 x 83 mm); 10 - 20 mL round bottom (28 x 83 mm)
- All vial sizes use 20 mm crimp caps and seals
- Stir bars and crimping tools are available separately

Description	Qty	Item No.
0.5 - 2 mL Microwave Vial	100/pk	199102
2 - 5 mL Microwave Vial	100/pk	199101
10 - 20 mL Microwave Vial	50/pk	199100



Microwave Vials;
10-20 mL; 2-5 mL; 0.5-2 mL

Pre-stuffed Crimp Caps

Packages of 100.

Description	Item No.
20 mm Blue/White Septa/Aluminum Crimp Cap ¹	320130
20 mm Septum 3/Aluminum Crimp Cap ¹	320121
20 mm Septum 3/Safety Crimp Cap ¹	320122
20 mm Septum 3/Magnetic Crimp Cap ²	320123
20 mm Septum 2/Aluminum Crimp Cap ¹	320221
20 mm Septum 2/Safety Crimp Cap ¹	320222
20 mm Septum 2/Magnetic Crimp Cap ²	320223
20 mm Black Butyl/Aluminum Crimp Cap ¹	320421
20 mm Bellows Seal Aluminum Crimp Cap ¹	320521

¹ Suitable for use with manual and battery powered crimpers (pages 57, 58).

² High Power Crimper (page 59) recommended.



320130

Accessories

Stir Bars

- For use in round bottom vials
- Magnetic Stir Bars; the reaction mixture is continuously stirred by magnetic stirring during the heating process promoting even heating throughout
- Magnetic stirring promotes even temperature distribution throughout the entire reaction mixture

Description	Qty	Item No.
Stir Bar, PTFE, 5 mm x 10 mm Oval	each	199401
Stir Bar, PTFE, 6 mm x 15 mm Oval	each	199402



Oval Stir Bar

Vials, Caps, Seals & Crimping Tools

EPA Sampling Vials - 24, 40 and 60 mL



279505 279515



Bulk Pack EPA Vials



324115



324415



322515

Bulk EPA Vials

- Meet specifications for water sampling under EPA 40 CFR
- Type 1 Borosilicate glass
- Dimensions: 24 mL, 27 x 57 mm; 40 mL, 27 x 95 mm; 60 mL, 27 x 135 mm
- All have 24-400 thread and use 24 mm screw caps with 22 mm seals

Caps

- 24-400 or 24-414 threads; made from polypropylene. Both fit 24-400 thread vials
- The 24-414 threads caps are deeper, and are recommended for use with thick seals
- Open-hole design

Seals

- All seals for headspace are 22 mm diameter
- Seals are made from silicone with a PTFE layer

Description	Qty	Item No.
24 mL Clear EPA Vial	100/pk	275705
Combo Pack: 24 mL Clear Vial, Cap, Seal	100/pk	275725
24 mL Amber EPA Vial	100/pk	275805
Combo Pack: 24 mL Amber Vial, Cap, Seal	100/pk	275905
40 mL Clear EPA Vial	100/pk	279505
Combo Pack: 40 mL Clear Vial, Cap, Seal	100/pk	279525
40 mL Amber EPA Vial	100/pk	279515
Combo Pack: 40 mL Amber Vial, Cap, Seal	100/pk	279535

Caps

24 mm Screw Cap, 24-414	100/pk	324115
24 mm Screw Cap, 24-414	100/pk	324114
Preassembled 24-414 Screw Cap and Seal	100/pk	324415
Preassembled 24-414 Cap and Seal, Level 3	100/pk	324425

Seals

22 mm Standard Seal, PTFE/Silicone	100/pk	322515
22 mm PTFE/Silicone	100/pk	322516
22 mm PTFE Disk	100/pk	322005
22 mm Economy PTFE/Silicone Septa	100/pk	322550

Soil Sample Septa

These high quality seals have been specially developed for purge-and-trap analysis using soil sample jars in DynaSoils®, DynaTrap® and similar instruments. They are conditioned to be free of volatiles, and can be stored indefinitely at 80°C, ready for use anytime.

Description	Qty	Item No.
22 mm Soil Sample Septa	100/pk	322545



322545

Preassembled Vials

- Vial is completely preassembled, with PTFE/Silicone seal and open-hole cap
- The seal is bonded to the open-hole polypropylene cap using a proprietary process without glue, so it cannot fall out
- Type 1 Borosilicate glass

Description	Qty	Item No.
24 mL EPA Vials, Preassembled	100/pk	275745
40 mL EPA Vials, Preassembled	100/pk	279545



Preassembled EPA Vials

Vials, Caps, Seals & Crimping Tools

EPA Sampling Vials - 24, 40 and 60 mL



Precleaned EPA Vials

Precleaned Vials

- Precleaned EPA vials come precleaned with cap and PTFE/Silicone seal
- 24 mL, 27 x 57 mm; 40 mL, 27 x 98 mm
- Vials are cleaned to Protocol B as specified in the EPA "Specifications and Guidance for Contaminant-Free Sample Containers"
- Type 1 Borosilicate glass
- Level 3 - precleaned; sent to an independent lab for QC analysis. Vials comes with certificate.*

Description	Qty	Item No.
24 mL Clear Precleaned EPA Vials	72/pk	275825
24 mL Amber Precleaned EPA Vials	72/pk	275835
40 mL Clear Precleaned EPA Vials	72/pk	279825
40 mL Amber Precleaned EPA Vials	72/pk	279835
60 mL Clear Precleaned EPA Vials	72/pk	271425
60 mL Amber Precleaned EPA Vials	72/pk	271435
40 mL Clear Precleaned EPA Vial Level 3 Certificate*	72/pk	279815
40 mL Amber Precleaned EPA Vial Level 3 Certificate*	72/pk	279816
Combo Pack: 40 mL Clear EPA Vial Level 3 Certificate*	100/pk	279580



324415



324425

Prestuffed EPA Screw Caps

- Can be heated to 125°C for preparation per EPA protocols or for autoclaving
- The PTFE/Silicone seal is welded to the polypropylene cap so it cannot fall out
- Fits 24, 40 and 60 mL EPA vials. 24-414 threads.

Description	Qty	Item No.
24 mm Prestuffed EPA Caps	100/pk	324415
24-414 Cap with Bonded PTFE/Silicone Seal, Level 3	100/pk	324425



868806

Vial Rack

This polypropylene rack holds 50, 40 mL EPA vials. It is autoclavable at 121°C for 20 minutes. Racks have an alpha-numeric indexed vial grid for convenient sample identification and are stackable with openings in the well bottoms for drainage. 6-3/4 in x 13 in x 1-1/4 in.

Description	Qty	Item No.
50 Position Rack for EPA Vials	5/pk	868806

Screw Caps, Preassembled

Caps are available either open-hole for autosampler use, or solid (no-hole) for storing samples. They are made from polypropylene, or phenolic where noted. Choose the seal material that is best for your sampling needs.

Pierceable Screw Caps - for autosampler use and are designed for fast and easy sample preparation; there are no seals to assemble. A 0.25 mm thick polypropylene seal is molded directly into the cap, so it cannot fall out. Concentric raised ridges at the contact point with the vial ensure a positive seal.

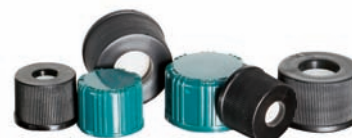
Polyethylene Plugs - suitable for most vials and autosamplers. Many people find them easier to work with than crimp or screw caps; just push into the vial. Do not use polyethylene plugs with systems that pressurize the vial.

Seal ST - Silicone faced with PTFE; only PTFE contacts your sample.

8 mm Screw Caps, 8-425 Threads

Preassembled for all common, 12 x 32 mm standard mouth vials.

Description	Qty	Item No.
8 mm Preassembled, PTFE/Silicone	100/pk	309525
8 mm Pierceable Screw Cap	100/pk	309915
8 mm Solid Phenolic Cap, PTFE Liner	100/pk	309925



Open-Hole and Solid Preassembled Screw Cap

12 mm Screw Caps, 13-425 Threads

Preassembled; fits 15 x 45 mm autosampler vials.

Description	Qty	Item No.
12 mm Pierceable Screw Cap	100/pk	312815
12 mm Solid Phenolic Cap, PTFE Liner	100/pk	309935



Pierceable Screw Caps

Polyethylene Plug Caps

These are for use with screw or crimp top vials; not for use with shell vials. For replacement shell vial plus, see listings with the respective shell vials. Do not use with systems that pressurize the vial. Plug 11-2 fits 12 x 32 mm standard mouth vials, page 52 . Plug 8-1 fits 7 x 40 mm and 8 x 30 mm vials, page 69.

Description	Qty	Item No.
Plug 11-2	100/pk	311021
Plug 8-1	100/pk	308021



Polyethylene Plug Caps

Vials, Caps, Seals & Crimping Tools

Crimp Caps and Seals 8 mm, 11 mm



311501

8 mm Caps and Seals

These fit all standard 6, 7 and 8 mm diameter crimp vials and others with 8 mm lips.



308001

11 mm Caps and Seals

These fit all common 12 x 32 mm (1.8 mL) crimp vials, both standard and wide mouth. Caps with standard seals are available silver, blue, green, gold, orange, purple, red and yellow.

Crimp Caps Prestuffed with Seals

Use the same lacquered aluminum crimp caps as above. Prestuffed with the following seals:

Standard Seal - Good for routine use; self-sealing.

Seal S - A quality PTFE/Silicone seal; silicone offers good sealing properties.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

TruSeal™ - A Silicone/PTFE seal offers lower permeability and bleed than natural rubber, and resists degradation to 250°C. Because the TruSeal is soft, lower crimping force is recommended.



311001



11 mm colored crimp caps



311001

Description	Qty	Item No.
8 mm Blank Crimp Cap (no seal)	100/pk	308501
8 mm Crimp Cap with Standard Seal	100/pk	308001
8 mm Crimp Cap with Seal S	100/pk	308201
8 mm Crimp Cap with Seal TT	100/pk	308401
8 mm Crimp Cap with TruSeal	100/pk	308231
11 mm Blank Crimp Cap (no seal)	100/pk	311501
11 mm Magnetic Crimp Cap	100/pk	311002
11 mm Crimp Cap with Standard Seal	100/pk	311001
11 mm Crimp Cap, Standard Seal, Blue	100/pk	311001B
11 mm Crimp Cap, Standard Seal, Green	100/pk	311001G
11 mm Crimp Cap, Standard Seal, Gold	100/pk	311001GO
11 mm Crimp Cap, Standard Seal, Orange	100/pk	311001O
11 mm Crimp Cap, Standard Seal, Purple	100/pk	311001PU
11 mm Crimp Cap, Standard Seal, Red	100/pk	311001R
11 mm Crimp Cap, Standard Seal, Yellow	100/pk	311001Y
11 mm Crimp Cap with Seal S	100/pk	311201
11 mm Crimp Cap with Seal TT	100/pk	311401
11 mm Crimp Cap with TruSeal	100/pk	311231

Seal PTFE

Disks of pure PTFE 0.25 mm thick, easy to penetrate and good for one time use. Not resealable. The 7.5 mm seal fits 8 mm crimp caps; the 10 mm seal fits 11 mm crimp caps.

Description	Qty	Item No.
7.5 mm Seal PTFE	100/pk	307001
10 mm Seal PTFE	100/pk	310001



310001

Manual and Electronic Crimpers and Decappers please see pages 57-58



311990



5A11C0

Vials, Caps, Seals & Crimping Tools

Screw Caps and Seals, Open Hole



Screw Caps, Polypropylene

- 8 mm Screw Caps - 8-425 threads. Fit standard mouth 12 x 32 mm vials.
- 8 mm Wide Lip Screw Caps - 8-425 threads. Specially designed for Shimadzu, Hitachi and Jasco autosamplers. It fits standard 12 x 32 mm vials, but is made with a wider outer lip.
- 10 mm Screw Caps - 10-425 threads. Fits wide mouth 12 x 32 mm vials.
- 12 mm Screw Caps - 13-425 threads. Fits standard 15 x 45 mm (4 mL WISP) vials.

Description	Qty	Item No.
8 mm Black Screw Cap	100/pk	308115
8 mm Wide Lip Screw Cap	100/pk	309115
10 mm Black Screw Cap	100/pk	310115
12 mm Black Screw Cap	100/pk	312115
12 mm White Screw Cap	100/pk	312415

Seals

- 8 mm Seals - fit 8 mm, 8-425 thread screw caps
- 9 mm Seals - fit 10 mm, 10-425 thread screw caps
- 12 mm Seals - fit 12 mm, 13-425 thread screw caps

Silicone Seal ST - Made from white silicone rubber faced with PTFE layer.

Silicone Seal - Similar to our Silicone ST Seal, except the PTFE layer is thicker for added protection. Cream colored PTFE on white silicone.

Seal TT - Premium-grade seal with two layers of PTFE. Coring is virtually eliminated.

TruSeal™ - A Silicone/PTFE seal offers lower permeability and bleed than natural rubber, and resists degradation to 250°C. Because the TruSeal is soft, lower crimping force is recommended.

Slit Seal - Recommended for Hitachi, Jasco and Shimadzu autosamplers. Prescored for easy needle penetration. Use with standard mouth vials and wide lip caps.

Seal PTFE - Disks of pure PTFE. For one-time use; not resealable. The 7.5 mm size fits 8 mm crimp caps.

Description	Qty	Item No.
8 mm Silicone Seal ST (Red)	100/pk	308515
8 mm Cream Silicone Seal	100/pk	308915
8 mm Seal TT	100/pk	308715
8 mm TruSeal	100/pk	308565
8 mm Slit Seal	100/pk	309715
7.5 mm Seal PTFE	100/pk	307001
9 mm Seal ST (Red)	100/pk	310515
9 mm Seal TT	100/pk	310615
9 mm Slit Seal	100/pk	310815
9 mm Seal PTFE	100/pk	310005
12 mm Silicone Seal ST (Red)	100/pk	312515
12 mm Natural Silicone Seal	100/pk	312915
12 mm Seal TT	100/pk	311715
12 mm TruSeal	100/pk	312565
12 mm Seal PTFE	100/pk	312005



Seal ST



Cream Seal



Seal TT



TruSeal



Slit Seal

Vials, Caps, Seals & Crimping Tools

Accessories



Assorted Colors

Autosampler Vial Racks

- Holds up to eighty 1.5 and 2 mL vials
- Flip the rack over and it holds up to 60 PCR or microcentrifuge tubes from 0.2 - 0.5 mL
- Made of autoclavable polypropylene, allowing great chemical resistance
- Racks can be anchored to one another with special pins supplied with each rack
- Supplied with two removable handles
- Frosted area on both sides for bar coding, labeling or writing
- Dimensions: 9-3/4 in x 2-5/8 in x 1-1/16 in (232 mm x 67 mm x 27 mm)
- Transparent lid is optional

Description	Qty	Item No.
Vial Rack, 80 Places, Blue	10	868880B
Vial Rack, 80 Places, Green	10	868880G
Vial Rack, 80 Places, Orange	10	868880O
Vial Rack, 80 Places, Pink	10	868880P
Vial Rack, 80 Places, Red	10	868880R
Vial Rack, 80 Places, Yellow	10	868880Y
Vial Rack, 80 Places, Assorted*	10	868880AS
Lid, Transparent	10	868880

*Assorted colors: Blue, green, orange, pink and yellow.



868850

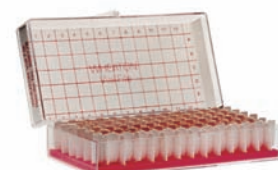
Headspace Vial Racks

- Plastic racks, available in 36 or 50 positions
- 36 position holds 6, 10 or 20 mL headspace vials
- 50 position holds 1.8 mL vials
- Polypropylene racks are autoclavable (polyethylene are not)
- Dimensions: 36 position, 3-5/8 in x 12-3/4 in x 1-1/8 in; 50 position (for EPA) 6-3/4 in x 13 in x 1-1/4 in; 50 position (for 1.8 mL) 4 in x 7-5/8 in x 1-1/8 in

Description	Material	Qty	Item No.
36 Position for Headspace Vials	Polypropylene	5/pk	868805
50 Position for 1.8 mL Vials	Polyethylene	5/pk	868850
50 Position for EPA Vials	Polypropylene	5/pk	868806

Wheaton M-T Vial Holders

- Provide a convenient and accessible way to store samples
- Clear polystyrene cases with hinged lids; alpha-numeric indexing
- Holds 40 - 60 vials in individual partitions
- Foam inserts are included



Vial Holder

Description	Qty	Item No.
Holder for 60 Vials up to 13 x 15 mm	1/pk	228778
6-Pack of 60 Vial Holder	6/pk	228779
Holder for 40 Vials up to 16 x 50 mm	1/pk	228780
6-Pack of 40 Vial Holder	6/pk	228781

6-Port Mini-Vap

This concentrator/evaporator handles up to six miniature vials or containers simultaneously. It comes with six stainless steel needles, a nickel-plated needle valve, and 3 feet of plastic tubing. The needle valve allows fine control of the nitrogen or dry air flow for the evaporator. Instructions are included.

Base is 7 in wide x 1.5 in deep x 3/4 in height; Ports are 1 in apart; 4 in Luer Lock Needles.



201006

Description	Item No.
6-Port Mini-Vap	201006
Single, Adjustable Mini-Vap	201001

Item Number Index

053101	52, 60, 65	123221	52	154515	71, 74	186391	37
053151	52, 60, 65	123222	54	154515L	72	186392	37
053159	52, 60, 65	123224	54	154525	71	186393	37
053161	52, 60, 65	123225	60	154535	71	186394	37
053171	52, 60, 65	123242	67	154541	73	186395	37
053852	68	123243	67	154545	71	186411	38
063011	55, 65	123245	66	154555	72	186412	38
063101	55, 65	123247	67	154565	71	186413	38
063151	55, 65	123248	67	154575	71	186414	38
063161	55, 65	123250	67	154655	73	186415	38
063171	55, 65	123252	67	154675	73	186421	38
063181	55, 65	123253	67	176003	74	186422	38
063551	71, 73	123254	67	176005	74	186423	38
063951	71	123255	62	186054	40	186424	38
063961	71	123262	66	186055	40	186425	38
063971	71	123263	66	186057	40	186461	36
074051	69	123265	66	186058	40	186462	36
083042	69	123267	66	186311	35	186463	36
084051	68	123281	55	186312	35	186464	36
084071	68	123284	55	186313	35	186465	36
084091	68	123286	55	186314	35	186471	36
084242	68	123308L	67	186315	35	186472	36
084252	68	123315	60	186321	35	186473	36
084261	68	123332	69	186322	35	186474	36
099420	39, 70	123338	67	186323	35	186475	36
099430	39, 70	123338L	67	186324	35	186481	36
099440	39, 70	123340	60	186325	35	186482	36
099450	39, 70	123341	54	186341	35	186483	36
099452	70	123342	60	186342	35	186484	36
123101	54	123343	54	186343	35	186485	36
123121	54	123344	54	186344	35	186491	36
123135	60	123362	69	186345	35	186492	36
123161	56	123371	54	186361	37	186493	36
123165	62	123385	60	186362	37	186494	36
123171	56	123405	63	186363	37	186495	36
123175	62	123406	63	186364	37	186500	40
123181	56	123408	64	186365	37	186501	40
123201	52	123409	64	186371	37	186502	40
123202	52	123411	52	186372	37	186503	40
123203	52	123415	63	186373	37	186603	40
123205	60, 74	123425	62	186374	37	186605	40
123211	52	123435	62	186375	37	186610	40
123211A	54	123491	52	186381	37	186620	40
123211L	54	124001	56	186382	37	189000	40
123212L	52	154505	71, 74	186383	37	189001	40
123215	60, 74	154506	72	186384	37	189002	40
123215L	60	154507	72	186385	37	189003	40

196503	74	202232R-SS	23	202284-SS	25	211204	6, 13
196505	74	202232XL-B	23	202290	29	211205	6, 13
199100	79	202232XL-SS	23	202292	29	211208	6, 13
199101	79	202233-B	23	202298	29	211210	6, 13
199102	79	202233-SS	23	202330	28	211222	6, 13
199401	79	202233R-B	23	202332	28	2112XX	12
199402	79	202233R-SS	23	202346	30	211400	12
201001	41, 89	202233XL-B	23	202348	30	211405	13
201006	41, 89	202233XL-SS	23	202350	31	211406	13
201007	41	202234-B	25	202352	31	211408	13
201114	41	202234-SS	25	202900	19	211410	13
201115	41	202234R-B	25	202900MN	19, 20	211420	13
202200	26	202234R-SS	25	202902	19	211440	13
202202	26	202235-B	25	202902MN	19, 20	2114XX	12
202204	26	202235-SS	25	202903	20	211500	8, 13
202205	26	202235R-B	25	202904	20	211550	4, 14
202206-B	21	202235R-SS	25	202910	19	211600	12
202206-SS	21	202236-B	24	202920	19	211800	12
202206R-B	21	202236-SS	24	202930	20	211905	10, 13
202206R-SS	21	202236R-B	24	202950	20	211908	10, 13
202207-B	21	202236R-SS	24	205122	41	211982-10	10, 13
202207-SS	21	202237-B	24	205215	32	211983-10	10, 13
202207R-B	21	202237-SS	24	205220	32	211984-10	10, 13
202207R-SS	21	202237R-B	24	205312	33	211988-10	10, 13
202216-B	22	202237R-SS	24	205315	15, 33	212100	14
202216-SS	22	202238-B	29	205465	47	212103	15
202216R-B	22	202238-SS	29	207950	33	212104	15
202216R-SS	22	202238L-B	29	207960	33	212105	15
202217-B	22	202238L-SS	29	211100	12	212108	15
202217-SS	22	202239-B	29	211104	2, 4, 12	212110	15
202217R-B	22	202239-SS	29	211105	2, 4, 12	212112	15
202217R-SS	22	202239L-B	29	211108	2, 4, 12	212124	15
202230-B	22	202239L-SS	29	211110	2, 4, 12	212125	15
202230-SS	22	202254	27, 28	211112	2, 4, 12	212164	15
202230R-B	22	202256-B	24	211120	12	212165	15
202230R-SS	22	202256-SS	24	211125	12	212168	15
202230XL-B	23	202256R-B	24	211160	2, 12	2121XX	14
202230XL-SS	23	202256R-SS	24	211164	2, 12	212200	14
202231-B	22	202257-B	24	211165	2, 12	212204	15
202231-SS	22	202257-SS	24	211168	2, 12	212205	15
202231R-B	22	202257R-B	24	211170	12	212208	15
202231R-SS	22	202257R-SS	24	211174	8, 13	212210	6, 15
202231XL-B	23	202270	27	211175	8, 13	212222	15
202231XL-SS	23	202272	27	211178	8, 13	2122XX	14
202232-B	23	202283-B	25	211195	8, 14	212400	14
202232-SS	23	202283-SS	25	2111XX	12	212410	15
202232R-B	23	202284-B	25	211200	12	212420	15

Item Number Index

2124XX	14	214406	17	234116	46	275725	80
213100	16	214410	17	234117	46	275745	81
213103	2, 4, 16	214420	17	234118	46	275805	80
213104	4, 16	214430	17	234120	46	275825	82
213105	2, 4, 16	2144XX	17	234121	46	275835	82
213108	2, 4, 16	216635	2, 14	234125	46	275905	80
213110	2, 4, 16	216637	6, 14	234126	46	279505	74, 80
213124	16	216638	8, 14	234215	46	279515	74, 80
213125	16	216639	8, 14	234216	46	279525	80
213163	2, 16	216652	2, 14	234625	46	279535	80
213164	2, 16	216948	10, 14	234626	46	279545	81
213165	2, 16	216949	10, 14	234905	46	279580	82
213168	2, 16	216973	2, 14	234906	46	279815	82
2131XX	16	217003	74	237501	75	279816	82
213200	16	223801	75	237504	75	279825	82
213204	6, 16	223821	75	237508	78	279835	82
213205	6, 16	223821A	75	237509	78	298705	5, 44
213208	6, 16	224601	75	237511	78	298713	5, 11, 44
213210	16	224604	75	237521	75	298717	3, 7, 11, 44
213222	6, 16	224608	78	237521A	75	298718	3, 7, 11, 44
213228	6, 16	224609	78	239287	45	298727	11, 44
2132XX	16	224611	78	239297	3, 7, 11, 45	298735	9, 44
213400	16	224621	75	239387	45	298745	44
213404	16	224621A	75	239397	11, 45	298755	44
213405	16	228778	89	239488	45	298777	5, 44
213406	16	228779	89	239498	9, 45	298787	3, 44
213408	16	228780	89	239587	45	298817	11, 44
213410	16	228781	89	239597	3, 5, 45	306001	75
213420	16	230630	47	239688	45	307001	85, 87
2134XX	16	230640	47	239698	11, 45	308001	68, 84
213800	16	230650	47	239778	45	308021	68, 83
214100	17	230660	47	239779	11, 45	308051	68
214103	17	230665	46	239787	45	308115	61, 86
214104	17	230670	47	239798	5, 45	308201	84
214105	17	230675	46	239888	3, 7, 11, 45	308231	84
214108	17	230680	47	246124	5, 45	308401	68, 84
214110	17	230685	46	246225	3, 7, 11, 45	308501	84
214112	17	230695	46	246228	3, 7, 11, 45	308515	61, 87
2141XX	17	230697	46	246325	11, 45	308565	61, 87
214200	17, 30	230698	46	246424	9, 45	308715	61, 87
214204	17	234105	46	246525	3, 45	308915	87
214205	17	234106	46	246624	11, 45	308955	59
214208	17	234108	46	246713	5, 11, 45	308990	57
214210	17, 30	234109	46	246725	5, 45	309041	67
2142XX	17	234110	46	271425	82	309042	67
214300	17	234111	46	271435	82	309044	67
214400	17	234115	46	275705	74, 80	309045	67

309047	.66	313956	.59	5A13D0	.58
309049	.66	313965	.59	5A13F0	.58
309115	.61, 86	313990	.57	5A20C0	.58
309415	.61	313991	.57	5A20D0	.58
309525	.61, 83	313992	.57	5A20F0	.58
309585	.61	320001	.76	5ABAS0	.58-59
309715	.61, 87	320101	.76	5AHPS0	.59
309915	.61, 83	320121	.77, 79	520110	.74
309925	.74, 83	320122	.77, 79	520310	.74
309935	.74, 83	320123	.77, 79	520410	.74
310001	.85	320124	.78	520510	.74
310005	.63, 87	320125	.78	520810	.74
310115	.63, 64, 86	320126	.78	521110	.74
310515	.63, 64, 87	320128	.78	614158	.39
310615	.63, 64, 87	320129	.78	614160	.39
310815	.63, 87	320130	.79	614161	.39
311001	.53, 84	320201	.76	614163	.39
311001B	.53, 84	320221	.77, 79	614170	.39
311001G	.53, 84	320222	.77, 79	614250	.39
311001GO	.53, 84	320223	.77, 79	644350	.39
311001O	.53, 84	320301	.76	644850	.39
311001PU	.53, 84	320401	.76	868805	.88
311001R	.53, 84	320421	.77, 79	868806	.82, 88
311001Y	.53, 84	320501	.76	868850	.88
311002	.53, 84	320521	.77, 79	868880	.88
311021	.83	320545	.76	868880AS	.88
311201	.53, 84	320605	.76	868880B	.88
311231	.53, 84	320607	.76	868880G	.88
311251	.54	320955	.59	868880O	.88
311261	.54	320956	.59	868880P	.88
311271	.54	320965	.59	868880R	.88
311281	.54	320990	.57	868880Y	.88
311401	.53, 84	320991	.57	HPB6-A	.58
311501	.84	320992	.57		
311715	.72, 87	322005	.80		
311955	.59	322515	.80		
311965	.59	322516	.80		
311990	.57	322545	.70, 81		
311991	.57	322550	.80		
312005	.72, 87	324114	.80		
312115	.72, 86	324115	.80		
312415	.86	324415	.80, 82		
312515	.72, 87	324425	.80, 82		
312565	.72, 87	5A08C0	.58		
312815	.83	5A11C0	.58		
312915	.87	5A11D0	.58		
313955	.59	5A13C0	.58		

Product Index

A

AFS Purifiers	
AFS Purifier I	19
AFS Purifier II	20
Agilent Instruments	
Ferrules - Graphite	2
Ferrules - Vespel/Graphite	2
Liner Seals; O-ring	2
Premium Septa	3

B

Bruker Instruments	
Ferrules - Graphite	4
Ferrules - Vespel/Graphite	4
Premium Septa	5

C

Carbon Dioxide Purifier	31
Column Scribe	33
Crimper	
Electronic	58
High Power Jaw Set	59
Manual	57

D

Decapper	
Electronic	58
High Power Jaw Set	59
Manual	57
Disposable Syringes	40

E

Economy Blue Septa	46
Electronic Crimping Tool	58
Electronic Decapping Tool	58
EPA Sampling Vials	
Bulk EPA Vials	80
Preassembled Vials	81
Precleaned Vials	82
Prestuffed Screw Caps	82
Vial Rack	82
Evaporators, Sample	
6-Port Mini-Vap	41
Adjustable Mini-Vap	41

F

FID Cleaning Kit	32
Ferrules	
Graphite	12-14
PTFE	17

Vespel	14-15
Vespel/Graphite	16-17
Ferrule Remover	15, 33

G

Gas Purifiers	
AFS Purifier I	19
AFS Purifier II	20
Big Purifier	29
Carbon Dioxide	31
Gas-Dry	29
Hydrocarbon	28
Moisture	27
Oxygen	26
ZPure	21-25
Graphite Ferrules	
Blank	12
Capillary Column	12
Cup Ferrules	13
Reducing	13
Shimadzu	13
Short	12
Straight	12
Thermo Instrument	13

H

Headspace Vials	
Crimp Top	75-77
Screw Top	78
High Power Crimping Tool	59
HPLC Vials	68
Hydrocarbon Purifier	28

I

Ion Exchange SPE Cartridges	38
-----------------------------	----

K

Kits	
FID Cleaning Kit	32
Injection Liner Cleaning Kit	32

L

Liner Seals	2, 8, 10, 14
-------------	--------------

M

Manual Hand Crimper	57
Manual Hand Decapper	57
Microwave Vials	
Crimp Caps	79
Stir Bars	79
Vials	79

Mininert Valves	39
Mini-Vap Evaporator	
6-Port Mini-Vap	41, 89
Adjustable Mini-Vap	41
Moisture Purifiers	27

N

Non-Silica SPE Cartridges	36
Normal Phase SPE Cartridges	37

O

Oxygen Purifier	26
-----------------	----

P

PerkinElmer Instruments	
Ferrules - Graphite	6
Ferrules - Vespel/Graphite	6
O-Ring	6
Premium Septa	7
PTFE Ferrules	
Blank	17
Capillary Column	17
Reducing	17
Straight	17
PTFE Lined Screw Caps	74
Puresep Septa	46-47
Purifiers, Gas	
AFS Purifier I	19
AFS Purifier II	20
Big Purifier	29
Carbon Dioxide	31
Gas-Dry	29
Hydrocarbon	28
Moisture	27
Oxygen	26
ZPure	21-25

R

Reaction Vials	39, 70
Reverse Phase SPE Cartridges	35

S

SAX SPE Cartridges	38
SCX SPE Cartridges	38
Sample Preparation	
Disposable Syringes	40
Mininert Valves	39
Reaction Vials	39
Solid Phase Extraction	34-38
Syringe Filters	40
Sample Vials	74

Septa, GC			
Advanced Green 3	45		
BTO	44		
Economy Blue	46		
Marathon	45		
Puresep P	47		
Puresep T	46		
Septa, GC Accessories			
Septa Pick	47		
Shimadzu Instruments			
Ferrules - Graphite	8		
Liner Seals; O-ring	8		
Premium Septa	9		
Solid Phase Extraction			
Ion Exchange	38		
Non-Silica	36		
Normal Phase	37		
Reverse Phase	35		
Split Vent Purifier	30		
Storage Racks			
Autosampler Vial	88		
EPA Vial	82		
Headspace Vial	88		
Wheaton M-T Vial	89		
Syringe Filters	40		
T			
Thermo Instruments			
Ferrules - Graphite	10		
Graphite Liner Seal	10		
Premium Septa	11		
U			
Universal Fused Silica Connectors			
Universal Quartz Connector	33		
Universal Y-Splitter	33		
V			
Vespel Ferrules			
Blank	14		
Capillary Column	15		
Reducing	15		
Short	15		
Straight	14		
Vespel/Graphite Ferrules			
Blank	16		
Capillary Column	16		
Reducing	16-17		
Short	16		
Straight	16		
Vials			
7 - 8 mm, Crimp	69		
12 x 32 mm Crimp	52-56		
12 x 32 mm Inserts	65		
12 x 32 mm Screw	60-64		
15 x 45 mm Vials	71-73		
Certified Vials	66		
Conical Vials	56, 62		
Headspace, Crimp Top	75-77		
Headspace, Screw Top	78		
HPLC Vials	68		
Microwave Vials	79		
Reaction Vials	70		
Sample Vials	74		
Vials, Caps and Seals			
7.5 mm Seal	85, 87		
8 mm Crimp	84		
8 mm Screw	61, 83, 86		
8 mm Seal	61, 87		
9 mm Prestuffed Screw	66-67		
9 mm Seal	63-64, 87		
10 mm Screw	63-64, 86		
10 mm Seal	85		
11 mm Crimp	52, 84		
12 mm Screw	72, 82, 86		
12 mm Seal	72, 87		
20 mm Pre-Staffed Caps, Seals	77-79		
20 mm Seals	76		
22 mm Seals	80		
24 mm Screw Caps	80		
EPA Screw Caps, Prestuffed	82		
Headspace Crimp Cap, 20 mm	76-77		
Headspace Screw Caps 20 mm	78		
Microwave Crimp Caps 20 mm	79		
Polyethylene Plug Caps	83		
PTFE Lined Screw	74		
Snap Cap	54		
Soil Sample Septa	70		
Vials, Crimp Top			
8 x 40 mm, 1.2 mL	68		
12 x 32 mm Std., 2 mL	52		
12 x 32 mm Wide, 2 mL	54		
12 x 32 mm Wide, Pre-Inserted .25 mL	55		
12 x 40 mm, 2.5 mL	56		
Conical Vials, 0.1 mL	56		
Headspace Vials	75		
Microwave Vials	79		
Snap/Crimp Wide, 1.8 mL	54		
Vials, Inserts			
for 12x32 mm, Std Mouth	52		
for 12x32 mm, Wide Mouth	55		
for 15x45 mm	71		
Vials, Screw Top			
9 mm Certified, 1.8 mL	66		
15 x 45 mm, 4.0 mL	71-73		
Conical Vials, 0.1 mL	62		
Headspace Vials	78		
Pre-assembled, 1.8 mL	62		
Reaction Vials	70		
Sample Vials	74		
Tapered Bottom Vial, 1.1 mL	62		
Vials, Shell			
7 x 40 mm, 0.7 mL	69		
8 x 30 mm, 0.8 mL	69		
12 x 32 mm, 2 mL	69		
15 x 45 mm, 4 mL	73		
Waters 96 Style, 1.2 mL	68		
Z			
ZPure Purifiers			
Dual Purifier	21		
Glass H ₂ O/HC Purifier	24		
Glass High Sen. H ₂ O Purifier	25		
Glass Indicating O ₂ Purifier	24		
Glass Moisture Purifier	25		
H ₂ O Purifier	22		
HC Purifier	23		
O ₂ Purifier	22		
XL H ₂ O Purifier	23		
XL HC Purifier	23		

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