



# 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.

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# Product by GC Manufacturer

## For Agilent Instruments



211105

### Ferrules - Graphite - Upper temp. 450°C

Packages of 10

Description		Item No.
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>Reducing Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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
	<b>For Capillary Sizes - OD</b>	
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.
<b>Reducing Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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
	<b>For Capillary Sizes - OD</b>	
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.	
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>Thermo Instrument Ferrules - M8 Nut</b>	
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.	
<b>Straight Ferrules - for tubing with ODs listed</b>		
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	
<b>Blank Ferrules - no holes</b>		
1/16 in	2111XX	
1/8 in	2112XX	
1/4 in	2114XX	
<b>Capillary Column Ferrules</b>		
	<b>For Capillary Sizes - ID</b>	
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
<b>Short Ferrules for Agilent Inlets*</b>		
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.		
<b>For Tubing (Fitting Size to Tubing OD)</b>		
1/16 in to 1/16 in straight ferrule	1/16 in	211170

<b>Reducing Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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

	<b>For Tubing Sizes - OD</b>	
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

<b>Shimadzu Ferrules</b>		
5 mm, Shimadzu 5 mm OD columns		211500



211500

<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - ID</b>	
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

<b>Thermo Instrument Ferrules - M8 Nut</b>		
0.5 mm ID		211905
0.8 mm ID		211908



211905

<b>Cup Ferrules - M4 Nut</b>	<b>For Capillary Sizes - ID</b>	
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.
<b>For Agilent Instruments</b>			
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.
<b>Straight Ferrules - for tubing with ODs as listed</b>	
1/16 in	212100
1/8 in	212200
1/4 in	212400



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

### Blank Ferrules - no holes

1/16 in	2121XX
1/8 in	2122XX
1/4 in	2124XX



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.
<b>Straight Ferrules - for tubing with ODs as listed</b>		
1/16 in		213100
1/8 in		213200
1/4 in		213400
1/2 in, 5/pk		213800
<b>Blank Ferrules - no holes</b>		
1/16 in		2131XX
1/8 in		2132XX
1/4 in		2134XX
<b>Capillary Column Ferrules</b>		
	<b>For Capillary Size - ID</b>	
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
<b>Short Ferrules for Agilent Inlets*</b>		
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>		
<b>Reducing Ferrules</b>		
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
<b>For Tubing Sizes - OD</b>		
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.
<b>Straight Ferrules - for tubing with ODs as listed</b>		
1/16 in		214100
1/8 in		214200
3/16 in		214300
1/4 in		214400
<b>Blank Ferrules - no holes</b>		
1/16 in		2141XX
1/8 in		2142XX
1/4 in		2144XX
<b>Capillary Column Ferrules</b>	<b>For Capillary Sizes - OD</b>	
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
<b>Reducing Ferrules</b>		
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
	<b>For Tubing Sizes - ID</b>	
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



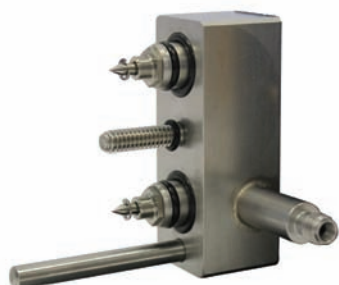
214410

# 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

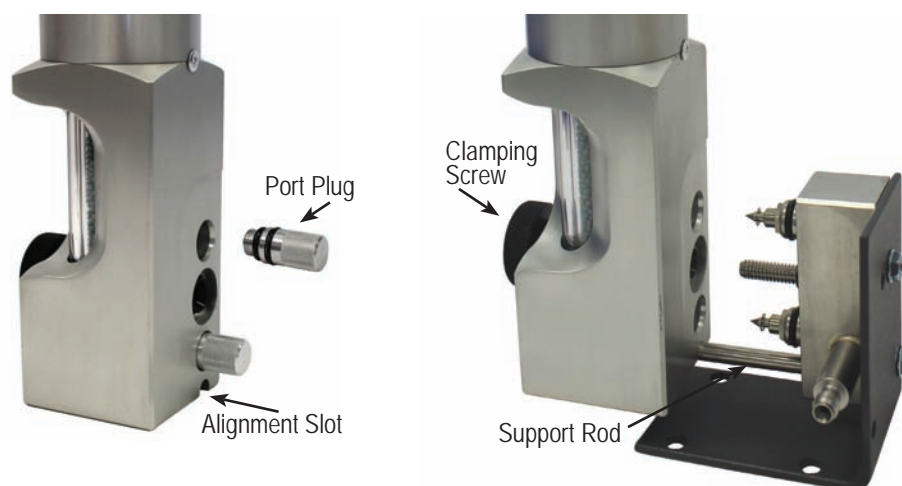
Two part system includes a small stainless steel manifold and a high capacity purifier cartridge.

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.



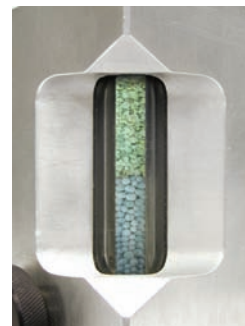
First photo shows the port plugs; second photo shows how to mount the AFS purifier to the manifold. Manifold shown attached to benchmount bracket; wall mount also supplied.

## AFS Purifier I

- Removes O<sub>2</sub>, H<sub>2</sub>O 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:

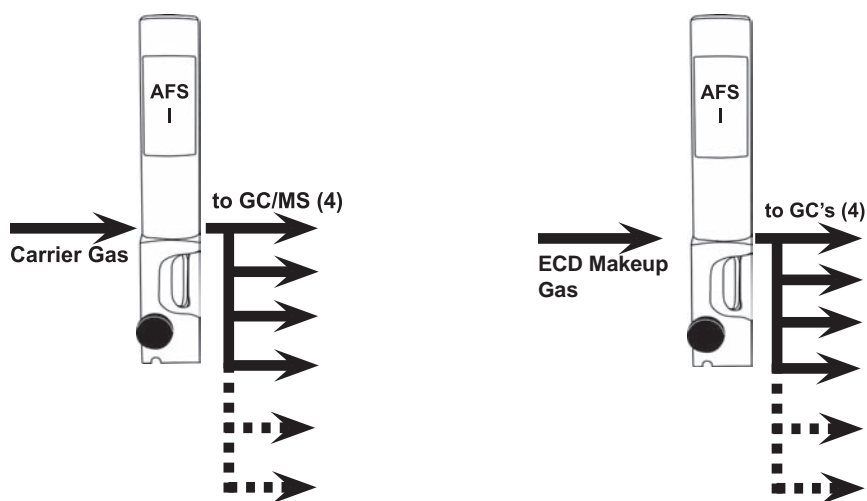
- GC and GC/MS carrier gas
- ECD make up gas
- ICP



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



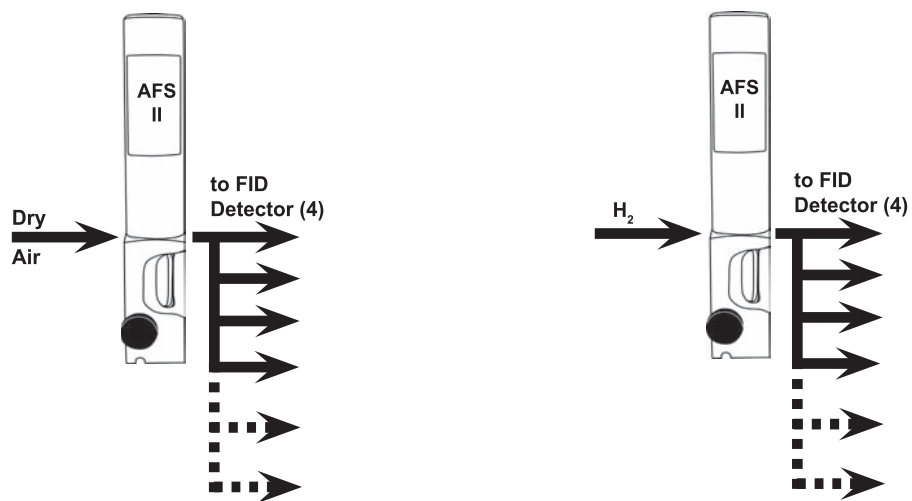
AFS Purifier II;  
moisture indicator

### AFS Purifier II

- Removes H<sub>2</sub>O and Hydrocarbons, (>C<sub>4</sub>) 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 O<sub>2</sub> 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, N<sub>2</sub>, H<sub>2</sub> 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 H<sub>2</sub>O Purifier

### ZPure H<sub>2</sub>O Purifier

- High capacity - reduces moisture to low ppb levels

The CRS ZPure H<sub>2</sub>O 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 <sub>2</sub> O Purifier, 1/8 in Fittings	202230-B	202230-SS
ZPure H <sub>2</sub> O Purifier, 1/4 in Fittings	202231-B	202231-SS
ZPure H <sub>2</sub> O Purifier, Reconditioned, 1/8 in Fittings	202230R-B	202230R-SS
ZPure H <sub>2</sub> O Purifier, Reconditioned, 1/4 in Fittings	202231R-B	202231R-SS



ZPure O<sub>2</sub> Purifier

### ZPure O<sub>2</sub> Purifier

- High efficiency - reduces O<sub>2</sub> to low ppb levels
- Outstanding capacity in a small high performance design
- Recommended for GC/MS carrier gases

The CRS ZPure O<sub>2</sub> 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, N<sub>2</sub>, H<sub>2</sub> 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 <sub>2</sub> Purifier, 1/8 in Fittings	202216-B	202216-SS
ZPure O <sub>2</sub> Purifier, 1/4 in Fittings	202217-B	202217-SS
ZPure O <sub>2</sub> Purifier, Reconditioned, 1/8 in Fittings	202216R-B	202216R-SS
ZPure O <sub>2</sub> 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 H<sub>2</sub>O 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 <sub>2</sub> O Purifier, 1/8 in Fittings	202230XL-B	202230XL-SS
ZPure XL H <sub>2</sub> O Purifier, 1/4 in Fittings	202231XL-B	202231XL-SS



ZPure XL H<sub>2</sub>O Purifier

# Gas Purifiers

## ZPure™ Glass Purifiers



ZPure Glass Indicating O<sub>2</sub> Purifier

### ZPure Glass Indicating O<sub>2</sub> 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 O<sub>2</sub>. It can be used with non-oxidizing gases such as He, Ar, N<sub>2</sub>, H<sub>2</sub> or CH<sub>4</sub>. 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 H<sub>2</sub>O/HC Purifier

### ZPure Glass H<sub>2</sub>O/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 <sub>2</sub> O/HC Purifier, 1/8 in Fittings	202256-B	202256-SS
ZPure Glass H <sub>2</sub> 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, N<sub>2</sub>, H<sub>2</sub> or CH<sub>4</sub>, 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.

<b>Description</b>	<b>Item No.</b>
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

<b>Description</b>	<b>Item No.</b>
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 H<sub>2</sub> 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.

<b>Description</b>	<b>Item No.</b>
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.

<b>Description</b>	<b>Item No.</b>
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

## CO<sub>2</sub> 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 CO<sub>2</sub>. 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.

<b>Description</b>	<b>Item No.</b>
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.

<b>Description</b>	<b>Item No.</b>
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

# 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 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.

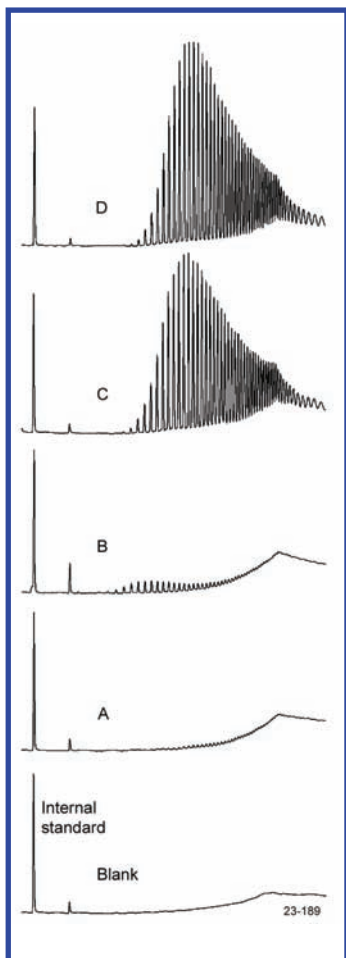
### CenterGuide™

- 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:

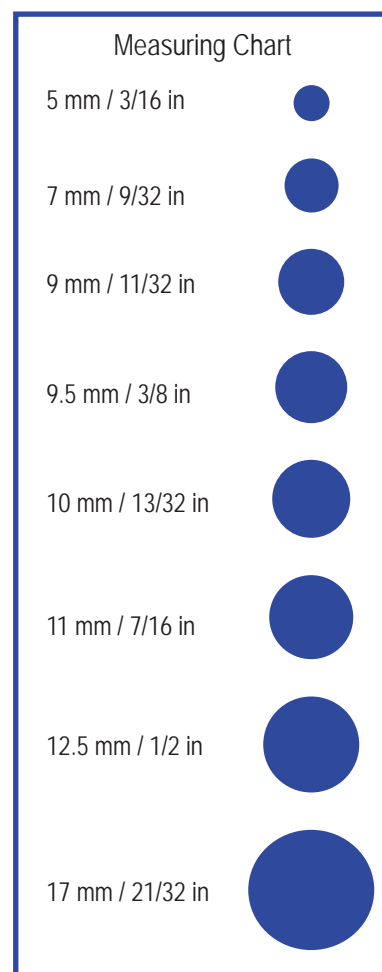
- A) BTO
- B) AG3
- C) Competitor's high-temp red septa
- D) Competitor's low-bleed green septa

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
<b>Agilent/HP</b>	
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
<b>Bruker (former Varian)</b>	
1177 Injector	9 mm
1040/41/60/61	9.5 mm
1075/77/78, 1079, 1093/94 SPI	11.5 mm
<b>Fisons/Carlo Erba</b>	
8000 Series	17 mm
<b>PerkinElmer</b>	
Sigma Series, 8000 Series, Clarus	11 mm
AutoSystem/AutoSystem XL	11 mm
<b>Shimadzu</b>	
9A, 14, 15A, 16, 17A, 2010 & 2014	Plug
<b>Thermo</b>	
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\*

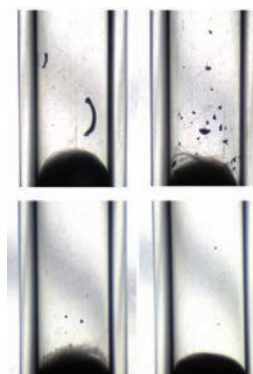
The CenterGuide versions of Marathon are prepierced to channel the needle through the same spot with each injection, which helps eliminate the common type of coring that may occur on the first injection. The Marathon septum is also ideal for standard manual-injection GC and GC/MS. Septa are 3 mm thick,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

# 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.

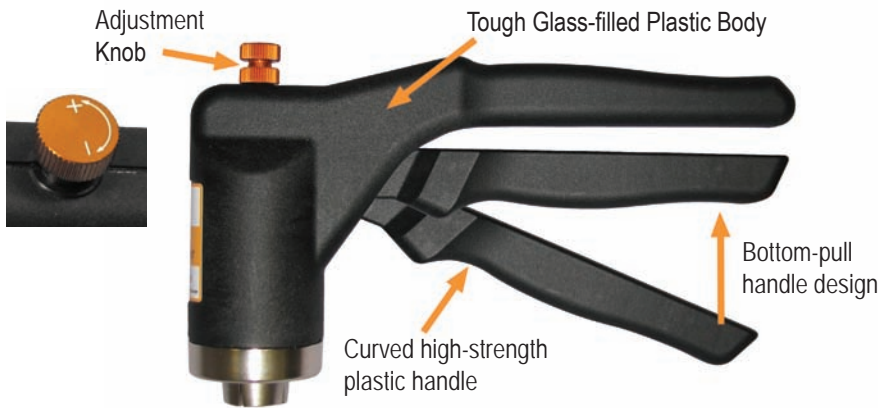
The bottom-pull handle design is steadier to hold than top-push handle designs. The head does not wobble and is easy to hold the tapered jaws of the crimper in a stable position as the bottom handle is pulled up.

## 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)

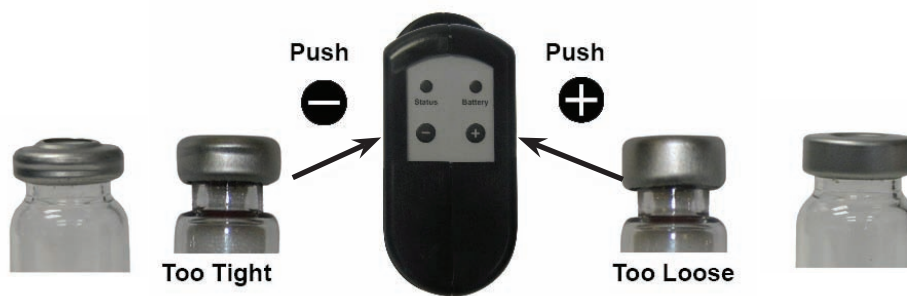
CRS electronic crimpers and decappers fit standard laboratory vials and seals with aluminum or two-part aluminum/steel caps. The electronically adjustable cycle is accurate and reproducible and can be adjusted with the control pad on top of the unit. The tools are ergonomically designed to reduce strain 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

## 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.



201006

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
Single, Adjustable Mini-Vap	201001

