

# Consumables - GC Accessories

## Injection septa

Septa isolate sample flow path from external contaminants. It must provide a barrier that is readily penetrated by the injector needle whilst maintaining internal pressure without contaminating the analysis. They are generally made of special high-temperature, low-bleed silicone rubber formulations.

- CenterGuide™ Septa for improved Performance
- Center point guides the needle for easy penetration
- Reduce needle bending
- Precision molding assures accurate fit

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.

### Summary of Inlet Septum Characteristics

Septum Type	Bleed	Life time	Temperature limit
BTO (Bleed and temperature optimized)	xxx (optimized for high temperature)	x	to 400 °C
Long Life	x	xxx	to 350 °C
Advanced Green	xxx	xx	to 350 °C

xxx= best ; xx = very good ; x= good

## Marathon™ Septa

- Outstanding lifetime
- Premium septum for autosamplers
- CenterGuide™ Marathon are pierced for extremely reliable performance
- Up to 400 injections per septum
- Maximum temperature setting 400°C

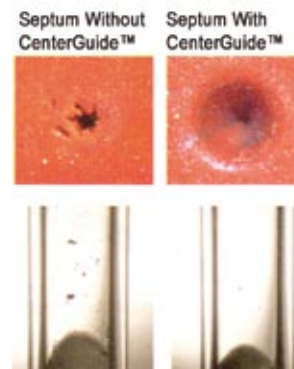


Description	P/N	Qty
5 mm with CenterGuide™	Q99480	25
9 mm with CenterGuide™	Q99490	25
3/8" (9.5 mm)	U13760	25
7/16" (11 mm) with CenterGuide™	Q99390	25
11.5 mm with CenterGuide™	Q99500	25
1/2" (12.7 mm)	U13770	25
17 mm	U13780	25
for shimadzu	U13790	25

## Septa replacement

Septa should be replaced regularly to avoid :

- Leaks
- Decomposition
- Sample loss
- Reduced column or split vent flow
- Ghost peaks
- Column degradation



CenterGuide™ can help reduce coring when used with tapered (rounded-tip) needles

## How to Minimize Problems

Avoid problems by :

- Using within the recommended temperature range
- Changing regularly
- Installing "hand tight"
- Using septum purge when available
- Using auto injectors
- Using sharp syringe needles

# Consumables - GC Accessories

## Injection septa

### BTO Septa

- 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, Mass Spec capillary columns

Description	P/N	Qty
5 mm with CenterGuide™	Q99450	50
1/4" (6.4 mm)	U08830	50
9 mm with CenterGuide™	Q99460	50
3/8" (9.5 mm)	983110	50
10 mm	983120	50
11 mm with CenterGuide™	E23425	50
11.5 mm with CenterGuide™	Q99470	50
12 mm	T87880	50
12.7 mm	983140	50
17 mm	AX0780	50
for shimadzu	815560	50



### Advanced Green 3™ Septa

- True low-bleed, high temperature
- Maximum temperature 400°C

Description	P/N	Qty
5 mm with CenterGuide™	Q99510	50
9 mm with CenterGuide™	Q99530	50
9.5 mm	335651	50
10 mm	983120	50
11 mm with CenterGuide™	E57851	50
11.5 mm with CenterGuide™	Q99520	50
12.7 mm	U13840	50
17 mm	U13850	50
for shimadzu	815570	50



# Consumables - GC Accessories

## SGE septa selection by size

Diameter	Septum type	Pack size	P/N
4 mm	TCS Pre-drilled	5	0418490
5 mm	CS	50	041820
5 mm	TCS Pre-drilled	50	041850
6 mm	CS	50	041821
6 mm	TCS	50	041841
7 mm	CS	50	041822
7 mm	TCS	10	0418421
7 mm	TCS	50	041842
7 mm	TCS Pre-drilled	50	041852
7 mm	Auto-Sep™	25	041873
7 mm	Auto-Sep T™	25	041878
8 mm	CS	50	041823
8 mm	TCS	50	041843
8 mm	Auto-Sep™	5	0418745
9 mm	CS	50	041824
9 mm	TCS	50	041844
9 mm	TCS Pre-drilled	50	041854
9 mm	Auto-Sep T™	25	041879
9.5 mm	CS	50	0418240
9.5 mm	TCS	50	0418440
9.5 mm	Auto-Sep™	5	0418715
9.5 mm	Auto-Sep™	25	041871
9.5 mm	Auto-Sep T™	25	041880
9.5 mm	Auto-Sep T™	100	041881
10 mm	CS	50	041825
10 mm	TCS	50	041845
10 mm	TCS Pre-drilled	50	041855
11 mm	CS	50	041826
11 mm	TCS	50	041846
11 mm	TCS Pre-drilled	50	041856
11 mm	Auto-Sep™	25	041872
11 mm	Auto-Sep T™	25	041882
11 mm	Auto-Sep T™	100	041883
11.5 mm	CS	50	041827
11.5 mm	TCS	50	041847
12.5 mm	CS	50	041828
12.5 mm	TCS	50	041848
12.5 mm	TCS Pre-drilled	25	041884
15 mm	CS	50	041829
17 mm	TCS	50	0418491
17 mm	Auto-Sep T™	25	041886
Enduro Blue Shimadzu Septa	Plug	50	0418491

### CS Septa

- Teflon® coated silicone
- Maximum injector temperature 200°C



### TCS Septa

- Three layers
- Teflon® coated silicone
- Maximum injector temperature 280°C
- Pre-drilled septa are especially useful for SPME applications



### Auto-Sep™ Septa

- Silicone
- Maximum injector temperature 320°C



### Auto-Sep T™ Septa

- Teflon® coated silicone
- Maximum injector temperature 350°C



### Enduro™ Septa

- High temperature silicone
- Maximum injector temperature 350°C
- For Shimadzu 9A, 14, 15A, 16, 17A & 2010, PN : 041890



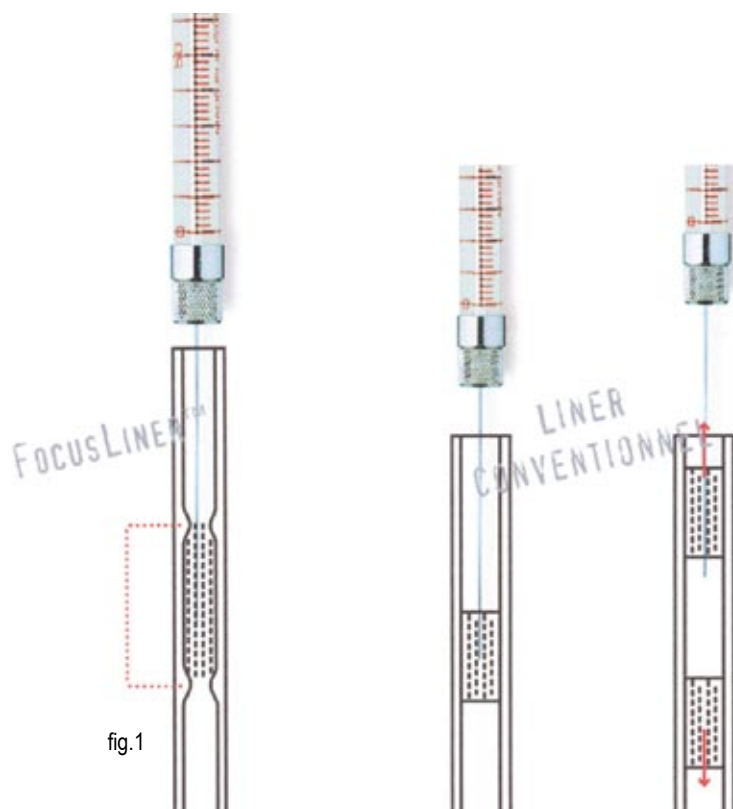
Liners are the centerpiece of the inlet system in which the sample is evaporated and brought into the gas phase.

### FocusLiner™

The FocusLiner, is a liner design which overcomes quartz wool shifting problem. Simple, but effective design, the quartz wool is held in the correct position by means of two tapered sections in the liner (top left - fig.1).

The tapered sections are located to ensure that the needle tip penetrates the secured quartz wool plug wiping any residue liquid sample from the needle tip whilst providing sufficient surface area for volatilization of the liquid sample.

Current liner designs which utilize quartz wool to improve vaporization are frequently positioned incorrectly. Compounding the problem, the unsecured quartz wool plug can be easily dislodged without the chromatographer's knowledge by repeated injections (bottom left - fig.1). Each insertion of the needle tip can progressively move the plug until no further contact is made. Dislodging the plug can also occur through a sudden change in inlet pressure.

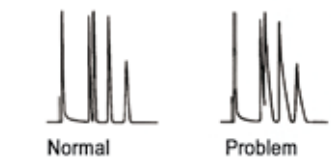
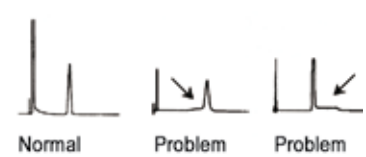
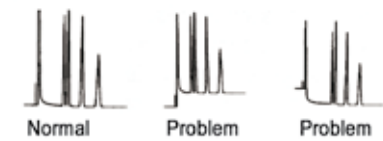
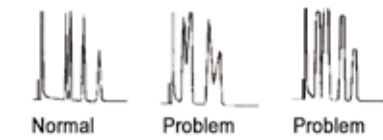


### Common liner problems

Problems will occur if the liner is not changed on a regular basis or if the correct liner is not used i.e.

- Peak shape degradation
- Solute discrimination
- Poor reproducibility
- Sample decomposition
- Ghost peaks
- Reduced column life

### Liner Troubleshooting

Symptom	Possible Cause	Remedy
<p><b>Tailing Peaks</b></p>  <p>Normal      Problem</p>	<p>Sample components adsorbed by column inlet liner or contaminated gold inlet seal.</p> <p>Needle hitting and breaking packing in inlet liner.</p> <p>Column end poorly cut (sample absorption).</p> <p>Broken or chipped inlet liner.</p>	<p>Use new, deactivated liner or clean old liner and replace glass wool.</p> <p>Partially remove packing from liner or use without packing.</p> <p>Remove column. Make a clean, square cut using a reliable capillary fused silica cutting tool (such as a ceramic wafer or the Agilent Column Cutter), then reinstall column.</p> <p>Make sure total flow in inlet is above 40 mL /min.</p>
<p><b>Baseline Rise Before or After Peak</b></p>  <p>Normal      Problem      Problem</p>	<p>Sample decomposing.</p>	<p>Remove inlet liner and check cleanliness. Use new, deactivated liner or replace glass wool and packing. Column /sample residues could also be the problem.</p>
<p><b>Baseline Change After Large Peak</b></p>  <p>Normal      Problem      Problem</p>	<p>Column and inlet liner mis-aligned.</p>	<p>Check installation of column end and inlet. See also "Septum Troubleshooting", liner ; adjust if necessary.</p>
<p><b>Unresolved Peaks</b></p>  <p>Normal      Problem      Problem</p>	<p>Column or inlet liner contaminated or column deteriorating.</p>	<p>Use a guard column to prolong column life. Remove inlet liner and check cleanliness. Use new, deactivated liner or replace glass wool and packing. Trim the front end of the column a minimum of 6 inches</p>


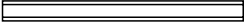
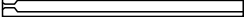




### How to minimize problems

Change liners on a regular basis determined by :

- Previous use pattern
- Sample cleanliness
- Chromatographic abnormalities such as :
  - . Peak shape changes
  - . Peak discrimination
  - . Poor reproducibility
  - . Sample pyrolysis
  - . Active analyte response loss or decomposition

# Consumables - GC Accessories

## Inlet liners SGE for Agilent Technologies



	Deactivated liners for HP5890, 6890, 4890 & 6850	ID (mm)	OD (mm)	Length (mm)	Qty	P/N
	Split/Splitless FocusLiner™	4.0	6.3	78.5	5 25	092002 092219
	Split/Splitless Tapered FocusLiner™	4.0	6.3	78.5	5 25	092003 092011
	Split/Splitless Fast FocusLiner™	2.3	6.3	78.5	5 25	092005 092008
	Split/Splitless Tapered Fast FocusLiner™	2.3	6.3	78.5	5 25	092111 092115
	Split straight through Liner	4.0	6.3	78.5	5 25	092007 092222
	Insert with Quartz wool	4.0	6.3	78.5	5 25	092001 092220
	Split/Splitless with single taper	4.0	6.3	78.5	5 25	092017 092229
	Split/Splitless with single taper & Quartz wool	4.0	6.3	78.5	5	092019
	Split/Splitless with double taper	4.0	6.3	78.5	5 25	092018 092230
	Direct straight through liner	1.2	6.3	78.5	5 25	092016 092224
	Splitless through liner with Quartz wool	2.0	6.1	78.5	5	092004
	Splitless with recessed goose neck & Quartz wool	2.0	6.1	78.5	5	092013
	Packed column liner for HP5880, 5890 & 6890 GC's	4.0	6.3	78.5	5 25	092010 092223
	Packed column liner for HP 5880, 5890, & 6890	1.8	3.0	92	5 25	092234 092235

# Consumables - GC Accessories

## Inlet liners SGE for Agilent Technologies

Description	ID (mm)	OD (mm)	Length (mm)	Qty	P/N
<b>Viton O-Ring</b> Suitable for all inlet liners above except 092234 and 092235 Can be used at temperatures up to 300°C				10	0726532
<b>Graphite Sealing Ring</b> Suitable for all inlet liners above except 092004, 092234 and 092235 Can be used at temperatures up to 250°C				10	0726005
<b>Graphite Sealing Ring</b> Suitable for use with 092004 Can be used at temperatures up to 250°C				10	0726006

### Others Injectors for Agilent Technologies

	AC Control Injector					
	AC Control Sim Dist liner for programmed injector	1.6	3.0	73	10	092210
	AC Control				25	092211
	Gerstel CIS4 Injector					
	Sintered Glass Large volume injection (LVI)	1.8	3.0	71	5	092243
	Single Baffle	1.8	3.0	71	10	092246









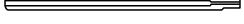

### Focus Liner™



- Recognized as the industry standard liner
- Preferred liner for split /splitless injection
- Improves reproducibility 10 x
- Fixed quartz wool wipes sample off the needle end
- Highly deactivated
- Ideal for dirty samples














# Consumables - GC Accessories

## Inlet liners SGE for Perkin Elmer

	Description	ID (mm)	OD (mm)	Length (mm)	Qty	P/N
<b>Autosystem™ &amp; Clarus 500</b>						
	Split / Splitless - FocusLiner™	4.0	6.2	92	5	092092
	Split / Splitless tapered FocusLiner™	4.0	6.2	92	5	092095
	Split, Straight-through Liner	4.0	6.2	92	5	092100
	Splitless, Straight-through Liner	2.0	6.2	92	5	092103
	Autosystem XL, Split / Splitless	2.0	4.0	86.2	5	092098
	Split / Splitless FocusLiner™, Autosystem XL (PSS injector)	2.0	4.0	86.2	5	092101
	Sintered Glass, large volume injection (LVI) for PSS injector	1.0	4.0	86.2	5	092244
	Packed Column Liner	3.0	6.0	112	5	092236
<b>8000 &amp; Sigma series</b>						
	Split / Splitless	3.0	5.0	100	5	092091
	Splitless with single taper	2.0	5.0	100	5	092094
<b>PTV Liner</b>						
	Recessed Gooseneck	1.0	2.0	88	5	092097
<b>Viton O-Ring</b>						
For 6.2 mm OD Inlet liners. Can be used at temperature up to 300°C					10	0726536








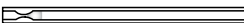
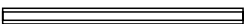


# Consumables - GC Accessories

## Inlet liners SGE for Shimadzu

	Description	ID (mm)	OD (mm)	Length (mm)	Qty	P/N
<b>GC17A (injector SP-17) &amp; GCMS 2010</b>						
	Split/Splitless Focus Liner™	3.4	5.0	95	5	092062
	Split/Splitless tapered FocusLiner™	3.4	5.0	95	5	092068
	Split/Splitless with recessed gooseneck & Quartz Wool	3.4	5.0	95	5	092061
	Splitless, straight-through liner	3.4	5.0	95	5	092064
	Split/Splitless with middle gooseneck	3.4	5.0	95	5	092085
	Split/Splitless, straight through liner	2.6	5.0	95	5	0920861
	Direct, for 0.53 mm ID column	26	5.0	95	5	092087
	SPME liner	0.75	5.0	95	5	092089
<b>GC14, 15A &amp; 16 (injector SPL-14)</b>						
	Split/Splitless FocusLiner™	3.4	5.0	99	5	092065
	Split/Splitless tapered FocuLiner™	3.4	5.0	99	5	092066
	Split/Splitless with 2.0 mm middle gooseneck	3.4	5.0	99	5	092082
	Split/Splitless with single taper	3.4	5.0	99	5	0920831
	Splitless, direct, wide bore liner for 9A & 16A GCs	3.4	5.0	139	5	092084
<b>Graphite Sealing Ring</b>						
	For GC 14, 15A & 16 (injector SPL14)				10	0726001
	For GC 17A (injector SP-17)				10	0726007

# Consumables - GC Accessories

## Inlet liners SGE for Thermo Finnigan

	Description	ID (mm)	OD (mm)	Length (mm)	Qty	P/N
<b>GC TRACE &amp; Fisons 8000</b>						
	Splitless FocusLiner™ (with 70 mm needle)	5.0	8.0	105	5	092045
	Split FocusLiner™ (with 50 mm needle)	5.0	8.0	105	5	092048
	Splitless with single taper	3.0	8.0	105	5	092141
	Splitless with single taper	5.0	8.0	105	5	092144
	SPME liner	0.75	8.0	105	5	092148
	Split, Straight through liner	3.0	8.0	105	5	092147
	Split, Straight through liner	5.0	8.0	105	5	092150
<b>PTV Liner</b>						
	Trace 2000 PTV liner	2.0	2.75	120	5	092142
<b>Mega series 4000,5000 &amp; 6000</b>						
	Split /Splitless, recessed gooseneck with Quartz wool	3.0	5.0	79.5	5	092041
	Split, straight through liner	3.0	5.0	79.5	5	092044
	Splitless, straight through liner	2.0	5.0	79.5	5	092047
	SPME liner	0.75	5.0	79.5	5	092148
<b>Graphite Sealing Ring</b>						
	For Trace GC & Fisons 8000				10	0726004







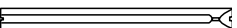

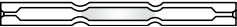






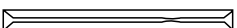
Inlet liners to suit Thermo Finnigan 9001 and GCQ GC's, are the same as Agilent Technologies GCs.

All SGE inlet liners are deactivated using high temperature (420°C) gas phase deactivation.

All SGE inlet liners are supplied sealed in blister packs to protect them from contamination and damage to deactivated surfaces.

# Consumables - GC Accessories

## Inlet liners SGE for Varian

Description	ID (mm)	OD (mm)	Length (mm)	Qty	P/N	
<b>1177 injector</b>						
1177 injector accepts all Agilent Technologies 6.3 mm OD liners.						
<b>1075 &amp; 1077 injectors</b>						
	FocusLiner™ Split	4.0	6.3	72	5	092022
	Splitless FocusLiner™ with top-end restriction	4.0	6.3	74	5	092026
	Split, tapered FocusLiner	4.0	6.3	72	5	092025
	Split FocusLiner™ with top-end restriction	4.0	6.3	72	5	092028
	Split, Tapered FAST FocusLiner™	2.3	6.3	72	5	092113
	Split with Quartz Wool	4.0	6.3	72	5	092021
	Splitless, Slots at both ends	2.0	6.3	74	5	092024
				25	092228	
<b>1078 &amp; 1079 injectors</b>						
	Split /Splitless FocusLiner™	3.4	5.0	54	5	092037
	Split /Splitless tapered Focusliner™	3.4	5.0	54	5	092036
	Straight through liner	0.5	5.0	54	5	092031
	Split /Splitless with single taper	3.4	5.0	54	5	092038
	Splitless with single taper	2.0	5.0	54	5	092039
	Sintered glass, large volume injection (LVI) Liner	1.0	5.0	54	5	092245
<b>1093 &amp; 1094 injectors</b>						
	Insert SPI, restriction 0.25 mm	0.5	4.6	54	5	092027
	Insert SPI, restriction 0.25 mm	0.8	4.6	54	5	092030
	Insert SPI, restriction 0.50 mm	0.8	4.6	54	5	092034
				25	092035	
<b>Viton O-ring</b>						
For 1177 injector, can be used at temperature up to 300°C				10	072532	
<b>Graphite sealing rings</b>						
For 1078 & 1079 injectors				10	0726217	
For 1075 & 1077 injectors				10	0726217	

# Consumables - GC Accessories

## Fused Silica Connectors

- Couple capillary column with a pre-column
- Couple capillary columns of different polarities
- Excellent for repairing broken columns
- Switch between different capillary columns (multidimensional GC)

Fused silica connectors most often are used to connect a guard column to an analytical column

### Utilisation

Cut correctly the fused silica tubing and push into the connector.

We recommend for critical compounds the use of a deactivated connector

### Universal connectors

ID tubes silica	Standard 10 units	Standard 25 units	Deactivated 10 units	Deactivated 25 units
Universal connector Uptisur*	156955 (5 units)			
Universal connector standard	156950 (5 units)	156951	388180	388181
0.2-0.2	530840	530841	P54800	P54801
0.2-0.25	913950	913951	913960	913961
0.2-0.32	752160	752161	913970	913971
0.2-0.53	174900	174911	913990	913991
0.25-0.25	556840	556841	914070	914071
0.25-0.32	556870	556871	914090	914091
0.25-0.53	556910	556911	901580	901581
0.32-0.32	556850	556851	914110	914111
0.32-0.53	556890	556891	914120	914121
0.53-0.53	556860	556861	914130	914131

\*Uptisur™ is our recommended version w /thicker glass



# Consumables - GC Accessories

## Inlet liners SGE

### Connectors, 3-way

ID silica tubes	Standard 1 unit	Standard 5 units	Deactivated 1 unit	Deactivated 5 units
Universal connector	157510	157515	157700	157705
0.2-0.2-0.2	768720		914630	
0.25-0.25-0.25	787550		914640	
0.32-0.32-0.32	556900		914650	
0.32-0.25-0.25	873250		914680	
0.53-0.53-0.53	786460		914660	
0.53-0.25-0.25	873220		914330	
0.53-0.32-0.32	873230		914670	
0.xx-0.yy-0.zz	On request		On request	

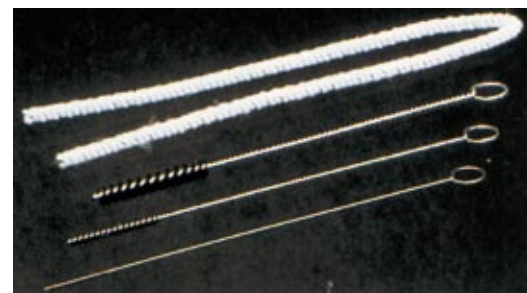
### Connectors 4-way "T" and "X"

ID silica tubes	Con. T /unit	Con. X /unit	Con. T Deactivated /unit	Con. X Deactivated /unit
Universal connector	P54600	157670	P54610	914690
0.2-0.2-0.2-0.2	P54830	P54960	P54840	P54970
0.5-0.25-0.25-0.25	P54850	P54980	P54870	P54990
0.32-0.32-0.32-0.32	P54880	P55000	P54890	P55010
0.53-0.53-0.53-0.53	P54900	P55020	P54910	P55030
0.ww-0.xx-0.yy-0.zz	On request		On request	



# Consumables - GC Accessories

## Injection liner cleaning kit



### Injection liner cleaning kit

This kit includes four sizes of nylon brush 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	P/N
Injection liner cleaning kit	331870

### Injection port cleaning kit

This kit is designed for cleaning all GC injection ports, including those Shimadzu instruments. Kit contains three stainless steel brushes, 5 mm for Shimadzu, 1/4" and 3/8", and one scraper for removing septum residue.

Description	P/N
Injection port cleaning kit	AI9270

### FID cleaning kit

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

Description	P/N
FID cleaning kit	624191

### Micro hook

This is a multi-purpose hook used for pulling O-rings, springs, or septum fragments.

Description	P/N
Micro hook	HZ9911

### Mirror on a stick

The mirror on a stick lets you peer around corners or tight spaces; also used at the outlet of flame detectors ; condensation on the mirror indicates the flame is lit.

Description	P/N
Mirror on a stick	BX6521



# Consumables - GC Accessories

## Inlet liners accessories

### Ferrule remover

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

Description	P/N
Ferrule remover	AI9260

### Inlet liner removal tool

Easily remove liner from injector, no more burned fingers.  
Made from high temperature silicone.  
Won't chip or crack the liner

Description	P/N
Inlet liner removal tool	S64530

### Glass wool

Description	P/N
Untreated glass wool	164231
DMCS treated glass wool	164243
Phosphoric treated glass wool	182091
HMDS treated glass wool	534880
Quartz wool	260090



# Consumables - GC Accessories

## Interchrom Ferrules

Ferrules seal the connection of the column or liner to the system. The ideal ferrule provides a leak-free seal, accommodates various column outer diameters, seals with minimum torque, will not stick to the column or fittings, and will tolerate temperature cycling.

Ferrule /Seal	Usages	Limitations	T° limit
Graphite	General purpose for capillary columns. Suitable for FID and NPD. Recommended for high temperature and cool on-column applications. Can be removed easily.	Not for MS or oxygen detectors	450°C
Vespel /graphite (85 % /15 %)	General purpose for capillary columns. Recommended for MS or oxygen sensitive detectors. Most reliable leak-free connection	Not reusable	350°C
Vespel (100 %)	Isothermal operation	Leaks after temperature cycle	280°C

### Liner related problems

Problems will occur if the liner is not changed on a regular basis or if the correct liner is not used i.e.

- Peak shape degradation
- Solute discrimination
- Poor reproducibility
- Sample decomposition
- Ghost peaks
- Reduced column life

Standard	Column ID	Teflon	Graphite	Vespel	VG1*	VG2*
1/16" - 0.3 mm	0.10 - 0.18 mm	BN1250		BN1260		U73970
1/16" - 0.4 mm	0.25 mm	795980	349341	314982	072663	308151
1/16" - 0.5 mm	0.32 mm	522250	256142	229401	072654	326781
1/16" - 0.8 mm	0.53 mm	795990	179903	229411	072655	338031
1/16" - 1 mm	0.65 mm	796010	186070	229421		571011
1/16" - 1.2 mm	0.75 mm	795950	247460	795960		795970

Reductor	Column ID	Teflon	Graphite	Vespel	VG1*	VG2*
1/8" - 1/16"		164800	165010	164451		164670
1/8" - 0.4 mm	0.25 mm	795750	358220	795740		390341
1/8" - 0.5 mm	0.32 mm	795770	358230	795760		390351
1/8" - 0.8 mm	0.53 mm	795840	358240	795830		390370
1/4" - 1/16"		164831	165023	164460		164680
1/4" - 1/8"		164842	262823	164470		164690
1/4" - 3/16"		BN0740				
1/4" - 0.5 mm			795920			795910
1/4" - 0.8 mm			795940			795930
1/4" - 6 mm			230342			164710

\*VG1, VG2 = Vespel /Graphite



# Consumables - GC Accessories

## Interchrom Ferrules

2 - 3 holes	Teflon	Graphite	Vespel	VG1*	VG2*
1/16" - 0.3 /0.3 mm				528150	
1/16" - 0.4 /0.4 mm		528170	528160		528180
1/16" - 0.5 /0.3 mm				528230	
1/16" - 0.5 /0.5 mm	528210	528200		528220	
1/16" - 0.4 /0.3 mm				528240	
1/16" - 0.3 /0.3 /0.3 mm			528250		
1/8" - 0.5 /0.5 mm	795800	795810	795780		764581
1/8" - 0.8 /0.8 mm				BN0730	

No-Hole	Teflon	Graphite	Vespel	VG2
1/16"	164900	BN0690	164500	164720
1/8"	164910	BN0710	164510	164730
1/4"	164920	BN0720	164520	164740

\*VG1, VG2 = Vespel /Graphite

### Short ferrules for Agilent

Graphite ferrules	Column ID	P/N
1/16" - 0.4 mm	0.18 mm	AH6300
1/16" - 0.5 mm	0.25-0.32 mm	430392
1/16" - 0.8 mm	0.53 mm	431132

Vespel /graphite ferrules	Column ID	P/N
1/16" - 0.3 mm	0.10 mm	Q92350
1/16" - 0.4 mm	0.25 mm	Q92340
1/16" - 0.5 mm	0.32 mm	Q92330
1/16" - 0.8 mm	0.53 mm	Q92320

Vespel ferrules	Column ID	P/N
1/16" - 0.4 mm	0.25 mm	AH6340
1/16" - 0.5 mm	0.32 mm	AH6350
1/16" - 0.8 mm	0.53 mm	AH6360



### Minimizing problems

General technique for installing ferrules :

- Don't overtighten – finger-tighten column nut, then use a wrench to tighten
- Maintain cleanliness
- Bake out ferrules prior to use (Vespel and Vespel /Graphite only)
- Avoid contamination – such as fingerprint oils
- Inspect used ferrules with magnifier for cracks, chips, or other damage before reusing them
- Change ferrules when new columns or injector /detector parts are installed