



# Inlet Solutions



**Chromatography Supplies**

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**ECHnology** Pty Ltd

**Australian Distributors**  
Importers & Manufacturers  
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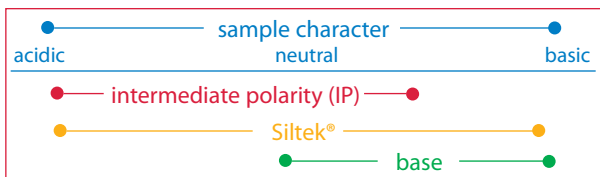
# Inlet Liner Deactivation

All Restek Liners Are Deactivated  
for Superior Inertness

All liners are  
**100%**  
deactivated

All liners are shipped  
intermediate polarity (IP)  
deactivated unless  
otherwise requested.

Restek uses unique procedures for deactivating all of our liners. Each liner is evaluated with an endrin breakdown analysis to ensure inertness. Should you need the highest level of inertness for a demanding application such as pesticide analyses, try Siltek® our proprietary deactivation. Our base deactivation is ideal for analyzing amines and other basic compounds.



## Inlet Liner Deactivations

### Intermediate Polarity (IP) Deactivation

- Phenylmethyl-deactivated surface for better recovery of polar and nonpolar compounds.
- Compatible with most common solvents.
- Our standard deactivation—every Restek liner is IP deactivated unless otherwise requested.

### Base Deactivation

- Excellent inertness for basic compounds.
- Recommended for use with Rtx®-5 Amine, Rtx®-35 Amine, and Stabilwax®-DB columns.



### Siltek® Deactivation

- Revolutionary proprietary deactivation for difficult matrices and reactive compounds.
- Inertness retained over a wide pH range.
- Minimal bleed.
- Ideal for chlorinated pesticide analysis; lowers endrin breakdown to less than 1%.
- Recommended for use with Rtx®-CLPesticides, Stx™-CLPesticides, Stx™-1HT, and Rtx®-TNT columns.

**For Siltek® deactivated inlet liners, add the corresponding suffix number to the liner catalog number.**

qty.	Siltek® Liner		Siltek® Liner with Wool		Siltek® Liner with CarboFrit™	
each	-214.1	addl. cost	-213.1	addl. cost	-216.1	addl. cost
5-pk.	-214.5	addl. cost	-213.5	addl. cost	-216.5	addl. cost
25-pk.	-214.25	addl. cost	-213.25	addl. cost	-216.25	addl. cost

**For base-deactivated inlet liners, add the corresponding suffix number to the liner catalog number.**

qty.	Base-Deactivated Liner		Base-Deactivated Liner w/ Base-Deactivated Wool		Base Deactivated Liner w/CarboFrit™	
each	-210.1	addl. cost	-211.1	addl. cost	-229.1	addl. cost
5-pk.	-210.5	addl. cost	-211.5	addl. cost	-229.5	addl. cost
25-pk.	-210.25	addl. cost	-211.25	addl. cost	-229.25	addl. cost

# Inlet Liner Packing Materials

## Deactivated Wool

This deactivated wool is more inert than our traditional fused silica wool, yet it is as flexible as our traditional borosilicate glass wool.



Description	qty.	cat.#
Deactivated Wool	10 grams	24324

## Base-Deactivated Wool

Ideal for amines and other basic compounds.

Description	qty.	cat.#
Base-Deactivated Wool	10 grams	20999

## tech tip

### Why Use Deactivated Wool for a Liner Packing?

- Ensure uniform vaporization in split or splitless liners.
- Prolong column life by trapping septum particles.
- Recommended for autosamplers with fast injection rates.

## Mini Wool Puller/Insertor

Insert and remove wool plugs easily. Order a spare pack so you'll always have one available.



Description	qty.	cat.#
Mini Wool Puller/Insertor	2-pk.	20114

## Inlet Liner Packing Tool

- Position wool reproducibly every time.
- Accurate to a specific, measured depth.



Description	qty.	cat.#
Inlet Liner Packing Tool	ea.	20339

Recommended for inlet liners with an ID  $\geq 2$ mm.

## Prepacked Inlet Liners

Let Restek do the work! Just add the appropriate suffix to the liner catalog number. Charge is in addition to liner cost.

qty.	Wool	FS Beads	CarboFrit™*
ea.	-200.1	-201.1	-209.1
5-pk.	-200.5	-201.5	-209.5
25-pk.	-200.25	-201.25	-209.25

**\*Please note:** Liners with IDs  $< 3.5$ mm are difficult to pack. We will pack them on a custom basis (minimum neck ID of 2mm is required).

## Injector Maintenance

## tech tip

Approximately ninety percent of "bad" chromatography is traceable to problems in the injection port. These problems include contaminated carrier gas, incorrect injector flows, active or dirty sites on inlet seals and liners, improper use of wool, leaks, backflash, discrimination, incorrect injector temperature, poor column installation, and use of the wrong injection technique. To minimize injection port problems, set up a routine maintenance schedule and be sure to investigate the injector first when troubleshooting.

# Inlet Liner Packing Materials

## CarboFrit™ Inlet Liner Packing Material

- Highly inert.
- Extends analytical column lifetime.
- Enhances reproducibility of split and splitless injection.
- Uniform pore size and consistent packing density guarantee consistent flow through the liner.
- Easy to install in any liner with an ID >3.5mm when using puller-inserter tool listed below.



## Replacement CarboFrit™ Inserts

Description	qty.	cat. #
Frits for liner ID ≤4mm	10-pk.	20295
Frits for liner ID >4mm	10-pk.	20294

*For inlet liners prepacked with CarboFrit™ inserts, see page 4.*

## CarboFrit™ Puller/Inserter Tool

- Hook end for removing CarboFrit™ inserts.
- Bent end (90°) for inserting CarboFrit™ inserts.



Description	qty.	cat.#
CarboFrit™ Puller/Inserter Tool	ea.	21642

## Deactivated Fused Silica Beads

- Increase sample vaporization surface and minimize splitter discrimination to improve quantitation of compounds having dissimilar boiling points.
- Trap nonvolatile or inorganic residue to prevent column inlet contamination.
- Deactivated, heat-treated, and tested to ensure complete inertness.



Description	Mesh	qty.	cat.#
Deactivated Fused Silica Beads	60-80	25 grams	20791

## 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	qty.	cat.#
Inlet Liner Removal Tool	3-pk.	20181











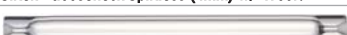

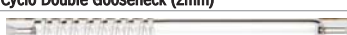
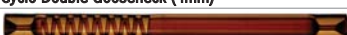





## tech tip

### Use of Packings with Splitless Liners

We recommend using an injection port liner with wool or CarboFrit™ packing when making splitless injections with an autosampler. If there is no packing material in the liner, the solvent droplets act like water on a hot iron: they bounce around until vaporized (Leidenfrost phenomenon). Because autosamplers make rapid injections, samples can be incompletely vaporized, leading to nonreproducible peak response and tailing. You can prevent this by using wool or CarboFrit™ packing material in the splitless liner, to provide a surface for the solvent droplets to "sit" on until the heat from the injector vaporizes them.

# Inlet Liners for Agilent GCs

## Splitless Liners

	Benefits/Uses
 2mm Splitless	trace samples < 2µL
 4mm Splitless	trace samples > 2µL
 Siltek® 4mm Splitless	trace samples > 2µL
 4mm Splitless w/ Wool	trace samples > 2µL
 2mm Splitless (quartz)	trace samples < 2µL
 4mm Splitless (quartz)	trace samples > 2µL
 4mm Splitless (quartz) w/ Wool	trace samples > 2µL
 Gooseneck Splitless (2mm)	trace samples < 2µL
 Siltek® Gooseneck Splitless (2mm)	trace samples < 2µL
 Gooseneck Splitless (4mm)†	trace samples > 2µL
 Siltek® Gooseneck Splitless (4mm)†	trace samples > 2µL
 Gooseneck Splitless (4mm) w/ Wool†	trace samples > 2µL
 Siltek® Gooseneck Splitless (4mm) w/ Wool†	trace samples > 2µL
 Double Gooseneck Splitless (4mm)	trace, active samples > 2µL
 Siltek® Double Gooseneck Splitless (4mm)	trace, active samples > 2µL
 Cyclo Double Gooseneck (2mm)	trace, active, dirty samples < 2µL
 Cyclo Double Gooseneck (4mm)	trace, active, dirty samples > 2µL
 Siltek® Cyclo Double Gooseneck (4mm)	trace, active, dirty samples > 2µL
 Recessed Gooseneck (2mm)**	base easily packs with wool for dirty samples < 2µL
 Recessed Gooseneck (4mm)**	base easily packs with wool for dirty samples > 2µL
 Siltek® Recessed Gooseneck (4mm)**	base easily packs with wool for dirty samples > 2µL
 Recessed Gooseneck (4mm) w/ Wool**	base easily packs with wool for dirty samples > 2µL
 Recessed Double Gooseneck (4mm)**	trace, active samples > 2µL

\*Nominal ID at syringe needle expulsion point.

†Use this liner for increased sensitivity.

\*\*Also with two-hole ferrule for dual-column analysis













deactivated  
**100%**

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.



ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
2.0 ID 6.5 OD x 78.5	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	20712	20713	20714
4.0 ID 6.5 OD x 78.5	210-3003 (ea.) 210-3003-5 (5-pk.)	20772	20773	20774
4.0 ID 6.5 OD x 78.5	—	20772-214.1	20773-214.5	20774-214.25
4.0 ID 6.5 OD x 78.5	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	22400	22401	22402
2.0 ID 6.5 OD x 78.5	18740-80220 (ea.) 5183-4707 (5-pk.)	20914	20915	—
4.0 ID 6.5 OD x 78.5	—	20912	20913	—
4.0 ID 6.5 OD x 78.5	—	22403	22404	—
2.0 ID 6.5 OD x 78.5	—	20795	20796	20797
2.0 ID 6.5 OD x 78.5	—	20795-214.1	20796-214.5	20797-214.25
4.0 ID 6.5 OD x 78.5	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	20798	20799	20800
4.0 ID 6.5 OD x 78.5	—	20798-214.1	20799-214.5	20800-214.25
4.0 ID 6.5 OD x 78.5	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	22405	22406	22407
4.0 ID 6.5 OD x 78.5	—	22405-213.1	22406-213.5	22407-213.25
4.0 ID 6.5 OD x 78.5	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	20784	20785	20786
4.0 ID 6.5 OD x 78.5	—	20784-214.1	20785-214.5	20786-214.25
2.0 ID 6.5 OD x 78.5	—	20907	20908	—
4.0 ID 6.5 OD x 78.5	—	20895	20896	20997
4.0 ID 6.5 OD x 78.5	—	20895-214.1	20896-214.5	20997-214.25
2.0 ID 6.5 OD x 78.5	—	20980	20981	20982
4.0 ID 6.5 OD x 78.5	—	20983	20984	20985
4.0 ID 6.5 OD x 78.5	—	20983-214.1	20984-214.5	20985-214.25
4.0 ID 6.5 OD x 78.5	—	22408	22409	22410
4.0 ID 6.5 OD x 78.5	—	20986	20987	20988

# Inlet Liners for Agilent GCs

## Split Liners

		Benefits/Uses
		for purge & trap inlet splitting or sample <1µL
	<b>1mm Split**</b>	
		universal, use with Agilent 7673 autosampler
	<b>4mm Split w/ Wool</b>	
		universal, use with Agilent 7673 autosampler
	<b>Siltek® 4mm Split w/ Wool</b>	
		high MW compounds
	<b>Laminar Cup Splitter</b>	
		high MW compounds
	<b>mini-Lam Split</b>	
		high & low MW compounds
	<b>Cup Splitter</b>	
		high & low MW compounds
	<b>Siltek® Cup Splitter</b>	
		dirty samples, many injections before cleaning required
	<b>Cyclosplitter®</b>	
		dirty samples, trace samples
	<b>2mm Split Precision™ Liner w/ Wool</b>	
		dirty samples, trace samples
	<b>4mm Split Precision™ Liner w/ Wool</b>	
		dirty samples, trace samples
	<b>Siltek® 4mm Split Precision™ Liner w/ Wool</b>	
		dirty samples, trace samples
	<b>4mm Gooseneck Precision™ Liner</b>	





## Split/Splitless Liners

		Benefits/Uses
		universal, use with Agilent 6890 GCs
	<b>Low Pressure Drop Liner w/ Wool</b>	
		universal, use with Agilent 6850 GCs
	<b>Low Pressure Drop Liner w/ Wool</b>	

## PTV Liners

		Benefits/Uses:
		allows on-column injection with a 0.53mm ID column
	<b>PTV On-Column Liner</b>	

## CIS4 and PTV Liners

		Benefits/Uses
		general use
	<b>Straight Glass</b>	
		active compounds, drugs, pesticides
	<b>Baffled Glass</b>	
		active compounds, drugs, pesticides
	<b>Siltek® Baffled Glass</b>	
		large volume injections
	<b>Glass w/ Wool</b>	

\*Nominal ID at syringe needle expulsion point.

\*\*Use this liner for increased sensitivity.



deactivated  
**100%**

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

ID*/OD & Length (mm)	Similar to Agilent part#	ea.	cat.# 5-pk.	25-pk.
1.0 ID 6.3 OD x 78.5	18740-80200 (ea.) 5183-4709 (5-pk.)	20972	20973	—
4.0 ID 6.3 OD x 78.5	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	20781	20782	20783
4.0 ID 6.3 OD x 78.5	—	20781-213.1	20782-213.5	20783-213.25
4.0 ID 6.3 OD x 78.5	—	20801	20802	—
4.0 ID 6.3 OD x 78.5	—	20990	20991	—
4.0 ID 6.3 OD x 78.5	18740-80190 (ea.) 5183-4699 (5-pk.)	20709	20710	—
4.0 ID 6.3 OD x 78.5	—	20709-214.1	20710-214.5	—
4.0 ID 6.3 OD x 78.5	—	20706	20707	20708
2.0 ID 6.3 OD x 78.5	—	20823	20824	—
4.0 ID 6.3 OD x 78.5	210-4004-5 (5-pk.)	21022	21023	20979
4.0 ID 6.3 OD x 78.5	—	21022-213.1	21023-213.5	20979-213.25
4.0 ID 6.3 OD x 78.5	210-4022-5 (5-pk.)	22983	<b>new!</b> 22984	22985
ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
4.0 ID 6.3 OD x 78.5	5183-4647 (ea.) 5183-4701 (5-pk.)	21032	21033	—
4.0 ID 6.3 OD x 78.5	5183-4711 (ea.) 5183-4712 (5-pk.) 5183-4713 (25-pk.)	20994	20995	20996
ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
1.7 ID 3.0 OD x 71	—	24976	<b>new!</b> 24977	—
ID*/OD & Length (mm)	Similar to Agilent part#		cat.# 10-pk.	
2.0 ID 3.0 OD x 71	5183-2036		21157	
1.5 ID 3.0 OD x 71	5183-2037		21704	
1.5 ID 3.0 OD x 71	—		21704-214.10	
2.0 ID 3.0 OD x 71	5183-2038		21156	

# Inlet Liners for Agilent GCs

## SPME Liners



SPME Liner

### Benefits/Uses

ideal for low-volume  
SPME applications

## DI Liners (For 0.32/0.53mm ID Columns)



1mm Uniliner\*\*\*†

### Benefits/Uses

trace, active samples,  
samples <1μL



Siltek® 1mm Uniliner\*\*\*†

trace, active samples,  
samples <1μL



Uniliner\*\*\*

trace, active samples,  
high recovery & linearity



Siltek® Uniliner\*\*\*

trace, active samples,  
high recovery & linearity



Cyclo-Uniliner\*\*\*

trace, dirty, high MW active  
samples, high recovery & linearity



Siltek® Cyclo-Uniliner\*\*\*

trace, dirty, high MW active  
samples, high recovery & linearity



Open-top Uniliner® w/ Wool\*\*

trace, dirty, active samples,  
high recovery & linearity



Siltek® Open-top Uniliner® w/ Wool\*\*

trace, dirty, active samples,  
high recovery & linearity

## DI Liners for 5890 & 6890 GCs (For 0.25/0.32/0.53mm ID Columns)



Drilled Uniliner® (hole near top)

### Benefits/Uses

trace, active samples,  
high recovery & linearity



Siltek® Drilled Uniliner® (hole near top)

trace, active samples,  
high recovery & linearity



Drilled Uniliner® (hole near bottom)

trace, active samples,  
high recovery & linearity



Double Gooseneck Drilled Uniliner®  
(hole near top)

trace, active samples,  
high recovery & linearity



Double Gooseneck Drilled Uniliner®  
(hole near bottom)

trace, active samples,  
high recovery & linearity



Siltek® 1mm Drilled Uniliner® (hole near top)

trace, active samples,  
high recovery & linearity

**Hole in Drilled Uniliner® makes direct injection possible  
with EPC-equipped 6890 GCs!**

\*Nominal ID at syringe needle expulsion point.

\*\*These Uniliner® liners are for split/splitless injection ports.

†This liner for use with 0.25, 0.32, or 0.53mm ID columns.

## tech tip

Use the Drilled Uniliner® liner with the hole near the bottom for semivolatiles analysis or when compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® liner with the hole near the top for chlorinated pesticides analysis, aqueous injections, as well as for analysis in which the compounds of interest elute away from the solvent peak.

deactivated  
**100%**

All liners are shipped intermediate polarity (IP) deactivated unless otherwise requested. See pg. 3.

ID*/OD & Length (mm)	cat.# ea.	cat.# 5-pk.
0.75 ID 6.35 OD x 78.5	21110	21111

ID*/OD & Length (mm)	cat.# ea.	cat.# 5-pk.
1.0 ID 6.3 OD x 78.5	21052	21053
1.0 ID 6.3 OD x 78.5	21052-214.1	21053-214.5
4.0 ID 6.3 OD x 78.5	20335	20336
4.0 ID 6.3 OD x 78.5	20335-214.1	20336-214.5
4.0 ID 6.3 OD x 78.5	20337	20338
4.0 ID 6.3 OD x 78.5	20337-214.1	20338-214.5
4.0 ID 6.3 OD x 78.5	20843	20844
4.0 ID 6.3 OD x 78.5	20843-213.1	20844-213.5

ID*/OD & Length (mm)	Similar to Agilent part #	cat.# ea.	cat.# 5-pk.	25-pk.
4.0 ID 6.3 OD x 78.5	—	21054	21055	20998
4.0 ID 6.3 OD x 78.5	—	21054-214.1	21055-214.5	20998-214.25
4.0 ID 6.3 OD x 78.5	G1544-80730	20756	20771	—
4.0 ID 6.3 OD x 78.5	—	20508	20509	—
4.0 ID 6.3 OD x 78.5	G1544-80700	20954	20989	—
1.0 ID 6.3 OD x 78.5	—	21390-214.1	21391-214.5	—

### Siltek® Metal Inlet Liners for Agilent GCs

- Won't crack, chip, or break like glass liners.
- Inertness equivalent to glass liners.
- Excellent response for pesticides, phenols, and other active compounds.



#### Liner Type

(5.2mm ID x 6.3mm OD x 78.5mm)

	5-pk.	25-pk.
Cyclo/Single Gooseneck	20974	20975
Single Gooseneck	21702	21703
Cyclosplitter®	20726	20729
Split/Splitless w/Wool	21700	21701

# Agilent GCs

## O-Rings, Liner Seals & Septa

### Viton® O-Rings for Agilent GCs

- Fit split (6.3mm OD) or splitless (6.5mm OD) liners.



Description	Max. temp.	Similar to Agilent part #	qty.	cat.#
Viton® O-Rings for Agilent GCs	250°C	5180-4182	25-pk.	20377

### Graphite O-Rings for Agilent and Varian 1177 GCs

- Excellent thermal stability at injection port temperatures up to 450°C!



Description	Max. temp.	Similar to Agilent part #	10-pk. cat.#	50-pk. cat.#
6.35mm ID Graphite O-rings for split liners	450°C	5180-4168	20296	20297
6.5mm ID Graphite O-rings for splitless liners	450°C	5180-4173	20298	20299

### Liner Seals for CIS4 and PTV



Description	Max. temp.	Similar to Agilent part #*	qty.	cat.#
Liner Seals for CIS4 and PTV	450°C	5182-9749	5-pk.	22684

\*Similar to Gerstel part # 007541-005-00.

### Thermolite® Septa for Agilent GCs

- Usable to 340°C inlet temperature.



Septum Diameter	25-pk.	50-pk.	100-pk.
5mm ( $\frac{3}{16}$ "	27120	27121	27122
9.5mm ( $\frac{3}{8}$ "	27135	27136	27137
10mm	27138	27139	27140
11mm ( $\frac{7}{16}$ "	27141	27142	27143

### IceBlue™ Septa for Agilent GCs

- Usable to 250°C inlet temperature.



Septum Diameter	50-pk.	100-pk.
9.5mm ( $\frac{3}{8}$ "	27158	27159
10mm	27160	27161
11mm ( $\frac{7}{16}$ "	27162	27163

### BTO® Septa for Agilent GCs

- Usable to 400°C inlet temperature.



Septum Diameter	50-pk.	100-pk.
5mm CenterGuide™	27100	27101
9.5mm ( $\frac{3}{8}$ "	27106	27107
10mm	27108	27109
11mm ( $\frac{7}{16}$ " CenterGuide™	27110	27111

## did you know?

All Restek septa are precision molded to ensure a consistent, accurate fit.

**HANDY**  
septum size  
chart

Agilent Instrument	Septum Diameter (mm)
5880A, 5890, 6890, 6850, 7890, PTV	11
5700, 5880	9.5/10
On-Column Injection	5

# Agilent GCs

## Septum Nuts and Tools

### Septum Puller



- Keep several on hand in your laboratory—can be used in many different ways.
- Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or fragments.

Description	qty.	cat.#
Septum Puller	ea.	20117

### Knurled Septum Nuts for Agilent 5890/6890/6850/7890 GC Split/Splitless Injectors

- Tighten easily without the use of a wrench.
- Ensure a leak-tight injection port, increase septum lifetime, and decrease maintenance requirements.
- Thread design and needle guide allow easy penetration and prevent premature septum coring.
- High-quality stainless steel construction.



Description	qty.	cat.#
Autosampler (for 23-gauge needles)	ea.	21479
Manual Injection (for 26-gauge needles)	ea.	21478

### Septum Nuts for use with Agilent 5890/6890/6850/7890 Split/Splitless Injectors

- Ensure a leak-tight injection port, increase septum lifetime, and decrease maintenance requirements.
- Thread design and needle guide allow easy penetration and prevent premature septum coring.
- Manual injection septum nut allows use of 26-gauge needles for on-column injections.
- Made of high-quality stainless steel.



Description	Similar to Agilent part #	qty.	cat.#
Autosampler & PTV Septum Nut (for 23-gauge needles)	18740-60835	ea.	20631
Manual Injection Septum Nut (for 26-gauge needles)	18740-60835	ea.	21309

### Septum Nut Removal Tool for Agilent 5890/6890/6850/7890 GCs

- Easily remove the septum nut without touching the heated nut—no more burned fingers!
- Unique, ergonomic handle—easy to grip.



Description	qty.	cat.#
Septum Nut Removal Tool for Agilent 5890/6890/6850/7890 GCs	ea.	24918

## Agilent GCs

### Injection Port Tools

#### Injector Wrench for Agilent 5890/6890/6850 GCs

- Use to remove the septum nut and weldments during GC maintenance.
- High-quality stainless steel construction.
- Meets original equipment performance.



Description	Similar to Agilent part #	qty.	cat.#
Injector Wrench for Agilent 5890/6890/6850 GCs	19251-00100	ea.	22065

#### Injection Port Repair Tool for Agilent Split/Splitless Injection Ports

- Remove contaminants, achieve a better seal.
- Resurface critical inlet seal areas.



Description	qty.	cat.#
Injection Port Repair Tool for Agilent Split/Splitless Injection Ports	ea.	21393
Replacement Sanding Disks (5 fine & 5 medium)	10-pk.	22689
Replacement Bore Brushes (one 6.5mm & one 7mm)	2-pk.	21353

#### Rethreading Tool

- Repair worn or damaged threads in injection ports, fittings, etc.
- Built-in guide to prevent cross-threading.



***Make your injection port threads like new!***

Description	qty.	cat.#
Rethreading Tool for 1/4" compression fittings (Agilent split/splitless injection ports)	ea.	23018

#### Capillary Installation Gauge

- Seats graphite\* ferrules onto column for consistent installations.
- Prevents crushed column ends.
- Made from high-quality stainless steel.



***Easily seat ferrules for consistent installations!***

Description	qty.	cat.#
A) Capillary Installation Gauge for Agilent-style fittings (compact ferrules)	ea.	21034
B) Capillary Installation Gauge for 1/16" fittings (1/16" ferrules)	ea.	21399

\*Recommended for use with graphite ferrules.

***See pages 59–61 for ferrule selection.***

## Agilent GCs

### Column Nuts

#### Capillary Column Nuts for Agilent 5890/6890/7890 GCs

Available in brass or stainless steel.



for use with "compact"  
Agilent-style ferrules



for use with  
standard ferrules

Description	Similar to Agilent part #	qty.	cat.#
<b>For use with "compact" Agilent-style ferrules.</b>			
Stainless Steel Capillary Column Nut	5181-8830	2-pk.	21884
Brass Capillary Column Nut	5181-8830	2-pk.	21878
<b>For use with standard 1/16"-type ferrules.*</b>			
Stainless Steel Capillary Column Nut	05921-21170	2-pk.	20883
Brass Capillary Column Nut	05921-21170	2-pk.	21879

\*Designed to fit a wider variety of 1/16" ferrules

#### Capillary Column Nuts for Agilent 6850 GCs

- Meet or exceed original equipment performance.
- High-quality stainless steel.



Description	Similar to Agilent part #	qty.	cat.#
Capillary Column Nuts for Agilent 6850 GCs	5183-4732	2-pk.	21882

#### Finger-Tight Capillary Column Nuts

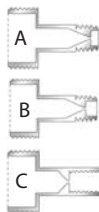
- Rapidly tighten without wrenches; avoid stripped threads.
- Either version can be used with 0.25, 0.32, or 0.53mm ID columns.



Description	qty.	cat.#
<b>For use with "compact" Agilent-style ferrules.</b>		
Finger-Tight Capillary Column Nut	ea.	21311
<b>For use with standard ferrules.</b>		
Finger-Tight Capillary Column Nut	ea.	21312

#### Finger-Tight Capillary Column Nuts

- Allow wrench-free column installations.
- Work with standard or compact (Agilent-style) ferrules.
- Made from high-quality stainless steel.



Description	Similar to Agilent part #	qty.	cat.#
<b>For use with "compact" Agilent-style ferrules.</b>			
A) Finger-Tight Capillary Column Nuts	5020-8293		
B) Finger-Tight Capillary Column Nuts	5020-8292	2-pk.	21040
<b>For use with standard 1/16"-type ferrules.</b>			
C) Finger-Tight Capillary Column Nuts	5020-8292	2-pk.	21041
<b>For use with standard 1/16" compression fittings.</b>			
C) Finger-Tight Capillary Column Nuts		2-pk.	21042

# Agilent GCs

## Inlet Seals

### Dual Vespel® Ring Inlet Seals for Agilent GCs

- Vespel® ring embedded in bottom surface eliminates need for washer.
- Vespel® ring embedded in top surface reduces operator variability by requiring minimal torque to seal.
- Prevents oxygen from permeating into the carrier gas, increasing column lifetime.

restek  
**innovation!**

In Agilent split/splitless injection ports, it can be difficult to make and maintain a good seal with a conventional metal inlet disk. The metal-to-metal seal dictates that you apply considerable torque to the reducing nut, and, based on our testing, this does not ensure a leak-tight seal. Over the course of oven temperature cycling, metal seals are prone to leaks, which ultimately can degrade the capillary column and cause other analytical difficulties.

**Washerless,  
leak-tight seals**



Our patented Dual Vespel® Ring Inlet Seal greatly improves injection port performance—it stays sealed, even after repeated temperature cycles, without retightening the reducing nut! This seal features two soft Vespel® rings, one embedded in its top surface and the other embedded in its bottom surface. These rings eliminate the need for a washer, and ensure very little torque is needed to make a leak-tight seal. The rings will not harm the critical seal in the injector body, or any other surface, and are outside the sample flow path.

Why trust a metal-to-metal seal when you can make leak-tight seals quickly and easily—and more reliably—without a washer, with a Restek Dual Vespel® Ring Inlet Seal. Use a stainless steel seal for analyses of unreactive compounds. To reduce breakdown and adsorption of active compounds, use a gold-plated or Siltek®-treated seal. The gold surface offers better inertness than untreated stainless steel; Siltek® treatment provides inertness similar to that of a fused silica capillary column.

Dual Vespel® Ring Inlet Seals are available in gold plating, stainless steel, and Siltek® treated.



*Patented.*

0.8mm ID Dual Vespel® Ring Inlet Seal	2-pk.	10-pk.
Gold-Plated	21240	21241
Siltek® Treated	21242	21243
Stainless Steel	21238	21239
1.2mm ID Dual Vespel® Ring Inlet Seal	2-pk.	10-pk.
Gold-Plated	21246	21247
Siltek® Treated	21248	21249
Stainless Steel	21244	21245

### Dual Vespel® Ring Cross-Disk Inlet Seals for Agilent GCs

- Ideal for high-flow split applications.
- Washerless, leak-tight seals.

**new!**

0.8mm ID Dual Vespel® Ring Cross-Disk Inlet Seal	2-pk.	10-pk.
Gold-Plated	22083	22084
Siltek® Treated	22085	22086
Stainless Steel	22087	22088



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# Agilent GCs

## Inlet Seals

### Replacement Inlet Seals with Washers

- Special grade of stainless steel that is softer and deforms more easily, creating a better seal.
- Increases column lifetime because oxygen cannot permeate into the carrier gas.
- Reduced noise benefits high-sensitivity detectors (e.g., ECDs, MSDs).
- Siltek® treatment provides inertness similar to fused silica.
- All seals include washers.



### Replacement Inlet Seals for Agilent GCs

The inlet seal at the base of the Agilent 5890/6890 GC injection port contacts the sample and must be changed frequently to prevent adsorption of active compounds. In addition, septum fragments and sample residue accumulate on the disk surface, requiring disk replacement.

Single-Column Installation (0.8mm Opening)	Similar to Agilent part #	2-pk.	10-pk.
Gold-Plated	18740-20885	21317	21318
Siltek® Treated		21319	21320
Stainless Steel	18740-20880	21315	21316
0.25/0.32mm ID Dual-Column Installation (1.2mm Opening)		2-pk.	10-pk.
Gold-Plated		21305	21306
Siltek® Treated		21307	21308
Stainless Steel		20390	20391
0.53mm ID Dual-Column Installation (1/16-inch Opening)		2-pk.	10-pk.
Stainless Steel		20392	20393

Note: The 1.2mm inlet seal is recommended for use with Vespel®/graphite ferrules or when installing two columns using a two-hole ferrule.

### Replacement Inlet Seal Washers

Description	Similar to Agilent part #	qty.	cat.#
Replacement Inlet Seal Washers	5061-5869	15-pk.	21710



### Cross-Disk Inlet Seals for Agilent GCs

- Ideal for high-flow split applications on Agilent 5890 GCs.
- All seals include washers.

0.8mm ID Cross-Disk Inlet Seals for Agilent GCs	Similar to Agilent part #	2-pk.	10-pk.
Gold-Plated	5182-9652	20477	20476
Siltek® Treated	—	20475	20474
1.2mm ID Cross-Disk Inlet Seals for Agilent GCs	Similar to Agilent part #	2-pk.	10-pk.
Gold-Plated	—	21009	21010
Siltek® Treated	—	21011	21012



### Silver PTV Seals for Agilent 6890 GCs

Description	Similar to Agilent part #	qty.	cat.#
Silver PTV Seals for Agilent 6890 GCs	5182-9763	5-pk.	21409

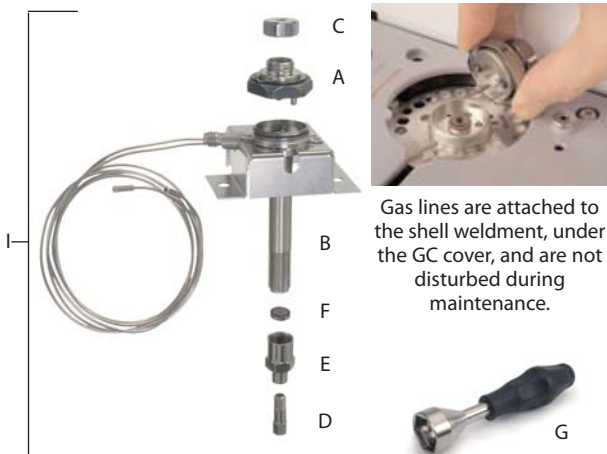


## Agilent GCs

### Injection Ports

#### EZ Twist Top™ Split/Splitless Injection Port for Agilent GCs

- Eliminates kinked or broken gas lines.
- Change inlet liners faster, easier, and eliminate touching hot surfaces.
- Excellent for Agilent 5890/6890/6850 GCs; especially advantageous with Agilent GCs equipped with autosamplers.



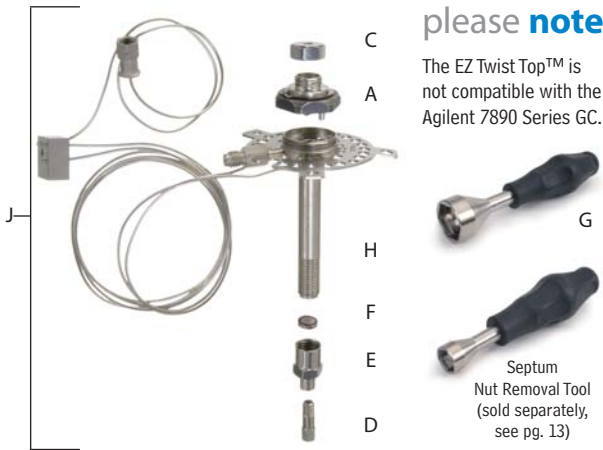
#### EZ Twist Top™ Split/Splitless Injection Port for Agilent 5890 GCs

Description	qty.	cat.#
I) <b>Injection port assembly kit</b> includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek® Dual Vespel® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22725
<b>Siltek® injection port assembly kit</b> includes: Siltek® split/splitless weldment, Siltek® shell weldment, 2 weldment O-rings, Siltek® Dual Vespel® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22726
A) Split/Splitless Weldment for Agilent 5890/6890/6850 GCs (2 weldment O-rings are installed on the weldment)	ea.	22724
Siltek® Split/Splitless Weldment for Agilent 5890/6890/6850 GCs (2 weldment O-rings are installed on the weldment)	ea.	22732
B) Shell Weldment for Agilent 5890 GCs	ea.	22727
Siltek® Shell Weldment for Agilent 5890 GCs	ea.	22731
Weldment O-rings	10-pk.	22729
C) Autosampler & PTV Septum Nut (for 23-gauge needles)	ea.	20631
D) Stainless Steel Capillary Column Nut (for use with standard 1/16" ferrules)	2-pk.	20883
E) Reducing Nut	ea.	22078
	2-pk.	21242
F) Siltek® 0.8mm ID Dual Vespel® Ring Inlet Seal	10-pk.	21243
G) Weldment Removal Tool for Agilent 5890/6890/6850 GCs	ea.	22728

**EZ Twist Top™ products not available in Germany or Japan.**

# Agilent GCs

## Injection Ports



### EZ Twist Top™ Split/Splitless Injection Port for Agilent 6890/6850 GCs

Description	qty.	cat.#
J) <b>Injection port assembly kit</b> includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek® Dual VespeI® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22721
<b>Siltek® injection port assembly kit</b> includes: Siltek® split/splitless weldment, Siltek® shell weldment, 2 weldment O-rings, Siltek® Dual VespeI® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22722
A) Split/Splitless Weldment for Agilent 5890/6890/6850 GCs (2 weldment O-rings are installed on the weldment)	ea.	22724
Siltek® Split/Splitless Weldment for Agilent 5890/6890/6850 GCs (2 weldment O-rings are installed on the weldment)	ea.	22732
H) Shell Weldment for Agilent 6890/6850 GCs	ea.	22723
Siltek® Shell Weldment for Agilent 6890/6850 GCs	ea.	22730
Weldment O-rings	10-pk.	22729
C) Autosampler & PTV Septum Nut (for 23-gauge needles)	ea.	20631
D) Stainless Steel Capillary Column Nut (for use with standard 1/16" ferrules)	2-pk.	20883
E) Reducing Nut	ea.	22078
	2-pk.	21242
F) Siltek® 0.8mm ID Dual VespeI® Ring Inlet Seal	10-pk.	21243
G) Weldment Removal Tool for Agilent 5890/6890/6850 GCs	ea.	22728

### tech tip

#### Which EZ Twist Top™ should you buy?

The type of split vent trap you have connected to the EPC module/block on your 6890/6850 Agilent GC determines which EZ Twist Top™ Injection Port you need to buy.

Simply lift up the top panel on the GC and see if you have the small (pencil type) split vent filter (cat.# 22820) or if you have the large canister type filter (cat.# 23031) coming off the 3rd line of the EPC module/block. If you have the small (pencil type) split vent filter, you need the EZ Twist Top™ Injection Port for Agilent 6890/6850 GCs (cat.# 22721 or 22722). If you have the large canister filter, you'll need the EZ Twist Top™ with Optional Split Vent for Agilent 6890/6850 GCs, for use with large canister type filters (cat.# 22735 or 22736).

# Agilent GCs

## Injection Ports



*EZ Twist Top™ products not available in Germany or Japan.*

**EZ Twist Top™ Split/Splitless Injection Port with Optional Split Vent for Agilent 6890/6850 GCs (for use with large canister type filter)**

Description	qty.	cat.#
<b>Injection port assembly kit</b> includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek® Dual Vespel® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22735
<b>Siltek® injection port assembly kit</b> includes: Siltek® split/splitless weldment, Siltek® shell weldment, 2 weldment O-rings, Siltek® Dual Vespel® Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut and weldment tool	kit	22736
Optional Split/Splitless Shell Weldment (for use with large canister type filter)	ea.	22733
Siltek® Optional Split/Splitless Shell Weldment (for use with large canister type filter)	ea.	22734

**Replacement Viton® O-Rings for use with the Agilent Flip Top Inlet Sealing System**



Description	Similar to Agilent part #	qty.	cat.#
Replacement Viton® O-Rings for use with the Agilent Flip Top Inlet Sealing System	5188-5366	10-pk.	22336

**Replacement Chemical Traps for Agilent GCs**

- Easy to install.
- Attach to same fittings as original equipment.
- Built-in frits retain fine particles; adsorbents remove both moisture and hydrocarbons.



Description	Similar to Agilent part #	qty.	cat.#
A) Optional Split Vent Trap Assembly for Agilent 6890/6850 GCs	G1544-60610	kit	23031
B) Replacement Traps (2) and O-rings (4)	G1544-80530	kit	23032
C) O-rings for Agilent Trap Fittings	5180-4181	25-pk.	22064

# Agilent GCs

## Injection Ports

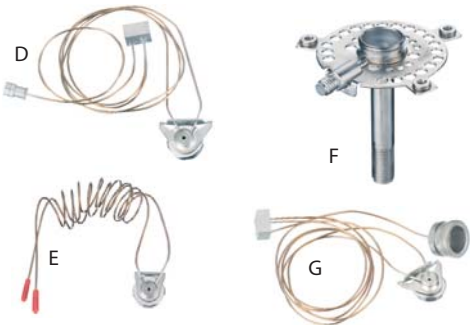
### Direct Replacement and Siltek® Treated Split/Splitless Injection Ports for Agilent GCs

Would you like better performance from your injector? Our Siltek® treated split/splitless injector is a direct replacement for Agilent 5890 and 6890/6850 GCs, but Siltek® treatment passivates the metal surface to ensure an inert pathway for the sample, delivering increased performance. The injector is manufactured from high-quality stainless steel and meets or exceeds Agilent original equipment performance.



### Direct Replacement and Siltek® Treated Split/Splitless Injection Port for Agilent 5890 GCs

Description	Similar to		
	Agilent part #	qty.	cat.#
A) Replacement Weldment*	19251-60575	ea.	20265
Siltek® Weldment**	19251-60575	ea.	20267
B) Replacement Shell Weldment	19251-80570	ea.	20266
Siltek® Shell Weldment**	19251-80570	ea.	20268



### Direct Replacement and Siltek® Treated Split/Splitless Injection Port for Agilent 6890/6850 GCs

Description	Similar to		
	Agilent part #	qty.	cat.#
D) Replacement Weldment with EPC	G1544-60575	ea.	22674
Siltek® Weldment with EPC**	G1544-60575	ea.	22672
E) Replacement Weldment*	19251-60575	ea.	20265
Siltek® Weldment**	19251-60575	ea.	20267
F) Replacement Shell Weldment	G1544-80570	ea.	22673
Siltek® Shell Weldment**	G1544-80570	ea.	22671
G) Optional Split/Splitless Weldment (for use with large canister type filter)	G1544-60585	ea.	22686
Siltek® Optional Split/Splitless Weldment** (for use with large canister type filter)	G1544-60585	ea.	22670

\*For use with manual flow or EPC on Agilent 5890 GCs. For use with manual flow only on Agilent 6890/6850 GCs.

\*\*Treated with Restek’s exclusive Siltek® treatment for increased inertness.

# Agilent GCs

## Injection Port Replacement Parts

### Injection Port Weldments for Agilent GCs for use with Purge and Trap Systems

Easily attach your purge and trap with pre-installed low dead volume fittings.



#### For Agilent GCs with Tekmar Purge and Trap Systems

Description	qty.	cat.#
Weldment for Agilent 6890 GCs	ea.	22664
Weldment for Agilent 6890 GCs with optional canister filter	ea.	22668
A) Weldment for Agilent 5890 GCs	ea.	22666

#### For Agilent GCs with OI Purge and Trap Systems

Description	qty.	cat.#
B) Weldment for Agilent 6890 GCs	ea.	22665
Weldment for Agilent 6890 GCs with optional canister filter	ea.	22669
Weldment for Agilent 5890 GCs	ea.	22667

### tech tip

#### Installing a New Weldment

To eliminate possible leaks and damage to the weldment, always replace the split vent line, nut, and ferrule when installing a new shell weldment.

#### EPC Test Kit for Agilent 6890 GCs

- Kit includes 3 O-rings, 2 plugs, 1 mounting screw and 1 test block.

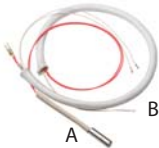


Description	Similar to Agilent part #	qty.	cat.#
EPC Test Kit for Agilent 6890 GCs	G1530-60960*	kit	24323

\*Similar to, but not exact equivalent. Kits differ in parts.

#### Heater Cartridge & PRT Sensor for Agilent 5890 GCs

- Use with 5890 FID and split/splitless weldments.
- Meets or exceeds manufacturer’s performance.



Description	Similar to Agilent part #	qty.	cat.#
A + B) Injector/FID Heater + Injector/FID PRT Sensor	05890-61140	ea.	22068
A) Injector/FID Heater	19231-60620	ea.	22069
B) Injector/FID PRT Sensor	19231-60660	ea.	23035

#### Heat Sink for Agilent 5890 GC Split/Splitless Injector

- Meets or exceeds manufacturer’s performance.



Description	Similar to Agilent part #	qty.	cat.#
Heat Sink for Agilent 5890 GCs	18740-20940	ea.	20409

# Agilent GCs

## Replacement Parts

### Heater Block Retaining Nuts for Agilent GC Split/Splitless Injectors

- Aluminum construction.
- Meet or exceed manufacturer's performance.



Description	Similar to Agilent part #	qty.	cat.#
Heater Block Retaining Nut for Agilent 5890 GCs	19251-20620	ea.	22080
Heater Block Retaining Nut for Agilent 6890/6850 GCs	G1544-20590	ea.	23042

### Oven Temp Sensor Assembly



Description	Similar to Agilent part #	qty.	cat.#
A) Oven Temp Sensor for Agilent 5890 GC	05890-61030	ea.	23040
B) Oven Temp Sensor for Agilent 6890 GC	G1530-61030	ea.	23039

### 60psig Backpressure Regulator Kit

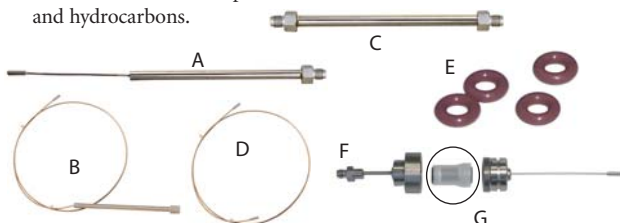
Increase the versatility of your Agilent 5890/6890 GC by replacing the existing 30psig (207kPa) backpressure regulator and gauge with our 60psig (414kPa) regulator. Enables you to use longer 60m and 105m columns as well as shorter 10m columns. Includes complete instructions.



Description	Similar to Agilent part #	qty.	cat.#
Backpressure Regulator Kit	19246-60630	kit	20634

### Replacement Chemical Traps for Agilent GCs

- Easy to install.
- Attach to same fittings as original equipment.
- Built-in frits retain fine particles; adsorbents remove both moisture and hydrocarbons.



Description	Similar to Agilent part #	qty.	cat.#
A) Replacement Split Vent Trap for Agilent 6890/6850 GCs	G1544-80550	ea.	22820
B) Replacement Chemical Trap for Agilent 5890 GCs	05890-61260	ea.	21610
C) Replacement Chemical Trap for Agilent 5880 GCs	19362-60500	ea.	21158
D) Split Vent Line for Agilent GCs (32-inch) (Includes all installation hardware.)	19251-80525 G1544-20620	2-pk.	22800
E) O-rings for Agilent Trap Fittings	5180-4181	25-pk.	22064
F) Optional Split Vent Trap Assembly for Agilent 6890/6850 GCs	G1544-60610	kit	23031
G) Replacement Traps (2) and O-rings (4)	G1544-80530	kit	23032

## Agilent GCs

### GC/MS Accessories

#### MSD Conversion Fitting

- A flat, soft aluminum sealing ring deforms and butt-seals against the MSD interface.
- A standard Vespel® ferrule seals the column and 1/16-inch stainless steel nut.
- Fitting is constructed of nickel-plated brass for longevity and softness.
- Use any standard Vespel® or Vespel®/graphite 1/16-inch ferrule.
- Includes a 1/16-inch stainless steel nut and two replacement sealing rings. Order ferrules separately.



Description	qty.	cat.#
MSD Conversion Fitting	ea.	21314
Replacement Ring Seal for MSD Conversion Fitting	2-pk.	21313

#### MSD Source Nut

- 1.2mm nut bore permits easy removal of ferrules with a standard tapered-needle file (cat.# 20106).
- Made of brass to prevent thread-stripping on the transfer line.
- Improved design enhances ease of threading onto the transfer line and improves overall lifetime.



Description	Similar to Agilent part #	qty.	cat.#
(Detector) MSD Source Nut	05988-20066	2-pk.	20643

#### Capillary Installation Gauge for Agilent 5973/5975 MS

- Seats ferrules onto column for consistent installations.
- Made from high-quality stainless steel.



**Easily seat ferrules for consistent installations in Agilent 5973 MS.**

Description	Similar to Agilent part #	qty.	cat.#
Capillary Installation Gauge for Agilent 5973/5975 MS	G1099-20030	ea.	21894

#### Gold Tip Transfer Line

- For use with Agilent 5971/5972 MS Systems.
- Gold-plated for inertness.
- Meets or exceeds manufacturer's performance.



Description	Similar to Agilent part #	qty.	cat.#
Gold Tip Transfer Line	05971-20305	ea.	24699

## did you know?

Restek's line of Super-Clean™ gas filters and base plates are compatible with Agilent's Super-Clean™ gas filter system?

Visit [www.restek.com](http://www.restek.com) for more information.





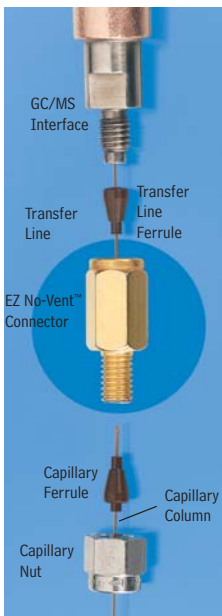
# Agilent GCs

## EZ No-Vent™ GC/MS Connector

### EZ No-Vent™ GC Column-Mass Spectrometer Connector

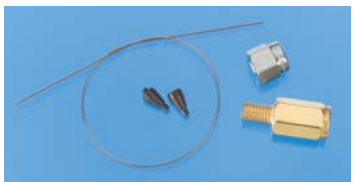
- Change GC/MS columns in minutes without venting—100µm transfer line throttles vacuum and prevents venting.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- Deactivated transfer line keeps analytes focused; high-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.
- Available for Agilent GCs with 5971/5972, 5973, or 5975 GC/MS.

**Change columns in minutes—without venting!**



We designed the EZ No-Vent™ GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent™ connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas and enabling you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change. This can save nearly a day of downtime with each column change. The EZ No-Vent™ connector easily attaches to the MS source without special tools or extra plumbing.

restek **innovation!**



Kit installs easily, without special tools or plumbing.

Description	qty.	cat.#
EZ No-Vent™ Connector Kit for Agilent 5971/5972, 5973 or 5975 GC/MS Kit includes: EZ No-Vent™ Connector, two 0.4mm ID ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut.	kit	21323
Replacement ferrules for connecting capillary column to EZ No-Vent™ Connector:		
0.4mm ID (Polyimide)	2-pk.	21015
0.5mm ID (Polyimide)	2-pk.	21016
Replacement ferrules for connecting transfer line to EZ No-Vent™ Connector: 0.4mm ID	2-pk.	21043
Replacement 100µm deactivated transfer line	3 ft.	21018
Replacement EZ No-Vent™ Column Nut	5-pk.	21900
Replacement EZ No-Vent™ Plug	2-pk.	21915
Open-End Wrenches (1/4" x 5/16")	2-pk.	20110

new!

## Agilent GCs

### Electron Multipliers

#### ETP Electron Multipliers for Mass Spectrometry

- Proprietary specialized surface material resulting in very high secondary electron emission.
- Air stable.
- 2 year shelf life guarantee.
- Discrete dynode design results in extended operating life.



The electron multipliers manufactured by ETP use a proprietary dynode material. This material has a number of properties that make it very suitable for use in an electron multiplier. It has very high secondary electron emission, which allows exceptional gain to be achieved from each dynode. This material is also very stable in air. In fact, an ETP multiplier can be stored for years before being used. As a direct

result of the high stability of the active materials used in ETP multipliers, they come with a 2 year shelf life warranty (stored in original sealed package). Many testing laboratories take advantage of this long shelf life by keeping a replacement ETP multiplier on hand, ready for immediate installation. This keeps the instrument down time to a minimum.

For a typical ETP electron multiplier for GC/MS, the total active dynode surface area is  $\sim 1000\text{mm}^2$ . This can be compared to a standard continuous dynode multiplier that has a total channel surface area of only around  $160\text{mm}^2$  (for a channel with 1mm diameter and 50mm length). This increased surface area spreads out the work-load of the electron multiplication process over a larger area, effectively slowing the aging process and improving operating life and gain stability.

Description	qty.	cat.#
<b>Electron Multipliers for Agilent GC-MS and LC-MS</b>		
For Agilent 5970 GC-MS	ea.	23072
For Agilent 5971, 5972, GCD GC-MS	ea.	23073
For Agilent 5973 & 5975 GC-MS (includes mount for initial installation)*†	ea.	23074
For Agilent 5973 & 5975 GC-MS and LC-MSD (Replacement Multiplier)*†	ea.	23075
For Agilent LC-MSD (includes mount for initial installation)*†	ea.	23076

\*Note: The electron multipliers have been specifically developed to retrofit the original manufacturer's equipment. The detector incorporates a modular design to facilitate ease of replacement and additional innovations intended to enhance performance. First time installation requires a mount which includes the mechanical housing. After initial installation, only the replacement electron multiplier is required.

†This unit is designed for use in the 5975, 5973 GC and the LC/MSD.

# Agilent GCs

## Tool Kits

### Make Life Easier (MLE) Capillary Tool Kits

#### Inlet and FID Maintenance Kits

- Include the most common consumable GC supplies and tools.
- All parts meet or exceed performance by instrument manufacturer's parts.
- Parts list makes reordering easy.

cat. #  
22179

#### Inlet kit includes:

- 0.4, 0.5, and 0.8mm ID graphite ferrules.
- Viton® O-rings.
- Capillary nuts.
- Inlet seals.
- Reducing nut.
- Scoring wafer.
- 11mm Thermolite® septa.
- 4.0mm single gooseneck liner.
- 4.0mm split liner with wool.
- Capillary column caps.
- $\frac{1}{4}$ " x  $\frac{5}{16}$ " wrench.
- Septum puller.
- Installation gauge.
- Wire cleaning brush.
- Jet reamers/ferrule removers.
- Inlet liner removal tool.
- Septa nut removal tool.

cat. #  
22181



#### MLE Capillary Tool Kit includes:

- $\frac{1}{8}$ ",  $\frac{3}{16}$ ", and  $\frac{1}{4}$ " nylon brushes
- $\frac{1}{4}$ ",  $\frac{3}{8}$ ", and  $\frac{3}{16}$ " stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65mm OD)
- $\frac{1}{4}$ " x  $\frac{5}{16}$ " open end wrench
- $\frac{3}{8}$ " x  $\frac{7}{16}$ " open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insertor tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)
- capillary installation gauge for Agilent GCs
- injector wrench for Agilent GCs
- septum nut removal tool
- $\frac{7}{16}$ " x  $\frac{1}{2}$ " open end wrench
- $\frac{1}{2}$ " x  $\frac{9}{16}$ " open end wrench

#### FID kits include:

- $\frac{1}{4}$ ", 0.4, 0.5, and 0.8mm ID graphite ferrules.
- FID/NPD capillary adaptor.
- Capillary nuts.
- Jet reamers/ferrule removers.
- $\frac{1}{4}$ " nut.
- Scoring wafer.
- Capillary column caps.
- Ignitor for either Agilent 5890 or 6890/6850/7890 GCs.
- FID flow measuring adaptor.
- $\frac{1}{4}$ " x  $\frac{5}{16}$ " wrench.
- Installation gauge.
- Wire cleaning brush.
- High-performance Siltek® treated FID jet for either Agilent 5890 (adaptable jet) or 6890/6850/7890 (dedicated jet) GCs.
- Spanner wrench.
- FID jet removal tool.

cat. # 22186







Description	qty.	cat. #
Inlet Maintenance Kit for Agilent 5890/6850/6890/7890 GCs	kit	22181
FID Maintenance Kit for Agilent 5890 GCs	kit	22180
FID Maintenance Kit for Agilent 6850/6890/7890 GCs	kit	22179
MLE Capillary Tool Kit for Agilent GCs	kit	22186

# Inlet Liners for Varian GCs

## Splitless Liners for 1075/1077 GCs

### Benefits/Uses:

	trace samples < 2µL
<b>2mm Splitless</b>	
	trace samples > 2µL
<b>4mm Splitless</b>	
	trace, active samples up to 4µL
<b>Double Gooseneck</b>	
	trace, dirty, active samples up to 4µL
<b>Cyclo Double Gooseneck</b>	

## Split Liners for 1075/1077 GCs

### Benefits/Uses:

	purge & trap inlet splitting or samples < 1µL
<b>1mm Split</b>	
	universal, use with rapid autosamplers
<b>Splitter w/ Wool</b>	
	high MW compounds
<b>Laminar Cup Splitter</b>	
	high & low MW compounds
<b>Cup Splitter</b>	
	dirty samples, many injections before cleaning required
<b>Cyclo splitter®</b>	
	dirty samples, non-active compounds
<b>Frit Splitter</b>	
	compounds with close boiling points
<b>Baffle Splitter</b>	
	dirty samples, active samples
<b>Split Precision™ Liner w/ Wool</b>	

## DI Liners for 1075/1077 GCs (0.32/0.53mm ID)

### Benefits/Uses:

	trace, active samples, high recovery & linearity
<b>Uniliner®</b>	
	trace, dirty, high MW, active samples, linearity
<b>Cyclo-Uniliner®</b>	
	trace, dirty, active samples, high recovery & linearity
<b>Open-top Uniliner® w/ Wool</b>	

## SPME Liners for 1075/1077 GCs

### Benefits/Uses:

	ideal for low-volume SPME applications
<b>SPME Liner</b>	

\*Nominal ID at syringe needle expulsion point.





All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP) deactivated unless otherwise requested. See pg. 3.



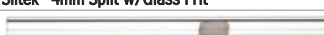









ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
2.0 ID 6.3 OD x 74	190010905	20721	20722	20723
4.0 ID 6.3 OD x 74	—	20904	20905	20906
4.0 ID 6.3 OD x 74	—	20847	20848	20849
4.0 ID 6.3 OD x 74	—	20897	20898	—
ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 6.3 OD x 72	—	20970	20971	—
4.0 ID 6.3 OD x 72	190010901	20792	20793	20794
4.0 ID 6.3 OD x 72	190010902	20803	20804	—
4.0 ID 6.3 OD x 72	—	20724	20725	—
4.0 ID 6.3 OD x 72	—	20727	20728	—
4.0 ID 6.3 OD x 72	190010903	20715	20716	20717
4.0 ID 6.3 OD x 72	190010904	20718	20719	20720
4.0 ID 6.3 OD x 72	—	21030	21031	—
ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
4.0 ID 6.3 OD x 72	—	20345	20346	—
4.0 ID 6.3 OD x 72	—	20347	20348	—
4.0 ID 6.3 OD x 72	—	20845	20846	—
ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
0.75 ID 6.30 OD x 74	—	21112	21113	—

# Inlet Liners for Varian GCs

## SPI Liners for Varian GCs



	Benefits/Uses:
 0.5mm SPI	high linearity for 0.25 & 0.32mm ID columns
 Siltek® 0.5mm SPI	high linearity for 0.25 & 0.32mm ID columns
 0.8mm SPI	high linearity for 0.53mm ID columns
 SPI with Buffer	dirty samples > 1µL, fits 0.25, 0.32 & 0.53mm ID columns

## Liners for 1177 GCs

	Benefits/Uses:
 4mm Split w/ Glass Frit	universal
 Siltek® 4mm Split w/ Glass Frit	universal
 4mm Split w/ Wool	universal
 4mm Split Precision™ Liner w/ Wool	dirty samples, trace samples
 Low Pressure Drop Precision™ Liner w/ Wool	trace samples < 2µL, dirty samples
 Laminar Cup Splitter	high MW compounds
 2mm Splitless w/ Wool	trace samples < 2µL
 Gooseneck Splitless (4mm)	trace samples < 2µL
 Siltek® Gooseneck Splitless (4mm)	trace samples < 2µL
 Gooseneck Splitless (4mm) w/ Wool	trace samples < 2µL
 Siltek® Gooseneck Splitless (4mm) w/ Wool	trace samples < 2µL
 Double Gooseneck Splitless (4mm)	trace, active samples < 2µL

## DI Liners for 1177 GCs

(For 0.25/0.32/0.53mm ID Columns)

	Benefits/Uses
 Drilled Uniliner® (hole near top)	trace, active samples, high recovery & linearity
 Drilled Uniliner® (hole near bottom)	trace, active samples, high recovery & linearity

\*Nominal ID at syringe needle expulsion point.

## tech tip

Use the Drilled Uniliner® liner with the hole near the bottom for semivolatiles analysis or when compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® liner with the hole near the top for chlorinated pesticides analysis, aqueous injections, as well as for analysis in which the compounds of interest elute away from the solvent peak.

ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
0.53 ID 4.6 OD x 54	190010906	20775	20776	20777
0.53 ID 4.6 OD x 54	—	20775-214.1	20776-214.5	20777-214.25
0.80 ID 4.6 OD x 54	190010907	20778	20779	20780
2.4 ID 4.6 OD x 54	190010908	20850	20851	20852

ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
4.0 ID 6.3 OD x 78.5	—	21045	21046	—
4.0 ID 6.3 OD x 78.5	—	21045-214.1	21046-214.5	—
4.0 ID 6.3 OD x 78.5	392611934	—	21079	—
4.0 ID 6.3 OD x 78.5	—	20759	20762	—
2.0 ID 6.3 OD x 78.5	—	22421	22422	—
4.0 ID 6.3 OD x 78.5	—	20765	20768	—
2.0 ID 6.5 OD x 78.5	392599903	—	21077	—
4.0 ID 6.5 OD x 78.5	392611927	21896	21897	—
4.0 ID 6.5 OD x 78.5	—	21896-214.1	21897-214.5	—
4.0 ID 6.5 OD x 78.5	392611936	21896-200.1	21897-200.5	—
4.0 ID 6.5 OD x 78.5	—	21896-213.1	21897-213.5	—
4.0 ID 6.5 OD x 78.5	—	21891	21892	—

ID*/OD & Length (mm)	Similar to Varian part #	cat.# ea.	cat.# 5-pk.
4.0 ID 6.3 OD x 78.5	—	21470	21471
4.0 ID 6.3 OD x 78.5	—	21468	21469

All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.








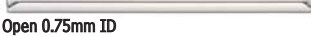

## ordering note

For descriptions of liner deactivations, packings, and tools, see pages 3-5.



# Inlet Liners for Varian GCs

## Liners for 1078/1079 GCs

COLUMN INSTALLS THIS END

	Benefits/Uses:
 1078/1079 Split w/ Frit	dirty samples, non-active compounds
 Siltek® 1078/1079 Split w/ Frit	dirty samples, non-active compounds
 1078/1079 Splitless	trace samples <2 $\mu$ L
 Siltek® 1078/1079 Splitless	trace samples <2 $\mu$ L
 Open 0.5mm ID	trace samples <1 $\mu$ L
 1078/1079 Split-No Frit	active samples
 Siltek® 1078/1079 Split-No Frit	active samples
 Open 0.75mm ID	trace, low volume samples
 1078/1079 Split Precision™ Liner w/ Wool	dirty samples, trace samples

## DI Liners for 1078/1079 GCs (For 0.25/0.32/0.53mm ID Columns)

	Benefits/Uses
 Drilled Uniliner® (hole near top)	trace, active samples, high recovery & linearity
 Drilled Uniliner® (hole near bottom)	trace, active samples, high recovery & linearity

\*Nominal ID at syringe needle expulsion point.

All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

## tech tip

Use the Drilled Uniliner® liner with the hole near the bottom for semivolatiles analysis or when compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® liner with the hole near the top for chlorinated pesticides analysis, aqueous injections, as well as for analysis in which the compounds of interest elute away from the solvent peak.

## Siltek® Treated Metal Inlet Liners for Varian GCs

- Won't crack, chip, or break like glass liners.
- Inertness equivalent to glass liners.
- Excellent response for pesticides, phenols, and other active compounds.



Liner Type (3.8mm ID x 5.0mm OD x 54mm)	qty.	cat.#
Split/Splitless	5-pk.	20711
Splitless Gooseneck	5-pk.	21002



ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
3.4 ID 5.0 OD x 54	392611946	21708	21709	—
3.4 ID 5.0 OD x 54	—	21708-214.1	21709-214.5	—
2.0 ID 5.0 OD x 54	392611947	21711	21712	—
2.0 ID 5.0 OD x 54	—	21711-214.1	21712-214.5	—
0.5 ID 5.0 OD x 54	392611949	20992	20993	—
3.4 ID 5.0 OD x 54	392611945	20859	20901	20909
3.4 ID 5.0 OD x 54	—	20859-214.1	20901-214.5	20909-214.25
0.75 ID 5.0 OD x 54	392611948	21714	21715	21716
3.4 ID 5.0 OD x 54	—	21024	21025	—

ID*/OD & Length (mm)	Similar to Varian part #	cat.# ea.	cat.# 5-pk.	
3.5 ID 5.0 OD x 54	—	24974	24975	<b>new!</b>
3.5 ID 5.0 OD x 54	—	22280	22281	

ordering **note**

For descriptions of liner deactivations, packings, and tools, see pages 3-5.

**Inlet Liner Seals for Varian 1177 Injectors**

- Meets or exceeds manufacturer’s performance.



Description	Max. temp.	Similar to Varian part #	10-pk. cat.#	50-pk. cat.#
6.35mm ID Graphite O-rings for split liners	450°C	—	20296	20297
6.5mm ID Graphite O-rings for splitless liners	450°C	39-26119-40	20298	20299

**Liner Seals for Varian 1078/1079**



Description	Max. temp.	Similar to Varian part #	qty.	cat.#
5mm Graphite Liner Seals for Varian 1078/1079 GCs	450°C	392611919 392534201	10-pk.	22683

## Varian GCs

### Septa, Nuts, and Springs

#### Septa for Varian GCs

Precision molding assures consistent, accurate fit.



Septum Diameter	25-pk.	50-pk.	100-pk.
<b>Thermolite® Septa</b> (Usable to 340°C inlet temperature)			
9mm	27132	27133	27134
9.5mm ( $\frac{3}{8}$ "	27135	27136	27137
10mm	27138	27139	27140
11mm ( $\frac{7}{16}$ "	27141	27142	27143
<b>IceBlue™ Septa</b> (Usable to 250°C inlet temperature)			
9mm	—	27156	27157
9.5mm ( $\frac{3}{8}$ "	—	27158	27159
10mm	—	27160	27161
11mm ( $\frac{7}{16}$ "	—	27162	27163
<b>BTO® Septa</b> (Usable to 400°C inlet temperature)			
9mm CenterGuide™	—	27104	27105
9.5mm ( $\frac{3}{8}$ "	—	27106	27107
10mm	—	27108	27109
11mm ( $\frac{7}{16}$ " CenterGuide™	—	27110	27111

#### HANDY

#### septum size chart

Injector Type	Septum Diameter (mm)
Packed Column	9.5/10
Split/Splitless 1078/1079	10/11
1177	9
1075/1077	11

#### Stainless Steel Septum Nuts for Varian GCs

- Maintain a sharper knife edge longer than the original equipment aluminum design.
- Greatly minimize septum fragmentation and increase septum lifetime.



Description	Similar to Varian part #*	qty.	cat.#
26 Gauge Needle Guide Septum Nut	03-949666-01	ea.	21310
Standard Stainless Steel Septum Nut	03-949666-01	ea.	21304

\*Similar to Varian part # 03-949666-01, except Restek nuts are not equipped with remote-start capabilities.

#### Capillary Nuts for Varian GCs

- Choose brass (<200°C) or stainless steel (>200°C) replacement nuts.



Description	Similar to Varian part #	qty.	cat.#
Brass Capillary Nuts	03-949551-00	2-pk.	20881
Stainless Steel Capillary Nuts	03-949551-00	2-pk.	20882

#### Siltek® Treated Inlet Support Springs for Varian 1075/1077 Split Injectors

- Siltek® treated to eliminate sample adsorption.



Description	Similar to Varian part #	qty.	cat.#
Siltek® Treated Inlet Support Springs for Varian	03-949786-00	3-pk.	21690

## Varian GCs Tools

### Capillary Installation Gauge for Varian GCs for use with $\frac{1}{16}$ " ferrules

- Seats ferrule\* onto column for consistent installations.
- Prevents crushed column ends.
- Made from high-quality stainless steel.



Description	qty.	cat.#
Capillary Installation Gauge for Varian GCs for use with $\frac{1}{16}$ " ferrules	ea.	22335

\*Recommended for use with graphite ferrules.

### Make Life Easier (MLE) Capillary Tool Kit for Varian GCs

#### Includes:

- capillary installation gauge for Varian GCs
- $\frac{1}{8}$ ",  $\frac{3}{16}$ ", and  $\frac{1}{4}$ " nylon brushes
- $\frac{1}{4}$ ",  $\frac{3}{8}$ ", and  $\frac{3}{16}$ " stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65mm OD)
- $\frac{1}{4}$ " x  $\frac{5}{16}$ " open end wrench
- $\frac{3}{8}$ " x  $\frac{7}{16}$ " open end wrench
- $\frac{7}{16}$ " x  $\frac{1}{2}$ " open end wrench
- $\frac{1}{2}$ " x  $\frac{9}{16}$ " open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insertor tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)



**Everything you need in  
one complete kit!**

Description	qty.	cat.#
MLE Capillary Tool Kit for Varian GCs	kit	22184

### Rethreading Tool

- Repair worn or damaged threads.
- Multiple uses (injection ports, fittings, etc.).
- Built-in guide to prevent cross-threading.



**Make your injection port threads like new!**



Description	qty.	cat.#
Rethreading Tool for $\frac{7}{16}$ " compression fitting (Varian injection ports)	ea.	23019
Rethreading Tool for $\frac{1}{4}$ " Varian-style capillary column fittings	ea.	21893

# Varian GCs

## Replacement Parts

### Capillary Inlet Guide Kit for Varian GCs

- Use as a replacement for Varian 1075 and 1077 split/splitless injectors.
- Use inexpensive 1/16-inch fittings instead of a nonstandard nut.
- Quick and simple installation.
- Ideal for two-hole ferrule installation.



Complete kit includes splitter guide, 1/4-inch nut, 1/4-inch VespeI®/graphite ferrule, and a 1/16-inch nut and ferrule.

Description	Similar to	qty.	cat.#
	Varian part #		
Inlet Guide Kit	03-908358-00	kit	20502

### Low-Volume Injector for Varian Split/Splitless Inlets

- Attaches to the GC inlet without cutting existing injection port lines.
- Allows injections from a syringe onto the column for purge & trap troubleshooting or calibration.
- Siltek® treatment eliminates adsorption of active compounds.
- Order capillary ferrules separately.



Description	qty.	cat.#
Low-Volume Injector for Varian Split/Splitless GC Inlets	kit	21693

## also available

### Looking for autosampler syringes?

Restek carries a full line of autosampler syringes for Varian instruments from both Hamilton and SGE

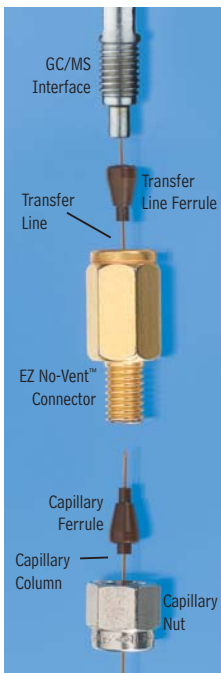
Visit [www.restek.com](http://www.restek.com) and search on syringes.



## EZ No-Vent™ GC/MS Connector

**EZ No-Vent™ GC Column-Mass Spectrometer Connector**

- Change GC/MS columns in minutes without venting—100µm transfer line throttles vacuum and prevents venting.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- Deactivated transfer line keeps analytes focused; high-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.
- For Varian Saturn 2000 Series Mass Spectrometers.



We designed the EZ No-Vent™ GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent™ connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas and enabling you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change. This can save nearly a day of downtime with each column change. The EZ No-Vent™ connector easily attaches to the MS source without special tools or extra plumbing.

***Change columns in minutes—  
without venting!***






Kit installs easily, without special tools or plumbing.

Description	qty.	cat.#
EZ No-Vent™ Connector Kit for Varian Saturn 2000 Series MSs Kit includes: EZ No-Vent™ Connector, two 0.4mm ID ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut.	kit	22423
Replacement ferrules for connecting capillary column to EZ No-Vent™ Connector:		
0.4mm ID (Polyimide)	2-pk.	21015
0.5mm ID (Polyimide)	2-pk.	21016
Replacement ferrules for connecting transfer line to EZ No-Vent™ Connector: 0.4mm ID	2-pk.	21043
Replacement 100µm deactivated transfer line	3 ft.	21018
Replacement EZ No-Vent™ Column Nut	5-pk.	21900
Replacement EZ No-Vent™ Plug	2-pk.	21915
Open-End Wrenches (1/4" x 5/16")	2-pk.	20110

# Inlet Liners for Shimadzu GCs



## Split Liners for 14A GCs

	Benefits/Uses:
 Split	universal, for most common analyses
 Cyclo splitter®	dirty samples, many injections before cleaning required
 Laminar Cup Splitter	high MW compounds





## Splitless Liners for 14A GCs

	Benefits/Uses:
 3.5mm Splitless	trace samples



## DI Liners for 14A GCs (For 0.25/0.32/0.53mm ID Columns)

	Benefits/Uses
 Uniliner®	trace, active samples, high recovery & linearity
 Cyclo-Uniliner®	trace, dirty, high MW active samples, high recovery & linearity



## Split Liners for 17A, 2010, & 2014 GCs

	Benefits/Uses:
 1mm Split	purge & trap, fast GC
 3.5mm Split	universal, for most common analyses
 Split Precision™ Liner w/ Wool	dirty samples, trace samples
 Cyclo splitter®	dirty samples, many injections before cleaning required

## Splitless Liners for 17A, 2010, & 2014 GCs

	Benefits/Uses:
 3.5mm Splitless	universal, trace samples
 Double Gooseneck	reduces backflash and catalytic decomposition
 Single Gooseneck	reduces backflash, also operates in DI mode

## Split/Splitless Liners for 17A, 2010, & 2014 GCs

	Benefits/Uses:
 Split/Splitless w/ Wool	universal, for most common analyses
 Siltek® Split/Splitless w/ Wool	universal, for most common analyses

\*Nominal ID at syringe needle expulsion point.

## ordering **note**

For descriptions of liner deactivations, packings, and tools, see pages 3-5.

ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 99	221-32544-01	20860	20861	20862
3.5 ID 5.0 OD x 99	—	20870	20871	—
3.5 ID 5.0 OD x 99	—	20868	20869	—
ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 99	221-32544-00	20863	20864	20865
ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 99	—	20876	20877	—
3.5 ID 5.0 OD x 99	—	20893	20894	—
ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 5.0 OD x 95	—	20976	20977	20978
3.5 ID 5.0 OD x 95	221-41444-01	22283	22284	22285
3.5 ID 5.0 OD x 95	—	21020	21021	—
3.5 ID 5.0 OD x 95	—	22072	22073	—
ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 95	221-48335-01	22286	22287	—
3.5 ID 5.0 OD x 95	—	20958	20959	20960
3.5 ID 5.0 OD x 95	—	20961	20962	20963
ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 95	221-41444-00	20955	20956	20957
3.5 ID 5.0 OD x 95	—	20955-213.1	20956-213.5	20957-213.25

All liners are  
**100%**  
deactivated






All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

# Inlet Liners for Shimadzu GCs

## SPME Liner for 17A, 2010, & 2014 GCs

	Benefits/Uses
 SPME Liner	ideal for low volume SPME applications

## DI Liners for 17A, 2010, & 2014 GCs (For 0.25/0.32/0.53mm ID Columns)

	Benefits/Uses
 Uniliner® w/ Wool	trace, dirty, high MW active samples, high recovery & linearity
 Open-top Drilled Uniliner® (hole near top)	trace, active samples, high recovery & linearity
 Open-top Drilled Uniliner® (hole near bottom)	trace, active samples, high recovery & linearity
 Gooseneck Drilled Uniliner® (hole near top)	trace, active samples, high recovery & linearity
 Gooseneck Drilled Uniliner® (hole near bottom)	trace, active samples, high recovery & linearity

## Liners for 17A PTV GCs

	Benefits/Uses
 17A PTV Liner w/ Wool	trace, dirty, high & low MW active samples

\*Nominal ID at syringe needle expulsion point.

## ordering note

For descriptions of liner deactivations, packings, and tools, see pages 3-5.

All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP) deactivated unless otherwise requested. See pg. 3.

## tech tip

### DI Liners for Shimadzu GCs

Use the Drilled Uniliner® liner with the hole near the bottom for semivolatile analysis or when compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® liner with the hole near the top for chlorinated pesticides analysis, aqueous injections, as well as for analysis in which the compounds of interest elute away from the solvent peak.

### Siltek® Treated Metal Inlet Liners for Shimadzu GCs

- Won't crack, chip, or break like glass liners.
- Inertness equivalent to glass liners.
- Excellent response for pesticides, phenols, and other active compounds.



Liner Type (3.5mm ID x 5.0mm OD x 95mm)	qty.	cat.#
95mm Split/Splitless Siltek® Treated Metal Inlet Liners w/Wool	5-pk.	21003



ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
.75 ID 5.0 OD x 95	—	22278	22279	—

ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 95	—	21713	21719	—
3.5 ID 5.0 OD x 95	—	21285	21286	—
3.5 ID 5.0 OD x 95	—	21287	21288	—
3.5 ID 5.0 OD x 95	—	21289	21290	—
3.5 ID 5.0 OD x 95	—	21291	21292	—

ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
1.6 ID 4.0 OD x 95	225-09212-01	21705	21706	21707

### 5mm Ferrules for Shimadzu 17A GCs

- For use with packed columns.
- Graphite composition.



Description	qty.	cat.#
5mm Ferrules for Shimadzu 17A GCs	10-pk.	21121

### Viton® O-Rings for Shimadzu 17A, 2010, and 2014 GCs



Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#
Viton® O-Rings for Shimadzu 17A, 2010, and 2014 GCs	250°C	036-11203-84	10-pk.	21477

### Graphite O-Rings for Shimadzu 17A, 2010, and 2014 GCs



Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#
Graphite O-Rings for Split Liners	450°C	221-48393-91	5-pk.	20243
Graphite O-Rings for Splitless Liners	450°C	221-47222-91	5-pk.	20244

# Shimadzu GCs

## Inlet Supplies

### Plug Septa for Shimadzu GCs



Thermolite® Septa (usable to 340°C inlet temp.)		IceBlue™ Septa (usable to 250°C inlet temp.)		BTO® Septa (usable to 400°C inlet temp.)	
qty.	cat.#	qty.	cat.#	qty.	cat.#
25-pk.	27153	50-pk.	27170	50-pk.	27118
50-pk.	27154	100-pk.	27171	100-pk.	27119
100-pk.	27155				

### Septum Nut for Shimadzu 17A, 2010, and 2014 GCs

- One piece design for ease of installation and removal.
- Made of clear anodized aluminum and high-quality stainless steel.



Description	Similar to Shimadzu part #	qty.	cat.#
Septum Nut for Shimadzu 17A, 2010, and 2014 GCs	221-41286-00 221-44584-00	ea.	22079

### Injector Nut Kit for Shimadzu 17A, 2010, and 2014 GCs

- Includes 17A injector nut, 0.4mm graphite ferrule, and 1/16-inch stainless steel capillary nut.



Description	qty.	cat.#
Injector Nut Kit for Shimadzu 17A, 2010, and 2014 GCs	kit	21895
Siltek® Treated Injector Nut Kit for Shimadzu 17A, 2010, and 2014 GCs	kit	22331

### Capillary Nut for Shimadzu 17A, 2010, and 2014 GCs

- Meets manufacturer's performance.



Description	Similar to Shimadzu part #	qty.	cat.#
Capillary Nut for Shimadzu 17A, 2010, and 2014 GCs	221-41533-00	2-pk.	22688

### Restek Enhanced Capillary Nut for Shimadzu 17A, 2010, and 2014 GCs

- Restek's design eliminates the slot, increasing lifetime and durability.
- Meets or exceeds manufacturer's performance.



Description	Similar to Shimadzu part #	qty.	cat.#
Restek Enhanced Capillary Nut for Shimadzu 17A, 2010, and 2014 GCs	221-41533-00	2-pk.	20375

### 5mm Stainless Steel Uniliner® Liner Adaptor Fitting for Shimadzu Packed Column GCs

This specially-designed fitting allows a Shimadzu packed column injection port to accept 0.53mm ID columns. Use a Shimadzu 5mm nut and ferrule to install the adaptor fitting into the injection port. Includes a 1/16-inch nut and 0.8mm ID graphite ferrule.



Description	qty.	cat.#
5mm Stainless Steel Uniliner® Liner Adaptor Fitting for Shimadzu Packed Column GCs	ea.	20312

# Shimadzu GCs

## Tools

### Injector Wrench for Shimadzu 17A, 2010, and 2014 GCs

- Designed specifically for removing Shimadzu injection ports.
- High-quality stainless steel construction.



Description	Similar to Shimadzu part #	qty.	cat.#
Injector Wrench for Shimadzu 17A, 2010, and 2014 GCs	221-46977-00	ea.	21159

### Capillary Installation Gauge for Shimadzu 17A, 2010, & 2014 GCs

- Seats ferrule onto column for consistent installations.
- Prevents crushed column ends.
- Made from high-quality stainless steel.



Description	qty.	cat.#
Capillary Installation Gauge for Shimadzu 17A, 2010, and 2014 GCs	ea.	22333

### Open-End Wrench Set for use with Shimadzu 17A, 2010, and 2014 Capillary Installation Gauge



Description	qty.	cat.#
$\frac{1}{4}$ " x $\frac{5}{16}$ " and 10mm x 11mm Open-End Wrench Set for use with Shimadzu 17A, 2010, and 2014 Capillary Installation Gauge	ea.	22334

### Make Life Easier (MLE) Capillary Tool Kit for Shimadzu GCs

#### Includes:






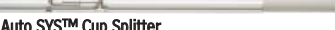



- capillary installation gauge for Shimadzu GCs
- injector wrench for Shimadzu GCs
- $\frac{1}{8}$ ",  $\frac{3}{16}$ ", and  $\frac{1}{4}$ " nylon brushes
- $\frac{1}{4}$ ",  $\frac{3}{8}$ ", and  $\frac{3}{16}$ " stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65mm OD)
- $\frac{1}{4}$ " x  $\frac{5}{16}$ " open end wrench
- $\frac{3}{8}$ " x  $\frac{7}{16}$ " open end wrench
- 6mm x 7mm open end wrench
- 8mm x 10mm open end wrench
- 16mm x 17mm open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insertor tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)





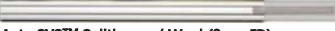



Description	qty.	cat.#
MLE Capillary Tool Kit for Shimadzu GCs	kit	22182

# Inlet Liners for PerkinElmer GCs




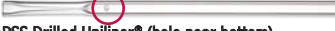
## Split Liners

	Benefits/Uses:
 <b>Baffle Splitter</b>	universal, for most common analyses
 <b>Cup Splitter</b>	high & low MW compounds
 <b>Cyclo splitter®</b>	dirty samples, many injections before cleaning required
 <b>Auto SYS™ Splitter w/ Wool</b>	universal for most common analyses
 <b>Siltek® Auto SYS™ Splitter w/ Wool</b>	universal for most common analyses
 <b>Auto SYS™ Cup Splitter</b>	high & low MW compounds
 <b>Auto SYS™ Cyclo splitter®</b>	dirty samples, many injections before cleaning required
 <b>Auto SYS™ Laminar Cup Splitter</b>	high MW compounds
 <b>Auto SYS™ Split Precision™ Liner w/ Wool</b>	dirty samples, trace samples

## Splitless Liners

	Benefits/Uses:
 <b>Splitless (2mm ID)</b>	trace samples
 <b>Auto SYS™ Splitless</b>	headspace & purge & trap
 <b>Auto SYS™ Splitless w/ Wool (2mm ID)</b>	trace samples
 <b>Siltek® Auto SYS™ Splitless w/ Wool (2mm ID)</b>	trace samples
 <b>Auto SYS™ Double Gooseneck</b>	trace, active samples up to 4µL
 <b>Auto SYS™ Cyclo Double Gooseneck</b>	trace, dirty, active samples, up to 4µL

## PSS Liners

	Benefits/Uses:
 <b>PSS Split/Splitless (1mm ID)</b>	trace samples
 <b>Auto SYS™ XL PSS Split/Splitless w/ Wool</b>	most common analyses
 <b>PSS Drilled Uniliner® (hole near top)</b>	trace, active samples, high recovery & linearity
 <b>PSS Drilled Uniliner® (hole near bottom)</b>	trace, active samples, high recovery & linearity

\*Nominal ID at syringe needle expulsion point.

## ordering note

For descriptions of liner deactivations, packings, and tools, see pages 3-5.

ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 100	N6502008	20736	20737	—
3.5 ID 5.0 OD x 100	—	20739	20740	—
3.5 ID 5.0 OD x 100	—	20745	20746	—
4.0 ID 6.2 OD x 92.1	N6502009	20832	20833	20834
4.0 ID 6.2 OD x 92.1	N6502010	20832-213.1	20833-213.5	20834-213.25
4.0 ID 6.2 OD x 92.1	N6502011	20835	20836	—
4.0 ID 6.2 OD x 92.1	N6502012	20910	20911	—
4.0 ID 6.2 OD x 92.1	—	20827	20828	—
4.0 ID 6.2 OD x 92.1	N6121020	21026	21027	—

ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
2.0 ID 5.0 OD x 100	N6502007	20730	20731	20732
1.0 ID 6.2 OD x 92.1	N6502006	21272	21273	21274
2.0 ID 6.2 OD x 92.1	N6121021	20829	20830	20831
2.0 ID 6.2 OD x 92.1	N6502004	20829-213.1	20830-213.5	20831-213.25
4.0 ID 6.2 OD x 92.1	N6502003	20853	20854	—
4.0 ID 6.2 OD x 92.1	N6502005	20899	20900	—

ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 4.0 OD x 86.2	N6121006	20738	20741	—
2.0 ID 4.0 OD x 86.2	N6121004	21717	21718	—
2.0 ID 4.0 OD x 86.2	— <b>new!</b>	22986	22987	—
2.0 ID 4.0 OD x 86.2	— <b>new!</b>	22988	22989	—

All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

# Inlet Liners for PerkinElmer GCs

## Zero Dilution Liners

For PerkinElmer Auto SYS™ and Clarus GCs

**Benefits/Uses:**



Zero Dilution Inner Liner

headspace analysis



Zero Dilution Outer Liner

headspace analysis

For PerkinElmer GCs with PSS Inlets

**Benefits/Uses:**



Zero Dilution Inner Liner

headspace analysis



Zero Dilution Outer Liner

headspace analysis

## PTV Liners

**Benefits/Uses:**



PTV Press-Tight®

high linearity for  
0.25, 0.32, & 0.53mm ID columns



PTV Injector

high linearity

## DI Liners (0.32/0.53mm ID)

**Benefits/Uses:**



Uniliner®

trace, active samples,  
high recovery & linearity



Cyclo-Uniliner®

trace, dirty, active samples,  
high linearity



Auto SYS™ Open-top Uniliner® w/ Wool

trace, dirty, active samples,  
high recovery & linearity



Auto SYS™ Cyclo-Uniliner®

trace, dirty, high MW  
active samples, high linearity

## DI Liners (For 0.32/0.53mm ID Columns)

**Benefits/Uses**



Auto SYS™ Drilled Uniliner® (hole near top)

trace, active samples,  
high recovery & linearity



Auto SYS™ Drilled Uniliner® (hole near bottom)

trace, active samples,  
high recovery & linearity



Auto SYS™ Gooseneck Drilled Uniliner®  
(hole near top)

trace, active samples,  
high recovery & linearity



Auto SYS™ Gooseneck Drilled Uniliner®  
(hole near bottom)

trace, active samples,  
high recovery & linearity

\*Nominal ID at syringe needle expulsion point.

## tech tip

### DI Liners for PerkinElmer GCs

Use the Drilled Uniliner® with the hole near the bottom for analysis in which compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® with the hole near the top for aqueous injections, as well as analysis in which the compounds of interest elute away from the solvent peak.

ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 2.0 OD x 73	N1011446	22990	22991	—
2.5 ID 6.2 OD x 90	N1011445	22992	22993	—
ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 2.0 OD x 73	N1011446	22990	22991	—
2.5 ID 4.2 OD x 83	N1011447 <b>new!</b>	24978	24979	—
ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 2.0 OD x 88	—	20733	20734	20735
1.0 ID 2.0 OD x 88	—	20742	20743	20744
ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
3.5 ID 5.0 OD x 100	N6502018	20855	20856	—
3.5 ID 5.0 OD x 100	N6502019	20857	20858	—
4.0 ID 6.2 OD x 92.1	N6502016	20837	20838	—
4.0 ID 6.2 OD x 92.1	N6502017	20839	20840	—
ID*/OD & Length (mm)	Similar to PE part #	cat.# ea.	cat.# 5-pk.	
4.0 ID 6.2 OD x 92.1	N6121022	20819	20822	
4.0 ID 6.2 OD x 92.1	N6502013	21293	21294	
4.0 ID 6.2 OD x 92.1	N6502014	21295	21296	
4.0 ID 6.2 OD x 92.1	N6502015	21297	21298	

All liners are  
**100%**  
deactivated

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

# PerkinElmer GCs

## Inlet Supplies

### Graphite O-Rings for PerkinElmer

#### Auto SYS™ XL PSS

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Graphite O-Rings for Perkin Elmer Auto SYS™ XL PSS	450°C	N610-1751	10-pk.	21475
Graphite O-Rings for Perkin Elmer Auto SYS™ XL PSS	450°C	N610-1751	25-pk.	21476



### Silicone O-Rings for PerkinElmer

#### Auto SYS™ GCs

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Silicone O-Rings for PerkinElmer Auto SYS™ GCs	250°C	N6101374	10-pk.	20262



### Viton® O-Rings for PerkinElmer PSS

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Viton® O-Rings for PerkinElmer PSS	250°C	N6101747	10-pk.	20366



### 11mm Septa for PerkinElmer GCs

Thermolite® Septa (usable to 340°C inlet temp.)		IceBlue™ Septa (usable to 250°C inlet temp.)		BTO® Septa (usable to 400°C inlet temp.)	
qty.	cat.#	qty.	cat.#	qty.	cat.#
25-pk.	27141	50-pk.	27162	50-pk.	27110
50-pk.	27142	100-pk.	27163	100-pk.	27111
100-pk.	27143				



### Septum Cap for PerkinElmer Auto SYS™ XL

- Made of clear anodized aluminum and high-quality stainless steel.
- Meets or exceeds manufacturer's performance.

Description	Similar to PE part #	qty.	cat.#
Septum Cap for PerkinElmer Auto SYS™ XL	N6100153	ea.	22322



### Injector Adaptor for PerkinElmer Auto SYS™ XL

- Made of high-quality stainless steel.
- Meet or exceed manufacturer's performance.
- Siltek® treated version available for increased inertness.

Description	Similar to PE part #	qty.	cat.#
<b>For use with PE style capillary nuts</b>			
A) Injector Adaptor for PerkinElmer Auto SYS™ XL	N6100157	ea.	22318
B) Siltek® Treated Injector Adaptor for PerkinElmer Auto SYS™ XL	—	ea.	22320
<b>For use with 1/16" compression style nuts</b>			
C) Injector Adaptor for PerkinElmer Auto SYS™ XL	—	ea.	22319
D) Siltek® Treated Injector Adaptor for PerkinElmer Auto SYS™ XL	—	ea.	22321





# PerkinElmer GCs

## FID Parts & Tools

### FID Capillary Column Adaptor for PerkinElmer Auto SYS™ XL

- Made of high-quality stainless steel.
- Meet or exceed manufacturer's performance.



Description	Similar to PE part #	qty.	cat.#
<b>For use with PE style capillary nuts</b>			
A) FID Capillary Column Adaptor for PerkinElmer Auto SYS™ XL	N6120020	ea.	22608
<b>For use with 1/8" compression style nuts</b>			
B) FID Capillary Column Adaptor for PerkinElmer Auto SYS™ XL	—	ea.	22609

### FID Replacement Parts for PerkinElmer Auto SYS™ XL and Clarus 500

- Made of high-quality stainless steel.
- Meet or exceed manufacturer's performance.



Description	Similar to PE part #	qty.	cat.#
FID Jet for PerkinElmer Auto SYS™ XL and Clarus 500	N6100361	ea.	23038
Auto-Ignite FID Replacement Part Kit for PerkinElmer Auto SYS™ XL and Clarus 500	N6103167 N6103175 N6101085 N6001204 09912223	kit	23061
Nozzle Insulator for PerkinElmer Auto SYS™ XL and Clarus 500	N6101085	ea.	23062
FID Body for PerkinElmer Auto SYS™ XL and Clarus 500	N6100364	ea.	23063

### Make Life Easier (MLE) Capillary Tool Kit for PerkinElmer GCs

#### Includes:

- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insertor tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)




**Everything  
you need in  
one kit!**




Description	qty.	cat.#
MLE Capillary Tool Kit for PerkinElmer GCs	kit	22185

# Inlet Liners for Thermo Scientific GCs

## Split Liners for 4000-5000-6000 Series GCs

	Benefits/Uses:
 <b>Laminar Cup Splitter</b>	high MW compounds
 <b>Cycloplitter®</b>	dirty samples, many injections before cleaning required
 <b>Cup Splitter Gooseneck</b>	high & low MW compounds




## Splitless Liners for 4000-5000-6000 Series GCs

	Benefits/Uses:
 <b>Splitless (2mm ID)</b>	trace samples
 <b>Splitless (4mm ID)</b>	trace samples






## DI Liners for 4000-5000-6000 Series GCs (0.32/0.53mm ID)

	Benefits/Uses:
 <b>Open-top Uniliner® w/ Wool</b>	trace, dirty, active samples, high recovery & linearity

## Split Liners for TRACE™, 8000, 8000 TOP & Focus SSL

	Benefits/Uses:
 <b>1mm Split</b>	purge & trap & fast GC
 <b>3mm Split</b>	universal
 <b>5mm Split</b>	universal
 <b>Laminar Cup Splitter</b>	high MW compounds
 <b>Cup Splitter</b>	high & low MW compounds
 <b>5mm Split Precision™ Liner w/ Wool</b>	dirty samples, trace samples

## Split Liners for TRACE™, 8000, 8000 TOP & Focus SSL

	Benefits/Uses:
 <b>Splitless (3mm ID)</b>	trace samples
 <b>Siltek® Splitless (3mm ID)</b>	trace samples
 <b>Splitless (5mm ID)</b>	trace samples
 <b>Double Gooseneck</b>	trace, active samples up to 4µL
 <b>5mm Splitless Precision™ Liner w/ Wool</b>	dirty samples, trace samples

\*Nominal ID at syringe needle expulsion point.

deactivated  
100%

All liners are shipped intermediate polarity (IP)  
deactivated unless otherwise requested. See pg. 3.

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
4.0 ID 5.4 OD x 79.5	—	20809	20810	—
4.0 ID 5.4 OD x 79.5	—	20817	20818	—
4.0 ID 5.4 OD x 79.5	—	20885	20886	—

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
2.0 ID 5.4 OD x 79.5	—	20811	20812	20813
4.0 ID 5.4 OD x 79.5	—	20814	20815	20816

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
4.0 ID 5.4 OD x 79.5	—	20841	20842	—





ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 8.0 OD x 105	453 20075	20916	20917	—
3.0 ID 8.0 OD x 105	453 20030	20936	20937	20938
5.0 ID 8.0 OD x 105	453 20031	20939	20940	20941
4.0 ID 8.0 OD x 105	—	20948	20949	—
4.0 ID 8.0 OD x 105	—	20950	20951	—
5.0 ID 8.0 OD x 105	—	22288	22289	—

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
3.0 ID 8.0 OD x 105	453 20032	20942	20943	20944
3.0 ID 8.0 OD x 105	—	20942-214.1	20943-214.5	20944-214.25
5.0 ID 8.0 OD x 105	453 20033	20945	20946	20947
4.0 ID 8.0 OD x 105	—	20952	20953	—
5.0 ID 8.0 OD x 105	—	21028	21029	—




# Inlet Liners for Thermo Scientific GCs

## Split Liners for TRACE™ PTV

C O L U M N I N S T A L L S T H I S E N D

	Benefits/Uses:
 <b>1mm ID Glass Liner</b>	trace samples, high recovery & linearity
 <b>2mm ID Glass Liner</b>	universal
 <b>Baffle Liner</b>	trace samples
 <b>Siltek® Baffle Liner</b>	trace samples

## Split Liners for TRACE™, 8000, 8000 TOP & Focus SSL (0.32 & 0.53mm ID Columns)

	Benefits/Uses:
 <b>Uniliner® w/ Wool</b>	trace, active samples, high recovery, & linearity
 <b>Drilled Uniliner® (hole near top)</b>	trace, active samples, high recovery, & linearity
 <b>Drilled Uniliner® (hole near bottom)</b>	trace, active samples, high recovery, & linearity

\*Nominal ID at syringe needle expulsion point.

## tech tip

### DI Liners for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL

Use the Drilled Uniliner® with the hole near the bottom for analysis in which compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® with the hole near the top for aqueous injections, as well as analysis in which the compounds of interest elute away from the solvent peak.

### Siltek® Treated Metal Inlet Liners for Thermo Scientific GCs

- Won't crack, chip, or break like glass liners.
- Inertness equivalent to glass liners.
- Excellent response for pesticides, phenols, and other active compounds.



Liner Type (5.0mm ID x 8.0mm OD x 105mm)	ea.	5-pk.
5mm ID Split/Splitless Siltek® Treated Metal Inlet Liners w/Wool	—	21004
Liner Type (2.75mm OD x 120mm)	ea.	5-pk.
1mm ID Split/Splitless Siltek® Treated Metal Inlet Liners*	21080	21081
2mm ID Split/Splitless Siltek® Treated Metal Inlet Liners*	21082	21083
Liner Type (0.8mm ID x 2.75mm OD x 120mm)	ea.	5-pk.
SPME Siltek® Treated Metal Inlet Liner for TRACE™ 2000 GCs & PTV Inlets	22598	22599

\*Works with PTV injectors.

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
1.0 ID 2.75 OD x 120	453 22054	21114	21115	—
2.0 ID 2.75 OD x 120	453 22045	21116	21117	—
2.0 ID 2.75 OD x 120	—	22074	22075	—
2.0 ID 2.75 OD x 120	—	22074-214.1	22075-214.5	—

ID*/OD & Length (mm)	Similar to TF part #	ea.	cat.# 5-pk.	25-pk.
5.0 ID 8.0 OD x 105	—	21005	21006	—
5.0 ID 8.0 OD x 105	—	22411	22412	—
5.0 ID 8.0 OD x 105	—	22413	22414	—

### Graphite Sealing Ring for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL Instruments



Description	Max. temp.	Similar to TF part #	qty.	cat.#
Graphite Sealing Ring for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL	450°C	290-334-06	ea.	21898
Graphite Sealing Rings for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL	450°C	290-334-06	2-pk.	21899

### Inlet Liner Seals for Thermo Scientific TRACE™ PTV



Description	Max. temp.	Similar to TF part #	qty.	cat.#
Inlet Liner Seals for Thermo Scientific TRACE™ PTV	450°C	29013417	2-pk.	21392

### Silver Seals for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL



Description	Similar to TF part #	qty.	cat.#
A) Silver Seal for Split/Splitless Injector	29033629	10-pk.	23057
A) Silver Seal for Split/Splitless Injector	29033629	20-pk.	23058
B) Silver Seal for Capillary Detector Base Body	29037100	10-pk.	23059
B) Silver Seal for Capillary Detector Base Body	29037100	20-pk.	23060

# Thermo Scientific GCs

## Inlet Supplies

### Graphite Ferrules—For M4 Fittings for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL



Ferrule ID	Fits Column ID	Similar to TS part #	Graphite 2-pk.	Graphite 10-pk.
0.3mm	0.10/0.15mm	—	22221	22222
0.4mm	0.18/0.28mm	290-13488	20280	20281
0.5mm	0.32mm	290-13487	20282	20283
0.8mm	0.45/0.53mm	290-13486	20284	20285

### 17mm Septa for Thermo Scientific TRACE™ and Focus SSL



Septum Diameter	25-pk.	50-pk.	100-pk.
<b>Thermolite® Septa</b> (usable to 340°C inlet temp.)			
9mm	27132	27133	27134
9.5mm (3/8")	27135	27136	27137
17mm	27150	27151	27152
<b>IceBlue™ Septa</b> (usable to 250°C inlet temp.)			
9mm	—	27156	27157
9.5mm (3/8")	—	27158	27159
17mm	—	27168	27169
<b>BTO® Septa</b> (usable to 400°C inlet temp.)			
9mm CenterGuide™	—	27104	27105
9.5mm (3/8")	—	27106	27107
17mm CenterGuide™	—	27116	27117

### HANDY septum size chart

Instrument	Septum Diameter (mm)
<b>Thermo Scientific</b>	
TRACE™ GC, GCQ w/TRACE™, PTV, 8000 series	17
<b>Finnigan (TMQ)</b>	
GC 9001, GCQ, QCQ™, TRACE™ 2000	9.5

### Septum Cap for Split/Splitless Injector on Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL



Description	Similar to TS part #	qty.	cat.#
Septum Cap for Split/Splitless Injector on Thermo Scientific TRACE™ and Focus SSL	350 01 050	ea.	24971

### Septa Holder Kits for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL

- Includes septum support and holder.
- Made from high-quality stainless steel.



Description	Similar to TS part #	qty.	cat.#
A) Septa Holder for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL	233 030 15 350 054 335	kit	21299
B) Silcosteel®-AC Treated Septa Holder for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL	233 030 15 350 054 33	kit	24972

# Thermo Scientific GCs

## Replacement Parts

### Adapters for Capillary Columns on Thermo Scientific TRACE™ and Focus SSL

- Use same installation distance as manufacturer's adapters.
- Made of high-quality stainless steel.



Description	Similar to TS part #	qty.	cat.#
<b>For use with standard 1/16" ferrules.</b>			
A) Adapter for Capillary Column on Detector Base	—	ea.	24916
B) Adapter for Capillary Column on Split/Splitless Injector	—	ea.	24917
<b>For use with M4 ferrules.</b>			
C) Adapter for Capillary Column on Detector Base <b>new!</b>	347 25 436	2-pk.	24969
D) Adapter for Capillary Column on Split/Splitless Injector <b>new!</b>	347 05 451	ea.	24970

### Fixing Nut for Capillary Column for Split/Splitless Injector on Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL

- Made of high-quality stainless steel.



Description	Similar to TS part #	qty.	cat.#
Fixing Nut for Capillary Column for Split/Splitless Injector on Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL	350 32 423	5-pk.	24973

### Nut for Terminal Fitting for Thermo Scientific TRACE™ GCs

Description	Similar to TS part #	qty.	cat.#
Nut for Terminal Fitting for Thermo Scientific TRACE™ GCs <b>new!</b>	350 221 25	2-pk.	24896



### Gold-Plated Liner Cap for Split/Splitless Injector on Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL

Description	Similar to TS part #	qty.	cat.#
Gold-Plated Liner Cap for Split/Splitless Injector on Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL <b>new!</b>	290 042 90	ea.	22089



# Thermo Scientific GCs

## Tools

### Liner Cap Removing Tool for Thermo Scientific GCs:

#### Focus GC / TRACE™ GC / Ultra/TRACE™ GC x GC

- Easily loosens the liner cap from the injector.
- Unique, ergonomic handle—easy to grip.



Description	Similar to TS part #	qty.	cat.#
Liner Cap Removing Tool for Thermo Scientific GCs	205 070 10	ea.	24937

### Jet Removing Tool for Thermo Scientific GCs:

#### Focus GC / TRACE™ GC / Ultra/TRACE™ GC x GC

- Unique, ergonomic handle—easy to grip.
- Easily loosens the FID jet.



Description	Similar to TS part #	qty.	cat.#
Jet Removing Tool for Thermo Scientific GCs	205 019 00	ea.	24936

### Capillary Installation Gauge for Thermo Scientific TRACE™ and Focus SSL (M4 Ferrules)

- Seats ferrule onto column for consistent installations.
- Prevents crushed column ends.
- Made from high-quality stainless steel.



Description	qty.	cat.#
Capillary Installation Gauge for Thermo Scientific TRACE™ & Focus SSL (M4 ferrules)	ea.	22330

### Metric Wrench Set

High-quality 6 x 7mm, 8 x 10mm, and 16 x 17mm wrenches for tightening a wide variety of fittings.



Description	qty.	cat.#
Metric Wrench Set	set	22997

### Metric 9 Piece Ball-Point Hex Key Set

Includes 9 metric hex keys (Allen wrenches): 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm.



Description	qty.	cat.#
Metric 9 Piece Ball-Point Hex Key Set	set	22999



# Thermo Scientific GCs

## Cool Tools and Supplies

### Make Life Easier (MLE) Capillary Tool Kit for Thermo Scientific GCs

**Includes:**

- capillary installation gauge for Thermo Scientific GCs
- liner cap removing tool for Thermo Scientific GCs
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 6mm x 7mm open end wrench
- 8mm x 10mm open end wrench
- 16mm x 17mm open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insertor tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

**Everything  
you need in  
one kit!**



Description	qty.	cat.#
MLE Capillary Tool Kit for Thermo Scientific GCs	kit	22183

### Transfer Line Reducing Kit for Thermo Scientific TRACE™ and Focus DSQ Mass Spectrometers

- Meets or exceeds manufacturer’s performance.



Description	Similar to TS part #	qty.	cat.#
Transfer Line Reducing Kit for Thermo Scientific TRACE™ and Focus DSQ Mass Spectrometers	76458-2014s 76458-2009s A0101-03151	kit	22082

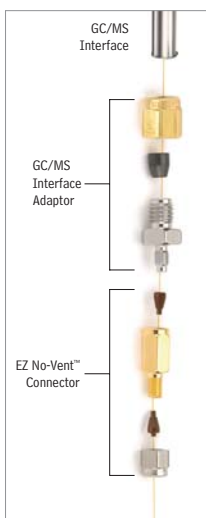
# Thermo Scientific GCs

## EZ No-Vent™ GC/MS Connector

### EZ No-Vent™ GC Column-Mass Spectrometer Connector

- Change GC/MS columns in minutes without venting—100µm transfer line throttles vacuum and prevents venting.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- Deactivated transfer line keeps analytes focused; high-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.
- For Thermo Scientific Focus DSQ GC Mass Spectrometers.

We designed the EZ No-Vent™ GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent™ connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas and enabling you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change. This can save nearly a day of downtime with each column change. The EZ No-Vent™ connector easily attaches to the MS source without special tools or extra plumbing.



***Change columns in minutes—  
without venting!***



Kit installs easily, without special tools or plumbing.

Description	qty.	cat.#
EZ No-Vent™ Connector Kit for Thermo Scientific Focus DSQ GC Mass Spectrometers Kit includes: EZ No-Vent™ Connector, two 0.4mm ID ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut.	kit	22454
Replacement ferrules for connecting capillary column to EZ No-Vent™ Connector:		
0.4mm ID (Polyimide)	2-pk.	21015
0.5mm ID (Polyimide)	2-pk.	21016
Replacement ferrules for connecting transfer line to EZ No-Vent™ Connector: 0.4mm ID	2-pk.	21043
Replacement 100µm deactivated transfer line	3 ft.	21018
Replacement EZ No-Vent™ Column Nut	5-pk.	21900
Replacement EZ No-Vent™ Plug	2-pk.	21915
Open-End Wrenches (1/4" x 5/16")	2-pk.	20110
Open-End Wrenches (3/8" x 7/16")	2-pk.	22455

# Ferrules

## Vespel® Ferrules

- 100% high-temperature polyimide.
- Stable to 350°C.
- Durable, leak-tight.



Vespel® ferrules

## Graphite Ferrules

- Preconditioned to eliminate out-gassing.
- High-purity, high-density graphite.
- Smoother surface and cleaner edges than conventional graphite ferrules.
- Contain no binders that can off-gas or adsorb analytes.
- Stable to 450°C.

## Vespel®/Graphite Ferrules

- 60%/40% Vespel®/graphite blend, offering the best combination of sealing and ease of workability.
- Seal with minimal torque, reusable, and preferred for vacuum and high-pressure uses.
- Stable to 400°C.
- Recommended for mass spec transfer lines.



## Capillary Ferrules—For 1/16-Inch Compression-Type Fittings

Ferrule ID	Fits Column ID	qty.	Vespel®	Graphite	Vespel®/Graphite
0.3mm	< 0.18mm	10-pk.	22213	20233	20275
0.4mm	0.18/0.25/0.28mm	10-pk.	22214	20200	20211
0.4mm	0.18/0.25/0.28mm	50-pk.	—	20227	20229
0.5mm	0.32mm	10-pk.	22215	20201	20212
0.5mm	0.32mm	50-pk.	—	20228	20231
0.6mm	0.28mm**	10-pk.	—	—	20232
0.8mm	0.45/0.53mm	10-pk.	22216	20202	20213
0.8mm	0.45/0.53mm	50-pk.	—	20224	20230
1.0mm	0.75mm*	10-pk.	22217	21058	24912
1.2mm	0.75mm	10-pk.	22218	—	—
1.6mm	1.00mm*	10-pk.	—	21060	—

## Encapsulated Ferrules—For 1/16-Inch Compression Fittings

- Reusable—will not deform and stick in fittings.
- Less torque needed to seal ferrule.
- Restek's unique blend of graphite minimizes fragmentation and outgassing.



Ferrule ID	Fits Column ID	qty.	cat.#
0.4mm	0.25mm	10-pk.	21036
0.5mm	0.32mm	10-pk.	21037
0.8mm	0.53mm	10-pk.	21038

## Compact Ferrules—For Agilent 5890/6890/6850 GCs



Ferrule ID	Fits Column ID	qty.	Graphite	Vespel®/Graphite
0.4mm	0.25/0.28mm	10-pk.	20250	20238
0.4mm	0.25/0.28mm	50-pk.	20251	20239
0.5mm	0.32mm	10-pk.	21007	20248
0.5mm	0.32mm	50-pk.	21008	20249
0.8mm	0.45/0.53mm	10-pk.	20252	20263
0.8mm	0.45/0.53mm	50-pk.	20253	20264
1.0mm	0.75mm*	10-pk.	21059	21056
1.6mm	1.00mm*	10-pk.	21061	21057

\*For micropacked columns.

\*\*For 0.28mm MXT® columns.

## Ferrules

### Standard Ferrules—For $\frac{1}{16}$ -, $\frac{1}{8}$ -, and $\frac{1}{4}$ -Inch Fittings



Fitting Size	Ferrule ID	qty.	Vespel®	Graphite	Vespel® /Graphite
$\frac{1}{4}$ "	$\frac{3}{16}$ "	5-pk.	—	—	20258
$\frac{1}{16}$ "	$\frac{1}{16}$ "	10-pk.	22210	20207	20218
$\frac{1}{8}$ "	$\frac{1}{8}$ "	10-pk.	22211	20208	20219
$\frac{1}{8}$ "	reduce to $\frac{1}{16}$ "	10-pk.	—	20209	20220
$\frac{1}{4}$ "	$\frac{1}{4}$ "	10-pk.	22212	20210	20221
$\frac{1}{4}$ "	reduce to $\frac{1}{8}$ "	10-pk.	22219	20225	20222
$\frac{1}{4}$ "	reduce to $\frac{1}{16}$ "	10-pk.	—	20226	20223

### Two-Hole Ferrules—For $\frac{1}{8}$ -Inch and $\frac{1}{16}$ -Inch Compression-Type Fittings



Fitting Size	Ferrule ID	Fits Column ID	qty.	Vespel® /Graphite
$\frac{1}{16}$ "	0.4mm	0.25/0.28mm	5-pk.	20241
$\frac{1}{16}$ "	0.5mm	0.32mm	5-pk.	20242
$\frac{1}{8}$ "	0.8mm	0.45/0.53mm	5-pk.	20246

### Reducing Ferrules



Fitting Size	Ferrule ID	Fits Column ID	qty.	Graphite	Vespel® /Graphite
$\frac{1}{8}$ "	0.4mm	0.25mm	5-pk.	20205	20254
$\frac{1}{8}$ "	0.5mm	0.32mm	5-pk.	20205	20255
$\frac{1}{8}$ "	0.8mm	0.53mm	5-pk.	20206	20215
$\frac{1}{4}$ "	0.4mm	0.25mm	5-pk.	20203	—
$\frac{1}{4}$ "	0.5mm	0.32mm	5-pk.	20203	20257
$\frac{1}{4}$ "	0.8mm	0.45/0.53mm	5-pk.	20204	20217

### Alumaseal™ Ferrules\*

- Aluminum construction—will not crack or fragment; no more ferrule fragments in the transfer line.
- No retightening required after temperature cycles—excellent for GC/MS.
- Eliminate out-gassing, make leak-tight seals, for less detector noise.
- Unique two-piece design permanently locks on fused silica tubing without causing breakage.
- Will not stick in fittings, unlike Vespel® or graphite.
- Stable to 550°C.
- Use with any  $\frac{1}{16}$ " compression-type fitting.



Ferrule ID	Fits Column ID	qty.	cat.#
0.4mm	0.25mm	10-pk.	21472
0.5mm	0.32mm	10-pk.	21473
0.8mm	0.53mm	10-pk.	21474

\*Patent pending.

# Ferrules

## Teflon® Ferrules

- Upper temperature limit 250°C.
- 100% Teflon®; completely inert.
- One-piece design requires no back ferrule.



Fitting Size	Ferrule ID	qty.	cat.#
$\frac{1}{16}$ "	$\frac{1}{16}$ "	10-pk.	21122
$\frac{1}{16}$ "	0.4mm	10-pk.	21123
$\frac{1}{16}$ "	0.5mm	10-pk.	21124
$\frac{1}{16}$ "	0.8mm	10-pk.	21125
$\frac{1}{8}$ "	$\frac{1}{8}$ "	10-pk.	21126
$\frac{3}{16}$ "	$\frac{3}{16}$ "	10-pk.	21127
$\frac{1}{4}$ "	$\frac{1}{4}$ "	10-pk.	21128

## Graphite Ferrules—For M4 Fittings for Thermo Scientific TRACE™, 8000, 8000 TOP & Focus SSL



Ferrule ID	Fits Column ID	Similar to TS part #	Graphite 2-pk.	Graphite 10-pk.
0.3mm	0.10/0.15mm	—	22221	22222
0.4mm	0.18/0.28mm	290-13488	20280	20281
0.5mm	0.32mm	290-13487	20282	20283
0.8mm	0.45/0.53mm	290-13486	20284	20285

## 5mm Ferrules for Shimadzu 17A GCs

- For use with packed columns.
- Graphite composition.



Description	qty.	cat.#
5mm Ferrules for Shimadzu 17A GCs	10-pk.	21121

## Blank Ferrules—For $\frac{1}{16}$ -Inch Fittings



Fitting Size	Ferrule ID	qty.	Vespel®/Graphite
$\frac{1}{16}$ "	no hole	10-pk.	20240

## tech tip

### Choosing the Right Ferrule

Although graphite and Vespel®/graphite ferrules each have advantages and disadvantages, the choice of ferrule composition is largely a personal preference. Graphite ferrules are soft, easy to seal, stable to 450°C, and contain no binders that might off-gas. Vespel®/graphite ferrules work better for vacuum and high-pressure applications (e.g., GC/MS) because they will not fragment or allow oxygen to permeate into the system, whereas graphite ferrules will. Because Vespel®/graphite ferrules are made from a harder material, they might require retightening after several temperature cycles. Alumaseal™ ferrules are ideal for GC/MS. They will not crack or fragment and require no retightening after temperature cycles.

## Septa

- Precision molding assures consistent, accurate fit.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned glass jars.

### Thermolite® Septa

- Usable to 340°C inlet temperature.
- Excellent puncturability.



Septum Diameter	25-pk.	50-pk.	100-pk.
5mm ( $3/16"$ )	27120	27121	27122
6mm ( $1/4"$ )	27123	27124	27125
7mm	27126	27127	27128
8mm	27129	27130	27131
9mm	27132	27133	27134
9.5mm ( $3/8"$ )	27135	27136	27137
10mm	27138	27139	27140
11mm ( $7/16"$ )	27141	27142	27143
11.5mm	27144	27145	27146
12.5mm ( $1/2"$ )	27147	27148	27149
17mm	27150	27151	27152
Shimadzu Plug	27153	27154	27155

### IceBlue™ Septa

- Usable to 250°C inlet temperature.
- General-purpose septa.
- Excellent puncturability.
- Ideal for SPME.



Septum Diameter	50-pk.	100-pk.
9mm	27156	27157
9.5mm ( $3/8"$ )	27158	27159
10mm	27160	27161
11mm ( $7/16"$ )	27162	27163
11.5mm	27164	27165
12.5mm ( $1/2"$ )	27166	27167
17mm	27168	27169
Shimadzu Plug	27170	27171

### BTO® Septa

- CenterGuide™ design requires less force for initial penetration.
- Usable to 400°C inlet temperature.
- Each batch GC-FID tested.
- Bleed and temperature optimized; ideal for demanding GC and GC/MS applications.



Septum Diameter	50-pk.	100-pk.
5mm CenterGuide™	27100	27101
6mm ( $1/4"$ )	27102	27103
9mm CenterGuide™	27104	27105
9.5mm ( $3/8"$ )	27106	27107
10mm	27108	27109
11mm ( $7/16"$ ) CenterGuide™	27110	27111
11.5mm CenterGuide™	27112	27113
12.5mm ( $1/2"$ ) CenterGuide™	27114	27115
17mm CenterGuide™	27116	27117
Shimadzu Plug	27118	27119

# Septa

## Merlin Microseal Septa for Agilent GCs

- Allow operation from 2 to 100psi (400 Series) or 2 to 30psi (300 Series).
- Top wiper rib improves resistance to particulate contamination; can be taken apart for cleaning.
- High resistance to wear—greatly reduces shedding of septum particles into the injection port liner, eliminating a major source of septum bleed and ghost peaks.
- Longer life—reduces the risk of septum leaks during extended automated runs.
- Maximum temperature—Agilent 6890, 5890 Series II: 325°C; Agilent 5890A: 300°C.



Microseal High-Pressure Septa, 400 Series (100psi)	Merlin#	Similar to Agilent#	cat.#
Standard kit (nut, 2 septa)	404	Not offered	22810
Starter kit (nut, 1 septum)	405	5182-3442	22811
Nut kit (1 nut, fits 300 & 400 series septa)	403	5182-3445	22809
High-pressure replacement septum (1 septum)	410	5182-3444	22812
Microseal Septa, 300 Series (30psi)	Merlin#	Similar to Agilent#	cat.#
Standard kit (nut, 2 septa)	304	5181-8833	22813
Starter kit (nut, 1 septum)	305	5181-8816	22814
Microseal replacement septum (1 septum)	310	5181-8815	22815

## tech tip

### Tips for Handling Septa

All septa, regardless of composition, puncturability, or resistance to thermal degradation will fail if they are mishandled. Overtightening a septum nut invariably will reduce septum lifetime by increasing coring/splitting. All septa contain volatile materials (e.g., phthalates) that are released when the septum is heated (septum bleed). Because most GCs are equipped with a septum purge, septum bleed generally will disappear within 30 minutes after installing a new septum and exposing it to normal injector temperatures. All Restek septa are conditioned and are ready to use without delay.



## looking for gas regulators?

Restek carries ultra-high-purity gas regulators. Please visit [www.restek.com](http://www.restek.com).

# Leak Detector

## Restek Electronic Leak Detector

- Reliable thermal conductivity leak detector.
- Responds to leaks in less than 2 seconds.
- Audible alarm plus LED readout.
- Auto zeros with the touch of a button.
- Built-in rechargeable 7.2-volt battery.



Avoid poor chromatography caused by leaks—leak check your GC system with the Restek Electronic Leak Detector, the affordable, reliable tool for detecting leaks. Features include internal battery charge capability, a low-battery indicator, a battery charge indicator light, yellow lights to signal a nitrogen leak, a repositioned on/off switch to eliminate accidentally powering on the unit, and a probe tip design that prevents debris from entering the unit. The leak detector's technology enables high sensitivity in a compact unit, the autozero feature allows instantaneous zeroing with the touch of a button, and the ergonomic design puts all controls at your fingertips, for maximum ease of use.

The Restek Electronic Leak Detector detects minute leaks of any gas with thermal conductivity different from air. The reference gas inlet draws in ambient air for comparison to air drawn into the sample probe. A thermal conductivity difference between the two indicates a leak, and the leak is revealed to the user by both an LED bar graph and an audible tone. The leak detector operates on one rechargeable 7.2-volt Ni-MH battery (included).

## Leak Detector Facts

Detectable gases: helium, nitrogen, argon, carbon dioxide

Battery: Rechargeable Ni-MH, 7.2-volt

Operating

Temperature Range: 32°-120°F (0°-48°C)

Humidity Range: 0-97%

CE Approved: Yes

Description	qty.	cat.#
Leak Detector with 110Volt Battery Charger	ea.	22451
Leak Detector with 220Volt European Battery Charger	ea.	22451-EUR
Leak Detector with 220Volt UK Battery Charger	ea.	22451-UK

Caution: The Restek Electronic Leak Detector is NOT designed for determining leaks of combustible gases. A combustible gas detector should be used for determining combustible gas leaks under any condition. The Restek Electronic Leak Detector may be used for determining trace amounts of hydrogen in a GC environment only.

## Leak Detector Accessory Kit

The kit includes an adaptor fitting to detect leaks in hard-to-reach locations, and a mounting bracket that can be affixed to the wall or GC.



Verify hard-to-reach leaks with the adaptor fitting.



Leak Detector is easily accessed when stored in the mounting bracket.

Description	qty.	cat.#
Leak Detector Accessory Kit (adaptor fitting for probe, mounting bracket)	kit	22453



# Cutting Tools and Column Caps

## Scoring Wafer with Handle

- Ceramic wafer is serrated on one side and straight-edged on the other to cut both fused silica and metal tubing cleanly.
- Unique, ergonomic handle is made of soft, comfortable rubber.



Hold tubing firmly in one hand, allowing about two inches to extend freely. Hold the scoring wafer at a 45° angle to the tubing. Exert just enough pressure to put a slight arc in the tubing. Pull perpendicularly across the tubing.



The tubing should fall off on its own, or it should easily break at the score with a slight tap of the wafer.



Check the cut against the white of the scoring wafer. Look for a clean, square cut.

***Make clean, square cuts!***

Description	qty.	cat.#
Scoring Wafer with Handle	2-pk.	23015

## Ceramic Scoring Wafers

- Four straight scoring edges for cutting fused silica tubing and four serrated edges for cutting MXT® metal capillary columns.
- Sure-grip handle included.



Description	qty.	cat.#
Ceramic Scoring Wafers	5-pk.	20116

## Sapphire Scribe

- Cuts fused silica tubing.
- Produces a clean, square cut.



Description	qty.	cat.#
Sapphire Scribe	ea.	20182

## Capillary Column Caps

- Attach to the column in seconds to form an airtight seal.
- Increase column lifetime—prevent moisture and air from entering the column during storage.
- Color-coded for identifying detector and injector ends.
- Not recommended for reuse.

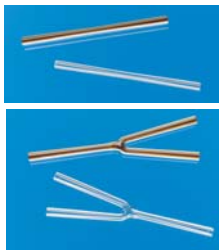


Description	qty.	cat.#
Capillary Column Caps	10-pk.	21044

## Press-Tight® Connectors

### Universal Press-Tight® and “Y” Connectors

- Connect a guard column to an analytical column, repair a broken column, or connect a column outlet to a transfer line.
- Universal “Y” connectors allow dual-column analysis or split a single column flow to two detectors.
- Deactivated Press-Tight® connectors assure better recovery of polar and nonpolar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

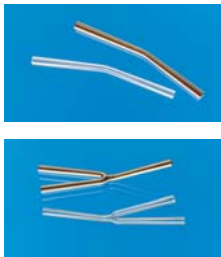


Description	5-pk.	25-pk.
Universal Press-Tight® Connectors	20400	20401
Deactivated, Universal Press-Tight® Connectors	20429	20430
Siltek® Treated Universal Press-Tight® Connectors	20480	20449

Description	ea.	3-pk.
Universal “Y” Press-Tight® Connector	20405	20406
Deactivated Universal “Y” Press-Tight® Connector	20405-261	20406-261
Siltek® Treated Universal “Y” Press-Tight® Connector	20485	20486

### Universal Angled Press-Tight® and “Y” Connectors

- Made from inert fused silica.
- Angle approximates the curvature of a capillary column, reduces strain on column-end connections.
- Deactivated Press-Tight® connectors assure better recovery of polar and nonpolar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).



Description	5-pk.	25-pk.
Universal Angled Press-Tight® Connectors	20446	20447
Deactivated Universal Angled Press-Tight® Connectors	20446-261	20447-261
Siltek® Treated Universal Angled Press-Tight® Connectors	20482	20483

Description	ea.	3-pk.
Universal Angled “Y” Press-Tight® Connector	20403	20404
Deactivated Universal Angled “Y” Press-Tight® Connector	20403-261	20404-261
Siltek® Treated Universal Angled “Y” Press-Tight® Connector	20487	20469

## Connectors

### Vu2 Union™ Connectors

- Connect a guard column to an analytical column.
- Connect a column to a transfer line.
- Connect two columns in series.
- Repair a broken column.

Restek's Vu2 Union™ connector combines the simplicity of a Press-Tight® union with the strength of a metal union. The Vu2 Union™ connector reliably couples one analytical column to another, or to a transfer line or guard column. The columns cannot unexpectedly disconnect, even at temperatures as high as 400°C.

Kits include: Vu2 Union™ body, 2 knurled nuts, 2 Press-Tight® unions, and 4 ferrules

Description	Ferrules Fit Column ID	qty.	cat.#
Vu2 Union™ Connector Kit	0.10/0.15mm	kit	22220
Vu2 Union™ Connector Kit	0.18/0.28mm	kit	21105
Vu2 Union™ Connector Kit	0.32mm	kit	21106
Vu2 Union™ Connector Kit	0.45/0.53mm	kit	21107
Knurled nut		2-pk.	21108



### SeCure™ “Y” Connector Kits

- Connect two analytical columns to a transfer line or guard column.
- Use standard “Y” Press-Tight® connectors and 1/16" graphite ferrules.
- Reliable seal integrity, will not unexpectedly disconnect during temperature-programmed analyses.
- Open design allows visual confirmation of the seal for added confidence in the connection.

Combine the simplicity of a “Y” Press-Tight® connector with the strength of a metal union. The ferrules and knurled nuts hold the fused silica tubing in place, which prevents the tubing from unexpectedly disconnecting, even at temperatures as high as 400°C.

Kits include: SeCure™ “Y” connector body, 3 knurled nuts, “Y” Universal Press-Tight® union, 3 ferrules.

Description	Ferrules Fit Column ID	qty.	cat.#
SeCure™ “Y” Connector Kit	0.18/0.25/0.28mm	kit	20276
SeCure™ “Y” Connector Kit	0.32mm	kit	20277
SeCure™ “Y” Connector Kit	0.45/0.53mm	kit	20278
Knurled nut		3-pk.	20279



# GET A GRRP!

Genuine Restek Replacement Parts



In addition to the Agilent 5890, Restek offers replacement parts for most manufacturers' instruments. Use our handy Genuine Restek Replacement Parts minicatalogs to help you select the supplies and replacement parts you need for your specific GC. We have customized GRRP minicatalogs for each major instrument manufacturer to simplify your product search. **Download these and other pieces from our website at [www.restek.com/grrp](http://www.restek.com/grrp).**

- Genuine Restek Replacement Parts for **Agilent** GCs (lit. cat.# 59627F)
- Genuine Restek Replacement Parts for **PerkinElmer** GCs (lit. cat.# 580038)
- Genuine Restek Replacement Parts for **Shimadzu** GCs (lit. cat.# 580037)
- Genuine Restek Replacement Parts for **Thermo Scientific** GCs (lit. cat.# 580039)
- Genuine Restek Replacement Parts for **Varian** GCs (lit. cat.# 59224A)



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