

GC ACCESSORIES INSTRUMENT SUPPLIES

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RESTEK

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11/12

NEW Restek ProFLOW 6000 Electronic Flowmeter**State-of-the-art features include:**

- Measures volumetric flow for gases across a range of 0.5-500 mL/min.
- NIST traceable calibration.
- Ex rating (electrical apparatus for explosive gas atmospheres) for hydrogen and related gas types.
- Accuracy of $\pm 2\%$ of flow or ± 0.2 mL/min., whichever is greater.
- Over range warning indicator.
- Auto shut-off feature.
- Use as a bench-top or hand-held unit.
- Ergonomic design and side grips for comfort.
- Measures most gas types.*
- Convenient carrying/storage case included.
- Uses 2-AA batteries (included).
- Data output via USB port.
- 1-year warranty.
- Recalibration service available.

Flowmeters that can measure flammable gases are becoming mandatory, due to the increased use of hydrogen in chromatography. With its Ex rating, the Restek ProFLOW 6000 Flowmeter is designed specifically with explosive and flammable gases in mind.

The new Restek ProFLOW 6000 is the only flowmeter you need for any type of chromatography gas measurement because of its wide range of capabilities. The ProFLOW 6000 is an electronic device capable of measuring volumetric flow for most gases. Real-time measurements can be made for various types of flow paths, including continually changing gas types. This portable unit is designed for easy hand-held use, and the stand adds bench-top convenience.

Flowmeter Facts:

Type of flowmeter:	volumetric
Battery:	2AA
Operating Temp. Range:	32-120°F (0-48°C)
Warranty:	one year
Certifications:	CE, Ex
Compliance:	WEEE, RoHS

Description	qty.	cat.#	price
Restek ProFLOW 6000 Electronic Flowmeter with Hard-Sided Carrying Case	ea.	22656	
ProFLOW 6000 Recalibration Service	ea.	22656-R	
Soft-Side Storage Case	ea.	22657	

*The flowmeter is designed to measure clean, dry, non-corrosive gases.



22657

Optional soft-side storage case is ideal for storing your flowmeter in smaller spaces, such as your tool box.

restek recommends

Recalibrate your ProFLOW 6000 Flowmeter once every year. Prolonged failure to recalibrate your unit may result in increased error. To always get the most accurate flowmeasurements, send in your flowmeter for recalibration (cat.# 22656-R).

Leak Detector



22839



22839

Hard-sided carrying case included with purchase of unit.



22657

Optional soft-side storage case is ideal for storing your leak detector in smaller spaces, such as your tool box.

Verify hard-to-reach leaks using the small probe adaptor.



22658

tech tip

Avoid using liquid leak detectors on a GC! Liquids can be drawn into the system.

Restek Electronic Leak Detector

Don't let a small leak turn into a costly repair—protect your instrument and analytical column by using a Restek Leak Detector.

Features & Benefits include:

- Optimized sample flow path.
- New ergonomic, hand-held design.
- Rugged side grips for added durability.
- Handy probe storage for cleanliness and convenience.
- Longer lasting battery, up to 6 hours of continuous use.
- Automatic shut-off.
- A convenient carrying and storage case.
- Easy to clean probe assembly.
- A universal charger set (US, European, UK, and Australian plugs included).

Backed by a 1-year warranty, the new Restek Leak Detector sets an industry standard for performance and affordability in hand-held leak detectors.

Leak Detector Facts

Detectable gases:	helium, nitrogen, argon, carbon dioxide, hydrogen
Battery:	Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Operating Temperature Range:	32°-120°F (0°-48°C)
Humidity Range:	0-97%
Warranty:	one year
Certifications:	CE, Ex, Japan
Compliance:	WEEE, RoHS

Limits of Detection

These gases can be detected with the Restek Electronic Leak Detector at the following leak rates.

Gas	Minimum Detectable Leak Rate (atm cc/sec.)	Indicating LED Light Color
Helium	1.0 X 10 ⁻⁵	Red
Hydrogen*	1.0 X 10 ⁻⁵	Red
Nitrogen	1.4 X 10 ⁻³	Yellow
Argon	1.0 X 10 ⁻⁴	Yellow
Carbon Dioxide	1.0 X 10 ⁻⁴	Yellow

Description	qty.	cat.#	price
Leak Detector with Hard-Sided Carrying Case and Universal Charger Set (US, UK, European, Australian)	ea.	22839	
Leak Detector Routine Maintenance Review**	ea.	22839-R	
Soft-Side Storage Case	ea.	22657	
Small Probe Adaptor	ea.	22658	

*Caution: The Restek Electronic Leak Detector is designed to detect trace amounts of hydrogen in a noncombustible environment. It is NOT designed for determining leaks in a combustible environment. 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.

**Routine maintenance includes inspection of the probe tip, internal/external tubing and a battery replacement.



Checking for leaks maintains the integrity of a GC system.

tech tip

To keep your Leak Detector performing at optimal levels, send it in every two years for a Routine Maintenance Review. Our engineers will inspect the probe tip, internal/external tubing and replace the battery. This preventive maintenance plan will help ensure your leak detector operates properly for years to come.

for more info

How much sensitivity is needed in a leak detector?

www.restek.com/cat001

Restek Thermolite® Septa

- Usable to 340 °C inlet temperature.
- Precision molding assures consistent, accurate fit.
- Excellent puncturability.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned glass jars.

Precision
molded!

Septum Diameter	25-pk./price	50-pk./price	100-pk./price
5mm (5/16")	27120	27121	27122
6mm (1/4")	27123	27124	27125
7mm	27126	27127	27128
8mm	27129	27130	27131
9mm	27132	27133	27134
9.5mm (5/8")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143
11.5mm	27144	27145	27146
12.7mm (1/2")	27147	27148	27149
17mm	27150	27151	27152
Shimadzu Plug	27153	27154	27155

Restek IceBlue® Septa

- Usable to 250 °C inlet temperature.
- Precision molding assures consistent, accurate fit.
- General-purpose septa.
- Excellent puncturability.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned glass jars.
- Ideal for SPME.

Precision
molded!

Septum Diameter	50-pk./price	100-pk./price
9mm	27156	27157
9.5mm (5/8")	27158	27159
10mm	27160	27161
11mm (7/16")	27162	27163
11.5mm	27164	27165
12.7mm (1/2")	27166	27167
17mm	27168	27169
Shimadzu Plug	27170	27171

BTO® Septa

- Usable to 400 °C inlet temperature.
- Precision molding assures consistent, accurate fit.
- Partial predrilled CenterGuide design.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned glass jars.
- Each batch GC/FID tested.
- Bleed and temperature optimized; ideal for demanding GC and GC/MS applications.

Precision
molded!

Septum Diameter	50-pk./price	100-pk./price
5mm CenterGuide	27100	27101
6mm (1/4")	27102	27103
9mm CenterGuide	27104	27105
9.5mm (5/8")	27106	27107
10mm	27108	27109
11mm (7/16") CenterGuide	27110	27111
11.5mm CenterGuide	27112	27113
12.7mm (1/2") CenterGuide	27114	27115
17mm CenterGuide	27116	27117
Shimadzu Plug	27118	27119

HANDY
septum size chart

Instrument	Septum Diameter (mm)
Agilent (HP)	
5880A, 5890, 6850,	
6890, 7890, PTV	11
5700, 5880	9.5/10
On-Column Injection	5
Thermo Scientific	
TRACE GC	17
GCQ w/TRACE, PTV	17
8000 series	17
Finnigan (TMQ)	
GC 9001	9.5
GCQ	9.5
QCQ	9.5
TRACE 2000	9.5
PerkinElmer	
Sigma series	11
900,990	11
8000 series	11
Auto SYS	11
Auto SYS XL	11
Shimadzu	
All models	Plug
SRI	
All models	Plug
Tracor	
540	11.5
550,560	9.5
220,222	12.5
Varian	
Injector type:	
Packed column	9.5/10
1078/1079	10/11
1177	9
1075/1077	11

for **more** infoHow **Hot** is Your Septum?www.restek.com/cat002**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 preconditioned and are ready to use without delay.

Note: Due to the injection port temperatures, Restek recommends using only BTO septa in Thermo Scientific instruments.

Introducing

Sky™

Inlet Liners

True Blue Performance

- Increase accuracy and reproducibility with state-of-the-art deactivation.
- Achieve lower detection limits for a wide range of active compounds.
- Use wool without risking the loss of sensitive analytes.

When faced with complex choices, simple solutions stand out. Sky™ inlet liners from Restek use a comprehensive, state-of-the-art deactivation and are the only blue liners on the market—making them an easy-to-recognize solution to common inlet problems.

New Sky™ liners give you the inertness you need for more accurate trace level results.

The innovative deactivation used for Sky™ liners results in exceptional inertness for a wide range of analyte chemistries. By reducing active sites and enhancing analyte transfer to the column, these liners increase accuracy and precision, allowing lower detection limits for many active compounds. In addition to improved data quality, you'll benefit from fewer liner changes and less downtime for maintenance.

Selecting the right liner for your application can be a daunting task. Sky™ inlet liners make the choice simple; the comprehensive deactivation, distinctive color, and availability in popular configurations mean Sky™ liners are the best choice for optimizing chromatographic performance. Regardless of your application, Sky™ liners provide reliable inertness and assured performance, day-after-day and analysis-after-analysis.



The Story Behind Sky™

For over 25 years, Restek's vision has been to be the company chromatographers trust. This philosophy is the cornerstone of our business, and it's the reason our chemists and engineers are dedicated to developing innovative, best-in-class products like Sky™ liners. As chromatographers, we understand your needs and strive to develop and deliver products that make your life easier.

With Sky™ liners our goal was to create a state-of-the-art deactivation that provides superior performance, but why did we make them blue? Restek has always been associated with the color blue; to us, it signifies strength, innovation, and excellence. We made SKY™ liners blue because it represents the technological advancements and unmatched quality that define Restek products. Choose blue—the best choice for dependable results.

Simple Solutions:

Inert Sky™ Inlet Liners Improve Accuracy and Precision for a Wide Range of Analytes

Many chromatographic problems, such as poor response and missing or tailing peaks are caused by activity in the inlet liner. These effects complicate quantification and can be particularly problematic for sensitive analytes. New Sky™ inlet liners from Restek offer exceptional inertness, assuring enhanced transfer of analytes to the column, good response, and highly symmetric peaks. The inertness of these liners is due to a state-of-the-art deactivation process that completely passivates the liner and wool so that they are inert to a wide variety of reactive analytes.

Some deactivations, such as base deactivation, are effective only for particular target compound chemistries. In contrast, the balanced deactivation of Sky™ liners prevents interactions with many chemical classes. As shown on the following pages, complex pesticide probes, as well as both acidic and basic compounds have strong responses and excellent peak shapes, demonstrating the inertness of Sky™ liners. With new Sky™ inlet liners you will see improved sensitivity, accuracy, and reproducibility liner-to-liner, which allows you to quantify challenging compounds at trace levels with confidence.

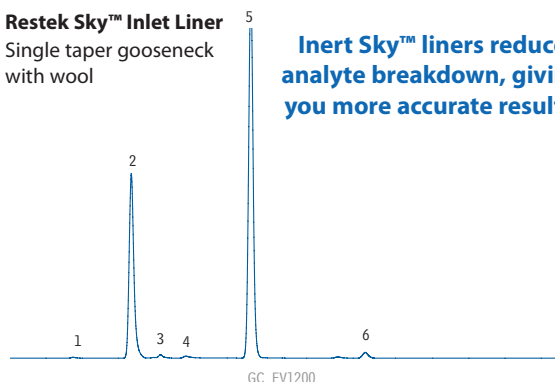
Reduced Breakdown Improves Trace Analyses

Endrin & DDT are important analytes for the environmental and food safety industries, and also serve as excellent general probes for liner inertness. Both compounds are sensitive to different modes of activity due to their chemical structures and because they are analyzed at very low concentrations (typically parts-per-billion concentrations for μ ECD analyses). As shown in Figure 1, Sky™ liners are significantly more inert than comparable liners from Agilent, showing 3-4 times less endrin and DDT breakdown.

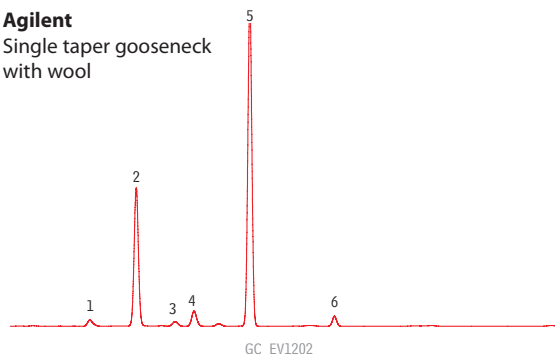
Figure 1 Endrin and DDT breakdown is significantly reduced with Sky™ liners, demonstrating higher inertness.

Restek Sky™ Inlet Liner
Single taper gooseneck
with wool

**Inert Sky™ liners reduce
analyte breakdown, giving
you more accurate results.**



Agilent
Single taper gooseneck
with wool



	% Breakdown	
	endrin	DDT
Restek	4.8	1.3
Agilent	16.5	4.2

Peaks

1. DDE*
 2. Endrin
 3. DDD*
 4. Endrin aldehyde*
 5. DDT
 6. Endrin ketone*
- *breakdown products

Column Rxi®-5Sil MS, 15 m, 0.25 mm ID, 0.25 μ m (cat.# 13620); **Sample** endrin (50 ng/mL) and DDT (100 ng/mL) in hexane; **Injection** Inj. Vol.: 1 μ L splitless (hold 0.75 min.); **Liner:** Comparison of Sky™ Single Taper Gooseneck Liner with Wool (cat.# 23303.5) and Agilent Single Taper Gooseneck Liner with Wool (cat.# 5062-3587); Inj. Temp.: 250 °C.

did you know?

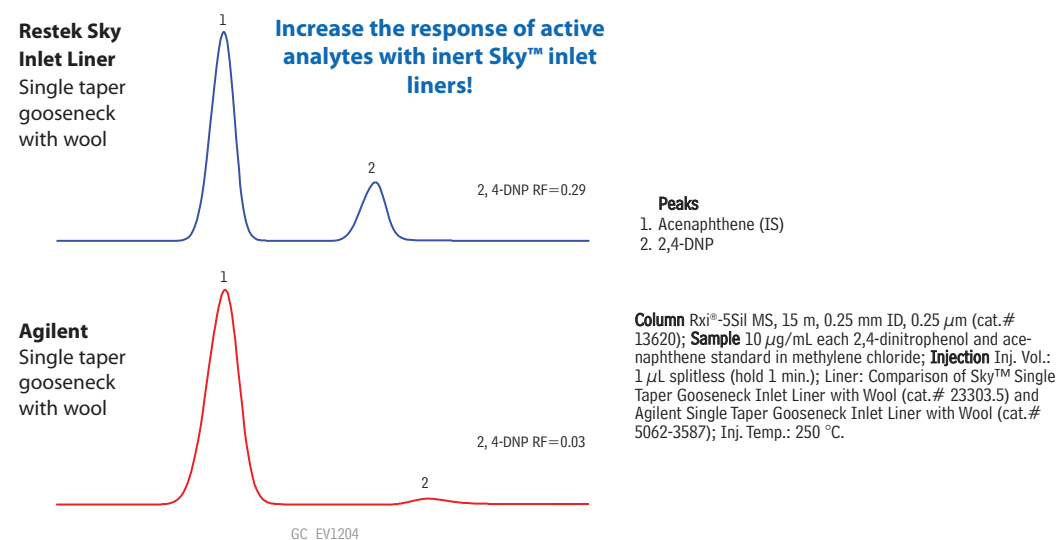
Sky™ inlet liners from Restek are extensively tested to assure consistent product quality. The color and label have been shown not to interfere with analyses or contribute to background. Choose blue—the best liner for sensitive applications.

Simple Solutions:

Inert Sky™ Inlet Liners Improve Accuracy and Precision for a Wide Range of Analytes Greater Inertness Results in Higher Analyte Response

Another common probe used to illustrate inertness is 2,4-dinitrophenol (2,4-DNP), which functions as an indicator of acid compound interactions. It is used to monitor system suitability in semivolatiles methods, which benefit from the use of wool to assist in sample vaporization. As shown in Figure 2, the response of 2,4-DNP with the Sky™ inlet liner, even at low concentrations, is superior to a competitor's liner. The Agilent liner with wool has active sites that adsorb 2,4-DNP and reduce its response. In contrast an excellent response is achieved using the Sky™ liner, even in the presence of wool.

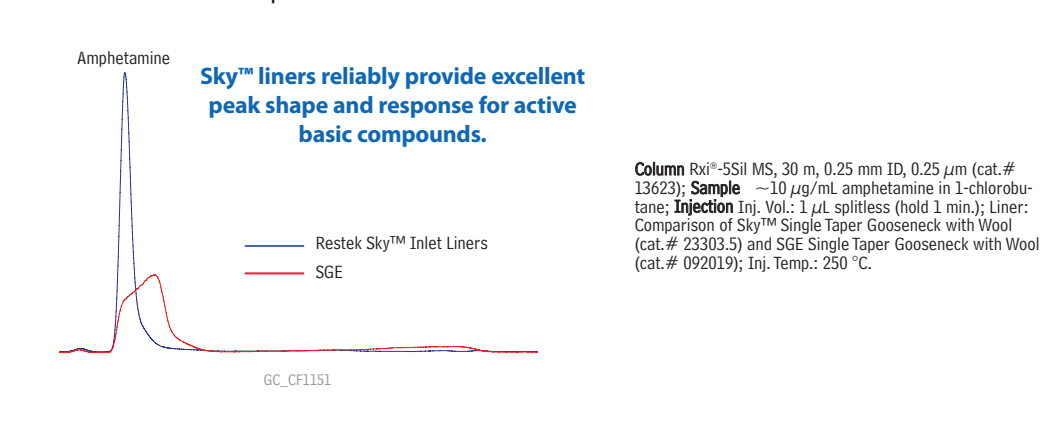
Figure 2 The state-of-the-art deactivation used for Sky™ liners with wool results in higher responses for active acid compounds, such as 2,4-DNP.



Comprehensive Deactivation Assures Excellent Peak Shape

In addition to providing excellent results for reactive pesticides and acidic compounds, Sky™ inlet liners are also highly inert to active basic compounds, such as underivatized amphetamines. The exceptional inertness of Sky™ liners produces much better peak shape than is typically seen on other liners, resulting in simpler quantification and more accurate results (Figure 3).

Figure 3 Sky™ liners are completely passivated. Even when using wool, peak shape for highly active underivatized amphetamine is excellent.

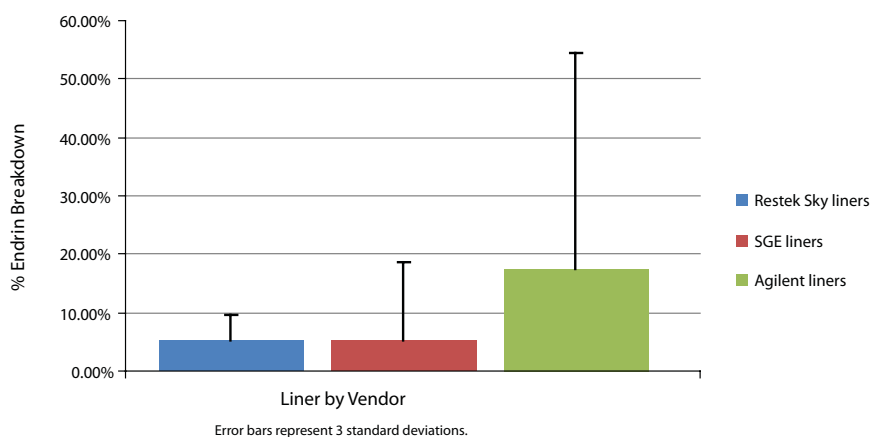


Liner-to-Liner Reproducibility: A Measure of Consistent Quality

It's not good enough to have one quality liner. You have to be confident that every liner will give the same level of performance. We test Sky™ liners extensively to ensure that each one is exceptionally inert and will provide optimal results. Using endrin breakdown as a measure of reproducibility, the data in Figure 4, based on multiple lots, illustrate that Sky™ liners are more consistently inert than competitor products.











New Sky™ liners provide exceptional inertness across a wide range of active analytes. The consistent, comprehensive deactivation process results in the accuracy and precision you need for reliable trace level analyses. Simplify liner selection with Sky™ liners from Restek—**choose blue, the best choice for dependable results.**




Figure 4 Sky™ inlet liners from Restek consistently show less endrin breakdown than comparable liners from other sources.






New Sky™ inlet liners are easily recognizable for your reordering convenience. All Sky™ liners come in specially marked boxes and are packaged in ultra-clean blister packs.

Sky™ Inlet Liners for Agilent GCs


Splitless Liners for Agilent GCs	ID OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 2mm Splitless	2.0mm 6.5mm x 78.5mm	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	23313.1	23313.5	23313.25
 2mm Splitless w/Wool	2.0mm 6.5mm x 78.5mm		23314.1	23314.5	23314.25
 2mm Single Taper Gooseneck	2.0mm 6.5mm x 78.5mm		23315.1	23315.5	23315.25
 2mm Single Taper Gooseneck w/Wool	2.0mm 6.5mm x 78.5mm		23316.1	23316.5	23316.25
 4mm Straight	4.0mm 6.3mm x 78.5mm	210-3003 (ea.) 210-3003-05 (5-pk.)	23301.1	23301.5	23301.25
 4mm Straight w/Wool	4.0mm 6.3mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	23300.1	23300.5	23300.25
 4mm Single Taper Gooseneck	4.0mm 6.5mm x 78.5mm	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	23302.1	23302.5	23302.25
 4mm Single Taper Gooseneck w/Wool	4.0mm 6.5mm x 78.5mm	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	23303.1	23303.5	23303.25
 4mm Double Taper Gooseneck	4.0mm 6.5mm x 78.5mm	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	23308.1	23308.5	23308.25
 4mm Cyclo Double Taper Gooseneck	4.0mm 6.5mm x 78.5mm		23310.1	23310.5	23310.25

Split Liners for Agilent GCs	ID OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 4mm Straight w/Wool	4.0mm 6.3mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	23304.1	23304.5	23304.25
 4mm Precision Liner w/Wool	4.0mm 6.3mm x 78.5mm	210-4004-5 (5-pk.)	23305.1	23305.5	23305.25
 4mm Cyclo splitter	4.0mm 6.3mm x 78.5mm		23312.1	23312.5	23312.25

Split/Splitless Liners for Agilent GCs	ID OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 Low Pressure Drop Liner w/Wool	4.0mm 6.3mm x 78.5mm		23309.1	23309.5	






DI Liners for Agilent GCs (for 0.25/0.32/0.53mm ID Columns)	ID OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 Drilled Uniliner (hole near bottom)	4.0mm 6.3mm x 78.5mm	G1544-80730 (ea.)	23306.1	23306.5	
 Drilled Uniliner (hole near bottom) w/Wool	4.0mm 6.3mm x 78.5mm		23307.1	23307.5	
 Drilled Uniliner (hole near top)	4.0mm 6.3mm x 78.5mm		23311.1	23311.5	23311.25

Sky™ Inlet Liners for PerkinElmer GCs


PSS Liners for PerkinElmer GCs	ID OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Auto SYS XL PSS Split/Splitless w/Wool	2.0mm 4.0mm x 86.2mm	N6121004	23317.1 \$42	23317.5	

COLUMN INSTALLS THIS END






Sky™ Inlet Liners for Shimadzu GCs

Split Liners for Shimadzu 17A, 2010, and 2014 GCs	ID OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 3.5mm Split	3.5mm 5.0mm x 95mm	221-41444-01	23318.1	23318.5	23318.25
 3.5mm Split w/Wool	3.5mm 5.0mm x 95mm		23319.1	23319.5	23319.25
 3.5mm Precision Liner w/Wool	3.5mm 5.0mm x 95mm		23320.1	23320.5	
Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs	ID OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	
 3.5mm Single Taper Gooseneck	3.5mm 5.0mm x 95mm	221-48335-01	23321.1	23321.5	
 3.5mm Single Taper Gooseneck w/Wool	3.5mm 5.0mm x 95mm		23322.1	23322.5	

Sky™ Inlet Liners for Thermo Scientific GCs

Split Liners for Thermo TRACE, 8000, 8000 TOP, & Focus SSL	ID OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
 5mm Straight	5.0mm 8.0mm x 105mm	453 20030	23323.1	23323.5	23323.25
 5mm Straight w/Wool	5.0mm 8.0mm x 105mm		23324.1	23324.5	23324.25
 5mm Precision Liner w/Wool	5.0mm 8.0mm x 105mm		23327.1	23327.5	
Splitless Liners for Thermo TRACE, 8000, 8000 TOP, & Focus SSL	ID OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
 5mm Splitless	5.0mm 8.0mm x 105mm	453 20033	23325.1	23325.5	23325.25
 5mm Splitless w/Wool	5.0mm 8.0mm x 105mm		23326.1	23326.5	23326.25

Sky™ Inlet Liners for Varian GCs

Liners for Varian 1177 S/SL Injection Ports	ID OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	
 4mm Split Liner w/Glass Frit	4.0mm 6.3mm x 78.5mm		23330.1	23330.5	
 4mm Precision Liner w/Wool	4.0mm 6.3mm x 78.5mm		23328.1	23328.5	
 4mm Single Taper Gooseneck	4.0mm 6.5mm x 78.5mm	392611927	23331.1	23331.5	
 4mm Single Taper Gooseneck w/Wool	4.0mm 6.5mm x 78.5mm	392611936	23332.1	23332.5	
Liners for Varian 1078/1079 Injection Ports	ID OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 3.4mm Split-No Frit	3.4mm 5.0mm x 54mm	392611945	23329.1	23329.5	23329.25

COLUMN INSTALLS THIS END



Technical Tips for Avoiding Inlet Problems

Inlet issues can lead to poor chromatography and be a significant source of frustration in the lab. Many problems can be avoided by considering some basic principles. Here are some simple tips to help you improve chromatography and select the best liner for your application.

Consider Volume and Inner Diameter

Problems such as broad or tailing peaks, poor reproducibility, ghost peaks, and nonlinear response can result if sample expansion volume and linear velocity are not considered when choosing liner dimensions.

Sample Expansion Volume

When a liquid sample is vaporized inside an inlet liner, its volume expands considerably. Care should be taken to match the effective liner volume and the expanded volume of the injected sample. If the liner volume is exceeded, the sample will be forced back into the gas lines, causing irreproducible peak areas and sample carryover.

Linear Velocity

Choosing a liner with a narrow inner diameter will give a faster linear velocity (for a given flow rate), which will move the sample onto the column quickly, improving efficiency and helping keep peak widths narrow. This is particularly important for gaseous samples introduced via purge-and-trap or static headspace techniques, or when 0.18 mm, 0.15 mm, and 0.10 mm ID columns are used.

Solvent expansion volumes based on an injection port temperature of 250°C and a 10 psig head-pressure.

For a straight 4mm ID x 78.5mm long liner, the effective liner volume is approximately 500µL.

Injection Volume (µL)	Expansion Volume (µL)				
	H ₂ O	C ₂ S	CH ₂ Cl ₂	Hexane	Isooctane
0.5	710	212	200	98	78
1.0	1420	423	401	195	155
2.0	2840	846	802	390	310
5.0	7100	2120	2000	975	775

— indicates expansion volume exceeds effective liner volume.

Protect Analytes from Active Sites

Active sites in the inlet or liner can interact with reactive analytes, resulting in poor chromatography and reduced response. Exposure of analytes to active sites can be minimized by carefully considering liner packing, geometry, and deactivation.

Packing

Sample characteristics and injection technique will dictate whether packing is used. Analyses of high molecular weight analytes, especially in split mode, benefit from the use of packing. However, while wool improves sample vaporization, protects the column from nonvolatile compounds, and permits larger volume injections, it can also be a source of active sites that cause poor peak shape. When using a wool packed liner, highly inert Sky™ liners are recommended for optimal performance. (See pages 206-209 for technical comparison.)

Specialized Uniliner® Geometry

Uniliner® and Drilled Uniliner® inlet liners reduce analyte exposure by allowing a fused silica column to be connected directly to the liner through a seal made between the inner glass wall of the liner and the polyimide coating on the outside of the column. This configuration maximizes the amount of sample transferred to the GC column, minimizes sample exposure to hot injection port parts, and is a good choice for trace analyses.

Use the Drilled Uniliner® inlet liner with the hole near the bottom for semivolatiles analyses or when compounds of interest could be affected by a tailing solvent peak. Use the Drilled Uniliner® inlet liner with the hole near the top for chlorinated pesticides analyses, aqueous injections, and analyses in which the compounds of interest elute away from the solvent peak. Note that instruments equipped with electronic pressure control must use Drilled Uniliner® liners, rather than standard Uniliner® liners.



Drilled Uniliner® with hole near bottom



Drilled Uniliner® with hole near top

Deactivations

Liners need to provide highly inert pathways to guard against sample adsorption (reversible or irreversible) and sample degradation. Deactivations can help accomplish this and Restek offers several deactivation choices.

Intermediate Polarity (IP) Deactivation

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

Siltek®-Deactivation

- Minimizes breakdown.
- Low bleed.
- Thermally stable.
- “Clean and green”—manufactured without the use of harmful organic solvents.

The patented Siltek® deactivation process for liners produces a highly inert glass surface that features high temperature stability, extreme durability, and low bleed. Try Siltek® liners, guard columns, and connectors for better recovery of sample analytes.

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

qty.	Siltek Liner			Siltek Liner w/Wool		Siltek Liner w/CarboFrit	
each	-214.1	\$5	addl. cost	-213.1	addl. cost	-216.1	addl. cost
5-pk.	-214.5	\$20	addl. cost	-213.5	addl. cost	-216.5	addl. cost
25-pk.	-214.25	\$90	addl. cost	-213.25	addl. cost	-216.25	addl. cost

Base Deactivation

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

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	\$14	addl. cost	-211.1	addl. cost	-229.1	addl. cost
5-pk.	-210.5	\$45	addl. cost	-211.5	addl. cost	-229.5	addl. cost
25-pk.	-210.25	\$145	addl. cost	-211.25	addl. cost	-229.25	addl. cost

Don't Forget Routine Maintenance

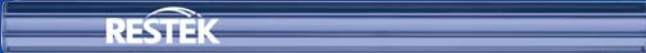
Inlet liners are the key to good injection port maintenance; changing them regularly helps prevent problems such as:

- Sample degradation resulting in poor response.
- Sample adsorption resulting in poor peak shape (tailing).
- Sample discrimination.
- Irreproducibility.
- Extraneous peaks from contamination or cored septum particles.

Finally, be sure to condition your liners at 20 °C higher than the operating inlet temperature for a minimum of 10 minutes to prepare them for use. By following these basic tips, you can avoid inlet problems and improve chromatographic performance.



Looking for the Best Solution?



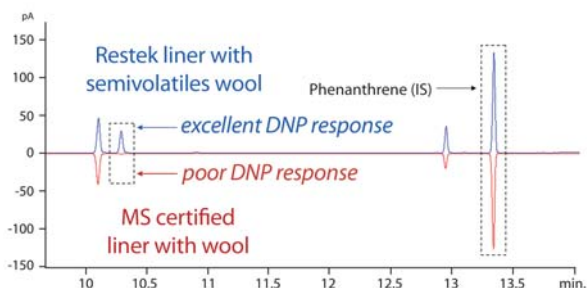
New Sky™ inlet liners, featuring a state-of-the-art deactivation, give you the inertness you need for accurate, reproducible trace level results.

See pages 206-211 for details.

Semivolatiles Wool

The new deactivation used on this wool gives it superior inertness for semivolatiles analysis. Acidic semivolatile compounds, such as 2,4-dinitrophenol (DNP), are reactive and can be difficult to quantify with wool packed in the inlet liner. With this innovative deactivation, the response of DNP is excellent and an improvement over deactivations offered by competitors (Figure 1). For example, the test shown here resulted in a DNP response factor of 0.21 (calculated relative to the internal standard), easily meeting the EPA Method 8270D criterion of 0.01. In contrast, the competitive "MS Certified Liner with Wool" showed virtually no response.

Figure 1 Response of 10 ng of 2,4-dinitrophenol compared to phenanthrene using a flame ionization detector.



To order Semivolatiles Wool in prepacked liners, add the corresponding suffix number to the liner catalog number.

qty.	IP Deactivated Liner with Semivolatiles Wool		
each	-231.1	\$16	addl. cost
5-pk.	-231.5	\$31	addl. cost
25-pk.	-231.25	\$81	addl. cost

Deactivated Wool

- More inert than our traditional fused silica wool.
- Use to vaporize a sample in a liner prior to introduction into a capillary column.



Description	qty.	cat.#	price
Deactivated Wool	10 grams	24324	

Base-Deactivated Wool

Ideal for amines and other basic compounds.



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

Prepacked Inlet Liners

Let Restek do the work! Just add the appropriate suffix to the liner catalog number.

qty.	Wool	CarboFrit†	price
ea.	-200.1	-209.1	addl. cost
5-pk.	-200.5	-209.5	addl. cost
25-pk.	-200.25	-209.25	addl. cost

†CarboFrit inserts require a neck greater than 2mm.

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 >3.5 mm when using puller-insertor tool listed below.*



Add the corresponding suffix number to the liner catalog number.

Description	suffix	price
each	-209.1	addl. cost
5-pk.	-209.5	addl. cost
25-pk.	-209.25	addl. cost

*Liners with IDs less than 3.5mm are difficult to pack. We will pack them on a custom basis (minimum neck ID of 2mm required).

Replacement CarboFrit® Inserts

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



CarboFrit® Puller/Insertor Tool

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

Description	qty.	cat.#	price
CarboFrit Puller/Insertor Tool	ea.	21642	



Use of Packings with Autosampler

We recommend using an injection port liner with wool or CarboFrit® packing when making 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.

**Mini Wool Puller/Inserter**

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



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



Eliminates user variation!

Inlet Liner Packing Tool

- Position wool reproducibly every time.
- Accurate to a specific, measured depth.
- Can be used with all manufacturer's liners.



Loosen the nut on the side of the tool and adjust the gauge to the manufacturer's recommended depth.

Place a plug of loosely bound wool at the top of the inlet liner.

Insert the liner packing tool into the liner until the tool bottoms out. Remove the tool. The wool is positioned correctly in the liner and the liner is ready for use.

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



No more burned fingers!

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. #	price
Inlet Liner Removal Tool	3-pk.	20181	

No more burned fingers!

**The Claw and The Claw Holder Kit**

- Easily removes hot liners from injection ports.
- 4mL vials (not included) can be replaced when dirty.





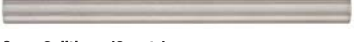

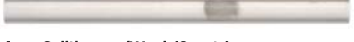
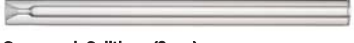
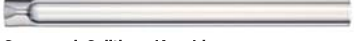
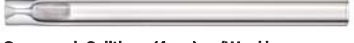

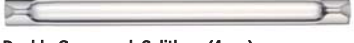
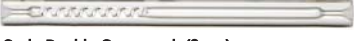




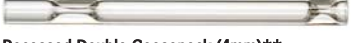
Never again will you have to burn your fingers removing a hot injection port liner. The Claw safely and cleanly removes liners, O-rings, or other small objects from the injection port. You can then place the hot objects in a clean 4 mL vial situated in the Claw holder until ready for reuse.



Description	qty.	cat. #	price
The Claw	ea.	26261	
The Claw Holder Kit (includes The Claw and holder)	kit	26262	
WISP 48 Snap Seal Vial	100-pk.	24658	

**Injector Maintenance**

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.

Splitless Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 2mm Splitless	trace samples <2μL	2.0mm 6.5mm x 78.5mm	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	20712	20713	20714
 4mm Splitless	trace samples >2μL	4.0mm 6.5mm x 78.5mm	210-3003 (ea.) 210-3003-5 (5-pk.)	20772	20773	20774
 4mm Splitless w/Wool	trace samples >2μL	4.0mm 6.5mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	22400	22401	22402
 5mm Splitless	accommodates more polar solvents and lower MW solvents	5.0mm 6.5mm x 78.5mm	NEW!	22975	22976	—
 2mm Splitless (Quartz)	trace samples <2μL	2.0mm 6.5mm x 78.5mm	18740-80220 (ea.) 5183-4707 (5-pk.)	20914	20915	—
 4mm Splitless (Quartz)	trace samples >2μL	4.0mm 6.5mm x 78.5mm	—	20912	20913	—
 4mm Splitless w/Wool (Quartz)	trace samples >2μL	4.0mm 6.5mm x 78.5mm	—	22403	22404	—
 Gooseneck Splitless (2mm)	trace samples <2μL	2.0mm 6.5mm x 78.5mm	—	20795	20796	20797
 Gooseneck Splitless (4mm)†	trace samples >2μL	4.0mm 6.5mm x 78.5mm	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	20798	20799	20800
 Gooseneck Splitless (4mm) w/Wool†	trace samples >2μL	4.0mm 6.5mm x 78.5mm	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	22405	22406	22407
 Gooseneck Splitless (5mm)	accommodates more polar solvents and lower MW solvents	5.0mm 6.5mm x 78.5mm	NEW!	22973	22974	—
 Double Gooseneck Splitless (4mm)	trace, active samples >2μL	4.0mm 6.5mm x 78.5mm	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	20784	20785	20786
 Cyclo Double Gooseneck (2mm)	trace, active, dirty samples <2μL	2.0mm 6.5mm x 78.5mm	—	20907	20908	—
 Cyclo Double Gooseneck (4mm)	trace, active, dirty samples >2μL	4.0mm 6.5mm x 78.5mm	—	20895	20896	20997
 Recessed Gooseneck (2mm)**	base easily packs with wool for dirty samples <2μL	2.0mm 6.5mm x 78.5mm	—	20980	20981	20982
 Recessed Gooseneck (4mm)**	base easily packs with wool for dirty samples >2μL	4.0mm 6.5mm x 78.5mm	—	20983	20984	20985
 Recessed Gooseneck (4mm) w/Wool**	base easily packs with wool for dirty samples >2μL	4.0mm 6.5mm x 78.5mm	—	22408	22409	22410
 Recessed Double Gooseneck (4mm)**	trace, active samples >2μL	4.0mm 6.5mm x 78.5mm	—	20986	20987	20988

*Nominal ID at syringe needle expulsion point.

**Use with two-hole ferrule for dual-column analysis.

†Use this liner for increased sensitivity.

All liners are
100%
deactivated

















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

Sky
Inlet Liners

Looking for a Simple Solution?






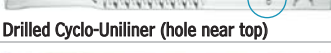





See pages 206-211 for details.

Split Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent part#	ea.	cat.#/price 5-pk.	25-pk.
 1mm Split**	for purge & trap inlet splitting or sample <1µL	1.0mm 6.3mm x 78.5mm	18740-80200 (ea.) 5183-4709 (5-pk.)	20972	20973	—
 4mm Split w/Wool	universal, use with Agilent 7673 autosampler	4.0mm 6.3mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	20781	20782	20783
 Laminar Cup Splitter	high MW compounds	4.0mm 6.3mm x 78.5mm	—	20801	20802	—
 mini-Lam Split	high MW compounds	4.0mm 6.3mm x 78.5mm	—	20990	20991	—
 Cup Splitter	high & low MW compounds	4.0mm 6.3mm x 78.5mm	18740-80190 (ea.) 5183-4699 (5-pk.)	20709	20710	—
 Cycloplitter	dirty samples, many injections before cleaning required	4.0mm 6.3mm x 78.5mm	—	20706	20707	20708
 2mm Split Precision Liner w/Wool	dirty samples, trace samples	2.0mm 6.3mm x 78.5mm	—	20823	20824	—
 4mm Split Precision Liner w/Wool	dirty samples, trace samples	4.0mm 6.3mm x 78.5mm	210-4004-5 (5-pk.)	21022	21023	20979
 4mm Gooseneck Precision Liner w/Wool	dirty samples, trace samples	4.0mm 6.3mm x 78.5mm	210-4022-5 (5-pk.)	22983	22984	22985
Split/Splitless Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 Low Pressure Drop Precision Liner w/Wool	universal	4.0mm 6.3mm x 78.5mm	—	21032	21033	—
 Low Pressure Drop Liner w/Wool	universal	4.0mm 6.3mm x 78.5mm	5183-4647, 5183-4711 (ea.) 5183-4701, 5183-4712 (5-pk.) 5183-4713 (25-pk.)	20994	20995	20996
CIS4 and PTV Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent part#	ea.	cat.#/price 5-pk.	10-pk.
 PTV On-Column Liner	allows on-column injection with a 0.53mm ID column	1.7mm 3.0mm x 71mm	—	24976	24977	—
 Straight Glass	general use	2.0mm 3.0mm x 71mm	5183-2036	—	—	21157
 Baffled Glass	active compounds, drugs, pesticides	1.5mm 3.0mm x 71mm	5183-2037	—	—	21704
 Glass w/Wool	large volume injections	2.0mm 3.0mm x 71mm	5183-2038	—	—	21156
SPME Liners for Agilent GCs	Benefits/Uses	ID* OD x Length		cat.#/price ea.	cat.#/price 5-pk.	
 SPME Liner	ideal for low-volume SPME applications	0.75mm 6.35mm x 78.5mm		21110 \$35		

*Nominal ID at syringe needle expulsion point.
**Use this liner for increased sensitivity.

COLUMN INSTALLS THIS END

DI Liners for Agilent GCs** (For 0.25/0.32/0.53mm ID Columns)	Benefits/Uses	ID* OD x Length	Similar to Agilent part #	ea.	cat.#/price 5-pk.	25-pk.
 Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	—	21054	21055	20998
 Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	G1544-80730	20756	20771	—
 Double Gooseneck Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	—	20508	20509	—
 Double Gooseneck Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	G1544-80700	20954	20989	—
 Drilled Cyclo-Uniliner (hole near top)	trace, dirty, high MW, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	—	22979	22980	—
 1mm Uniliner	trace, active samples, samples <1µL	1.0mm 6.3mm x 78.5mm	—	21052	21053	—
 Uniliner	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	NEW!	22268	22269	—
 Cyclo-Uniliner	trace, dirty, high MW active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	NEW!	22270	22271	—
 Open-top Uniliner w/Wool	trace, dirty, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	NEW!	22272	22273	—

*Nominal ID at syringe needle expulsion point.

**Hole in Drilled Uniliner liner makes direct injection possible with EPC-equipped Agilent 6890 & 7890 GCs!

i tech tip

Drilled Uniliner® Liners

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.

All liners are
**100%
deactivated**

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

Sky
Inlet Liners

Looking for a Simple Solution?



New Sky™ liners, featuring a state-of-the-art deactivation, give you the inertness you need for accurate, reproducible trace level results.

See pages 206-211 for details.



Siltek® Metal Inlet Liners for Agilent GCs

- Won't crack, chip, or break like 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

Viton® O-Rings for Agilent GCs

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

Description	Max. temp.	Similar to Agilent part #	qty.	cat.#	price
Viton O-Rings for Agilent GCs	250°C	5188-5365	25-pk.	20377	

High Temperature O-Rings for Agilent GCs

- Usable to 350 °C inlet temperature.
- Fits split (6.3 mm OD) and splitless (6.5 mm OD) liners.

Description	Max. temp.	Similar to Agilent part #	10-pk. cat.#	price	25-pk. cat.#	price
High Temperature O-Rings for Agilent GCs	350°C	23403			23404	

Graphite O-Rings for Agilent and Varian 1177 Injectors

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

Description	Max. temp.	Similar to Agilent part #	10-pk. cat.#	price	50-pk. cat.#	price
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 #	Similar to Gerstel part #	qty.	cat.#	price
Liner Seals for CIS4 and PTV	450°C	5182-9749	007541-005-00	5-pk.	22684	

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

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

Injector/Detector Plug Nuts

- Use to cap off an injector to isolate leaks.
- Use to cap off a detector for thermal cleaning.
- Use to check a detector or make-up gas flow rate.
- Use to cap off a detector and prevent hydrogen from accidentally diffusing into the oven from an unused detector base.

Description	Similar to Agilent part#	qty.	cat.#	price
Injector/Detector Plug Nuts	5020-8294	2-pk.	21883	

IceBlue® Septa



Septa for Agilent GCs

Preconditioned and ready to use!

Septum Diameter	25-pk./price	50-pk./price	100-pk./price
Thermolite Septa (usable to 340°C inlet temp.)			
5mm (3/16")	27120	27121	27122
9.5mm (3/8")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143

IceBlue Septa (usable to 250°C inlet temp.)			
9.5mm (3/8")		27158	27159
10mm		27160	27161
11mm (7/16")		27162	27163

BTO Septa (usable to 400°C inlet temp.)			
5mm CenterGuide		27100	27101
9.5mm (3/8")		27106	27107
10mm		27108	27109
11mm (7/16") CenterGuide		27110	27111

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

Merlin Microseal Septa for Agilent GCs

- Allow operation from 2 to 100 psi (400 Series) or 2 to 30 psi (300 Series).
- Maximum temperature—Agilent 7890, 6890, 5890 Series II: 325 °C; Agilent 5890A: 300 °C.



Microseal High-Pressure Septa, 400 Series (100psi)	Merlin #	Similar to Agilent#	cat.#	price
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.#	price
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	



20117

Septum Puller

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



Description	qty.	cat.#	price
Septum Puller	ea.	20117	

Septum Nuts

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

- Needle guide allows easy penetration and prevents septum coring.
- Manual injection septum nut allows use of 26-gauge needles for on-column injections.
- Made of high-quality stainless steel.



21309

Description	Similar to Agilent part #	qty.	cat.#	price
Septum Nut, Autosampler & PTV (for 23-gauge needles)	18740-60835	ea.	20631	
Septum Nut, Manual Injection (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.
- Nut remains in tool for quick reattachment.



24918

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

Injector Wrench

for Agilent 5890/6890/6850 GCs

- Use to remove the septum nut and weldments during GC maintenance.
- Use the smaller end to remove the septum nut.
- Use the larger end to tighten the split/splitless weldment nut.
- High-quality stainless steel construction.
- Meets original equipment performance.



22065

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



injection port bore cleaner

aluminum oxide sanding disk (cleans critical seal on base of injector)

Injection Port Repair Tool

for Agilent Split/Splitless Injection Ports

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

21393

Description	qty.	cat.#	price
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

for Agilent Split/Splitless Injection Ports

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



23018

Worn & damaged threads can allow oxygen into the system—compromising analytical results and destroying columns.



Make your injection port threads like new!

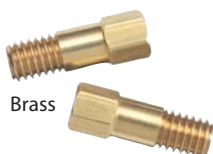
Screw the tool completely onto the injection port in a clockwise direction. Unscrew the tool and inspect the threads, repeat as necessary. When done, wipe threads with methanol to remove any debris.

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



Minimizing Injector Discrimination

When an injected sample is not completely vaporized, lower percentages of compounds that are less volatile (i.e., compounds with high boiling points or high molecular weights) are transferred into the analytical column. As a result, these later-eluting compounds will have progressively decreased peak areas. You can minimize injector discrimination by reducing injector flows, increasing the injector temperature, using pressure pulse injection or a fast autosampler, or using an injector liner that aids in vaporization (e.g., a laminar cup splitter or a liner packed with wool).



Brass



Stainless Steel

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.#	price
For use with "compact" Agilent-style ferrules.				
Stainless Steel Capillary Column Nut	5181-8830	2-pk.	21884	
Brass Capillary Column Nut	5181-8830	2-pk.	21878	
For use with standard 1/16"-type ferrules.*				
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

Hot Swap Capillary Column Nuts

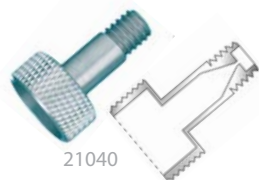
- No more burned fingers!
- No more downtime waiting for injector parts to cool down.



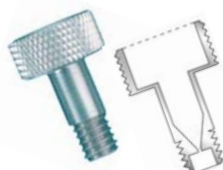
22347

Never worry again about burned fingers or having to wait for the injector to cool down. The Hot Swap Capillary Column Nut allows you to change your capillary column while the injector temp is still hot.

Description	qty.	cat.#	price
For use with "compact" Agilent-style ferrules.			
Hot Swap Capillary Column Nut	ea.	22348	
For use with standard 1/16"-type ferrules.			
Hot Swap Capillary Column Nut	ea.	22347	



21040



21041

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.#	price
For use with "compact" Agilent-style ferrules.				
Finger-Tight Capillary Column Nuts	5020-8293,	2-pk.	21040	
	5020-8292			
For use with standard 1/16"-type ferrules.				
Finger-Tight Capillary Column Nuts	5020-8293,	2-pk.	21041	
	5020-8292			



21312

Finger-Tight Capillary Column Nuts

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

Description	qty.	cat.#	price
For use with "compact" Agilent-style ferrules.			
Finger-Tight Capillary Column Nut	ea.	21311	
For use with standard 1/16"-type ferrules.			
Finger-Tight Capillary Column Nut	ea.	21312	



21034



21399

Capillary Installation Gauge

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

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

*Recommended for use with graphite ferrules.

Inlet Maintenance Kit for Agilent GCs

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



22181

Inlet kit includes:

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

Description	qty.	cat.#	price
Inlet Maintenance Kit	kit	22181	



1/16" Adaptor Fitting

Flip Seals

A **reversible** Dual Vespel® Ring Inlet Seal that lasts twice as long, for the same great price!

Our new Flip Seal greatly improves injection port performance while saving you time and money. This reversible inlet seal allows twice as many uses as other inlet seals, at the same cost. By using our patented Dual Vespel® Ring technology, the Flip Seal features two soft Vespel® rings, one on the top and one on the bottom, which eliminate the need for a washer. Our new reversible design allows you to flip the inlet seal and use it twice as many times.

Feature

Benefit

Reversible design.	Allows twice as many uses as other seals, at the same cost.
Vespel® ring embedded in bottom surface.	Eliminates need for a washer.
Vespel® ring embedded in top surface.	Very little torque required to make seal—reduces operator variability.
Lower leak rate compared to OEM metal inlet seals.	Less detector noise.
Prevents oxygen from permeating the carrier gas.	Increases column lifetime.
Gold or Siltek Treated seals.	Reduces breakdown and adsorption of compounds, maximizing component transfer to GC column.

restek **innovation!**

Patented



A Dual Vespel® Ring Inlet Seal eliminates the need for a washer! →

0.8mm ID Flip Seal Dual Vespel Ring Inlet Seal	2-pk./price	10-pk./price
Gold-Plated	23407	23409
Siltek Treated	23408	23410
1.2mm ID Flip Seal Dual Vespel Ring Inlet Seal	2-pk./price	10-pk./price
Gold-Plated	23411	23413
Siltek Treated	23412	23414
Flip Seal Dual Vespel Ring Inlet Seal Kit	qty.	cat.# price
Includes: gold-plated 0.8mm ID inlet seal, reducing nut adaptor, 1/16" SS nut	kit	23406

Note that the Flip Seal requires a special reducing nut, which is included in the kit.

Dual Vespel® Ring Inlet Seals

Washerless, leak-tight seals for Agilent GCs

- Does not require a separate washer.
- Requires less torque to seal.
- Does not require retightening of reducing nut after several oven cycles.
- Extends column lifetime by preventing oxygen from reaching the column.
- Same price as the regular inlet seals with washers.



Vespel® ring seal on top and bottom surfaces!

Extend your column lifetimes!



0.8mm ID Dual Vespel Ring Inlet Seal	2-pk./price	10-pk./price	50-pk./price
Gold-Plated	21240	21241	23418
Siltek Treated	21242	21243	23419
Stainless Steel	21238	21239	23420
1.2mm ID Dual Vespel Ring Inlet Seal	2-pk./price	10-pk./price	
Gold-Plated	21246	21247	
Siltek Treated	21248	21249	
Stainless Steel	21244	21245	

NEW!

Now available in economical 50-pks.

Dual Vespel® Ring Cross-Disk Inlet Seals

for Agilent GCs

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

0.8mm ID Dual Vespel Ring Cross-Disk Inlet Seal	2-pk./price	10-pk./price
Gold-Plated	22083	22084
Siltek Treated	22085	22086



Replacement Inlet Seals with Washers

- 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 5890/6890/7890 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.

To reduce breakdown and adsorption of active compounds, use Siltek® or gold-plated seals.



Now available in economical 50-pks.

Single-Column Installation 0.8mm ID (Opening)	Similar to Agilent part #	2-pk./price	10-pk./price	50-pk./price
Gold-Plated	18740-20885	21317	21318	23415
Siltek Treated		21319	21320	23416
Stainless Steel	18740-20880	21315	21316	23417

0.25/0.32mm ID Dual-Column Installation 1.2mm ID (Opening)	2-pk./price	10-pk./price
Gold-Plated	21305	21306
Siltek Treated	21307	21308
Stainless Steel	20390	20391

0.53mm ID Dual-Column Installation 1/16-inch ID (Opening)	2-pk./price	10-pk./price
Stainless Steel	20392	20393



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

Replacement Inlet Seal Washers

Description	Similar to Agilent part #	qty.	cat.#	price
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 Seal	Similar to Agilent part #	2-pk./price	10-pk./price
Gold-Plated	5182-9652	20477	20476
Siltek Treated	—	20475	20474

1.2mm ID Cross-Disk Inlet Seal	Similar to Agilent part #	2-pk./price	10-pk./price
Gold-Plated	—	21009	\$71 21010
Siltek Treated	—	21011	\$71 21012



Silver PTV Seals

for Agilent 6890 GCs

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



Not available in Germany
or Japan.

restek **innovation!**

Helping our customers
improve efficiency!



Simply slip the Weldment Removal Tool over the weldment, then twist and remove. For speed and efficiency, the weldment stays secured in the Weldment Removal Tool until you reattach it.



EZ Twist Top® Split/Splitless Injection Ports for Agilent GCs

The importance of injection port maintenance has been well documented by instrument and column companies industry wide. Restek has made it easy to carry out this maintenance with the innovation of our EZ Twist Top® injection port.

- Change inlet liners faster and more easily.
- Gas lines are attached to shell weldment bottom to help eliminate broken gas lines.
- Gas lines don't interfere with routine maintenance.
- Weldment Removal Tool allows for quick removal of the hot weldment without fingers ever touching hot surfaces.
- Weldment stays secure in the tool for reattachment.

Get the EZ Twist Top® ADVANTAGE

	Restek EZ Twist Top®	Agilent Flip Top
Eliminate damaged gas lines	✓	
Siltek deactivation for enhanced inertness & durability	✓	
Avoid touching hot metal surfaces—Weldment removal tool included	✓	



EZ Twist Top® Split/Splitless Injection Port for Agilent 7890 GCs

Description	qty.	cat.#	price
Injection Port Assembly Kit Includes: shell weldment, 2 weldment O-rings, Siltek Dual Vespel Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool	kit	22177	
Injection Port Assembly Kit, Siltek Treated Includes: Siltek shell weldment, 2 weldment O-rings, Siltek Dual Vespel Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool	kit	22178	
Weldment (2 weldment O-rings are installed on the weldment)	ea.	22724	
Weldment, Siltek Treated (2 weldment O-rings are installed on the weldment)	ea.	22732	
Shell Weldment	ea.	22175	
Shell Weldment, Siltek Treated	ea.	22176	
Weldment O-rings	10-pk.	22729	
High Temperature Weldment O-Rings	10-pk.	23405	
Septum Nut, Autosampler & PTV (for 23-gauge needles)	ea.	20631	
Stainless Steel Capillary Column Nut (for use with standard 1/16" ferrules)	2-pk.	20883	
Reducing Nut	ea.	22078	
0.8mm Dual Vespel Ring Inlet Seal, Siltek Treated	2-pk.	21242	
	10-pk.	21243	
Weldment Removal Tool	ea.	22728	

Visit www.restek.com/slideshows for an educational video on our EZ Twist Top injection port system.



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 remove the top and rear panel on the GC and see if you have the small (pencil type) split vent filter (cat.# 22820) or the large canister type filter (cat.# 23031) attached to the split vent gas line. 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).

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

Description	qty.	cat.#	price
Complete Injection Port Assembly Kit Includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek Dual Vespel Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool	kit	22735	
Complete Injection Port Assembly Kit, Siltek Treated 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 for use with 1/16" ferrules, and weldment removal tool	kit	22736	
Optional Split/Splitless Shell Weldment	ea.	22733	
Optional Split/Splitless Shell Weldment, Siltek Treated	ea.	22734	

EZ Twist Top® Split/Splitless Injection Port for Agilent 6890/6850 GCs with Pencil Traps

Description	qty.	cat.#	price
Injection Port Assembly Kit Includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek Dual Vespel Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool	kit	22721	
Injection Port Assembly Kit, Siltek Treated 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 for use with 1/16" ferrules, and weldment removal tool	kit	22722	
Weldment (2 weldment O-rings are installed on the weldment)	ea.	22724	
Weldment, Siltek Treated (2 weldment O-rings are installed on the weldment)	ea.	22732	
Shell Weldment	ea.	22723	
Shell Weldment, Siltek Treated	ea.	22730	
Weldment O-rings	10-pk.	22729	
High Temperature Weldment O-Rings	10-pk.	23405	
Septum Nut, Autosampler & PTV (for 23-gauge needles)	ea.	20631	
Stainless Steel Capillary Column Nut (for use with standard 1/16" ferrules)	2-pk.	20883	
Reducing Nut	ea.	22078	
0.8mm Dual Vespel Ring Inlet Seal, Siltek Treated	2-pk.	21242	
	10-pk.	21243	
Weldment Removal Tool	ea.	22728	

NEW!

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

Description	qty.	cat.#	price
Injection Port Assembly Kit Includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek Dual Vespel Ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool	kit	22725	
Injection Port Assembly Kit, Siltek Treated 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 for use with 1/16" ferrules, and weldment removal tool	kit	22726	
Weldment (2 weldment O-rings are installed on the weldment)	ea.	22724	
Weldment, Siltek Treated (2 weldment O-rings are installed on the weldment)	ea.	22732	
Shell Weldment	ea.	22727	
Shell Weldment, Siltek Treated	ea.	22731	
Weldment O-rings	10-pk.	22729	
High Temperature Weldment O-Rings	10-pk.	23405	
Septum Nut, Autosampler & PTV (for 23-gauge needles)	ea.	20631	
Stainless Steel Capillary Column Nut (for use with standard 1/16" ferrules)	2-pk.	20883	
Reducing Nut	ea.	22078	
0.8mm Dual Vespel Ring Inlet Seal, Siltek Treated	2-pk.	21242	
	10-pk.	21243	
Weldment Removal Tool	ea.	22728	

NEW!



did you know?

You can now heat your EZ Twist Top® Injection Port to even higher temperatures. Our new High Temperature Weldment O-rings (cat.# 23405) won't melt in the injection port and can reach up to 350 °C.

High Temperature O-rings are also now available for split (6.3 mm OD) and splitless (6.5 mm OD) liners for Agilent GCs (cat.# 23403 and 23404, **page 219**).

Use our new High Temperature O-rings for optimal performance at higher temperatures.

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.


Split/Splitless Injection Port
 (Direct Replacement or Siltek® Treated)
 for Agilent 5890 GCs

Description	Similar to Agilent part #	qty.	cat. #	price
Replacement Weldment*	19251-60575	ea.	20265	
Replacement Weldment*, Siltek Treated	19251-60575	ea.	20267	
Replacement Shell Weldment	19251-80570	ea.	20266	
Replacement Shell Weldment, Siltek Treated	19251-80570	ea.	20268	


Split/Splitless Injection Port
 (Direct Replacement or Siltek® Treated)
 for Agilent 6890/6850 GCs

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

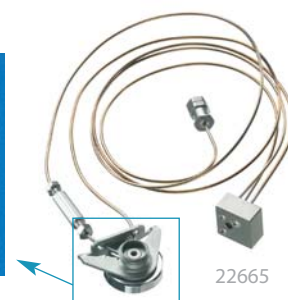
*For use with manual flow or EPC on Agilent 5890 GCs. For use with manual flow only on Agilent 6890/6850 GCs.

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.


Injection Port Weldments
 for Agilent GCs with Tekmar Purge and Trap Systems

Description	qty.	cat. #	price
Weldment for Agilent 6890 GCs	ea.	22664	
Weldment for Agilent 6890 GCs with large canister type filter	ea.	22668	
Weldment for Agilent 5890 GCs	ea.	22666	


Injection Port Weldments
 for Agilent GCs with OI Purge and Trap Systems

Description	qty.	cat. #	price
Weldment for Agilent 6890 GCs	ea.	22665	
Weldment for Agilent 6890 GCs with large canister type filter	ea.	22669	
Weldment for Agilent 5890 GCs	ea.	22667	

**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.



22352



22349



21409



Inlet Adaptor



PTV Inlet Adaptor Kit

for Gerstel CIS 3 and CIS 4 PTV Inlets

- Meets original manufacturer's performance.
- Includes inlet adaptor, silver PTV seal, and slotted capillary nut.

Description	Similar to Gerstel part #	qty.	cat.#	price
PTV Inlet Adaptor Kit for 0.25 and 0.32mm ID Columns	007259-045-00	kit	22350	
PTV Inlet Adaptor Kit for 0.53mm ID Columns	007259-007-00	kit	22351	
Silver PTV Seals	002841-005-00	5-pk.	21409	
PTV Slotted Capillary Column Nut	001268-005-00	2-pk.	22349	
Liner Seal Pre-Seat Tool	007542-000-00	ea.	22352	



20427

Vacuum Vu-Union® Connector

for GC/MS Applications

- Connects analytical column to MS transfer line.
- Use under vacuum conditions.
- Use only with Vu-Union® Vespel®/graphite ferrules (order ferrules separately).
- Includes metal housing body, one deactivated tapered glass insert, and Vu-Union® Helping Hand.
- Fits column ODs from 0.33–0.74 mm (Restek 0.1 mm–0.53 mm ID).

A specifically designed Vu-Union® glass insert permits more torque to be applied to the ferrules without fear of cracking the insert. The hex end nuts enable you to use wrenches to tighten the end fittings.

Vu-Union® Helping Hand

The Helping Hand is designed to hold in place the metal housing of the Vacuum Vu-Union® connector. This allows you to easily assemble the columns in the glass insert and tighten the nuts. The Helping Hand is included with the Vacuum Vu-Union® connector.



Description	qty.	cat.#	price
Vacuum Vu-Union Connector (with the Helping Hand)	ea.	20427	
Replacement Inserts	3-pk.	20428	



20272



20270

Gerstel GRAPHPACK® 3D/2 Connectors & Ferrules

GRAPHPACK® technology provides a complete system that quickly and reliably makes a leak-tight, low-dead-volume connection. The central component is a metal-jacketed graphite ferrule—the ideal seal for GC applications.

Gerstel GRAPHPACK® 3D/2 Connectors

Description	Fits Column ID	qty.	cat.#	price
GRAPHPACK 3D/2 Connector*	0.25mm to 0.32mm ID	ea.	20272	
GRAPHPACK 3D/2 Connector*	0.45mm to 0.7mm ID	ea.	20273	

GRAPHPACK® 3D/2 Ferrules

Ferrule ID	Fits Column ID	qty.	cat.#	price
0.4mm	0.25mm	10-pk.	20271	
0.5mm	0.32mm	10-pk.	20270	
0.8mm	0.45/0.53mm	10-pk.	20274	

GRAPHPACK® 2m Ferrules



Fits Column ID	Similar to Gerstel part #	qty.	cat.#	price
0.25mm	001805-040-00	10-pk.	22223	
0.32mm	001805-045-00	10-pk.	22224	
0.53mm	001805-007-00	10-pk.	22225	

Liner Seals

for CIS4 and PTV



Description	Max. temp.	Similar to Agilent part #	Similar to Gerstel part #	qty.	cat.#	price
Liner Seals for CIS4 and PTV	450°C	5182-9749	007541-005-00	5-pk.	22684	

ChromaBLOGraphy

Topical and timely insights from top chromatographers.

Visit us at blog.restek.com



1/16-Inch Capillary Inlet Adaptor Fitting Kit
 (Split/splitless fitting for capillary columns)

- 1/16-inch split/splitless fitting that accepts standard capillary ferrules.
- Easier to install capillary columns because the nut protrudes farther from the insulated injection port chamber.
- Same column insertion depth as the original manufacturer's equipment.
- Kit includes adaptor fitting, capillary nut, gold plated 0.8 mm ID Dual Vespel® Ring Inlet Seal, and one 0.4 mm ID ferrule.

Description	qty.	cat.#	price
1/16-Inch Capillary Inlet Adaptor Fitting Kit	kit	27184	
0.8mm ID Dual Vespel Ring Inlet Seal, Gold-Plated	2-pk.	21240	
	10-pk.	21241	



Direct Replacement Reducing Nut

- Made from high-quality stainless steel.
- Meets original manufacturer's equipment performance.

Description	Similar to Agilent part #	qty.	cat.#	price
Reducing Nut	18740-20800	ea.	22078	



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.#	price
EPC Test Kit	G1530-60960*	kit	24323	

*Similar to Agilent part # G1530-60960, but not exact equivalent. Kits differ in parts.



Heater Cartridge & Platinum Resistance Thermometer (PRT) Sensor

for Agilent 5890 GCs

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

Description	Similar to Agilent part #	qty.	cat.#	price
Injector/FID Heater and Injector/FID PRT Sensor	05890-61140	kit	22068	
Injector/FID Heater	19231-60620	ea.	22069	
Injector/FID PRT Sensor	19231-60660	ea.	23035	



Catch the Buzz

Sign up for Restek's e-newsletter, *The Buzz*
www.restek.com/buzz

Heat Sink
 for Agilent 5890 GC Split/Splitless Injector

Meets or exceeds original manufacturer's performance.



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

**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.#	price
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 Temperature Sensor Assembly**

for Agilent GCs

Description	Similar to Agilent part #	qty.	cat.#	price
Oven Temperature Sensor for Agilent 5890 GC	05890-61030	ea.	23040	
Oven Temperature Sensor for Agilent 6890 GC	G1530-61030	ea.	23039	

**60 psig Backpressure Regulator Kit**

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

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

**Replacement Chemical Traps**

for Agilent GCs

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

Description	Similar to Agilent part #	qty.	cat.#	price
Replacement Split Vent Trap for Agilent 6890/6850 GCs	G1544-80550	ea.	22820	
Replacement Chemical Trap for Agilent 5890 GCs	05890-61260	ea.	21610	
Split Vent Line (32-inch) for Agilent GCs (Includes all installation hardware.)	19251-80525	2-pk.	22800	
O-Rings for Agilent Trap Fittings	5180-4181	25-pk.	22064	
Optional Split Vent Trap Assembly for Agilent 6890/6850 GCs	G1544-60610	kit	23031	
Replacement Traps (2) and O-Rings (4)	G1544-80530	kit	23032	

also **available**

Looking for septa for Agilent GCs?

See **page 219** or visit www.restek.com and search on septa.



Oven Flapper Assemblies for Agilent 5890/6890 GCs

- Ensure even and consistent column heating when the insulation becomes damaged or worn.
- Replacement Insulation Gasket and Hardware Kit includes the insulation gasket, 2 screws and 2 nuts.
- Meets or exceeds original manufacturer's performance.
- Insulation is replaceable, using Restek's Oven Flapper Assemblies.

Description	Similar to Agilent part #	qty.	cat.#	price
Oven Flapper Assembly for Agilent 5890 GCs	05890-80560	ea.	22994	
Oven Flapper Assembly for Agilent 6890 GCs	G1530-80560	ea.	22995	
Replacement Insulation Gasket and Hardware Kit*		kit	22996	

*Fits Restek's Oven Flapper Assembly only.



Air Diverter for Agilent GCs

- Divert GC exhaust heat up and away from the lab bench.
- Meets or exceeds original manufacturer's performance.
- Easy to install—no tools required.

Description	Similar to Agilent part #	qty.	cat.#	price
Air Diverter for Agilent 5890/6890/7890 GCs	19247-60510, G1530-80650	ea.	22076	

Injector Wrench

for Agilent 5890/6890/6850 GCs

- Use to remove the septum nut and weldments during GC maintenance.
- Use the smaller end to remove the septum nut.
- Use the larger end to tighten the split/splitless weldment nut.
- High-quality stainless steel construction.
- Meets original equipment performance.

22065



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

Rethreading Tool

for Agilent Split/Splitless Injection Ports

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



23018

Worn & damaged threads can allow oxygen into the system—compromising analytical results and destroying columns.



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

Screw the tool completely onto the injection port in a clockwise direction. Unscrew the tool and inspect the threads, repeat as necessary. When done, wipe threads with methanol to remove any debris.

Description	qty.	cat.#	price
Rethreading Tool for 1/8" compression fittings (Agilent split/splitless injection ports)	ea.	23018	

Sky
Inlet Liners

**Looking for a
Simple Solution?**

RESTEK

New Sky™ liners, featuring a state-of-the-art deactivation, give you the inertness you need for accurate, reproducible trace level results.

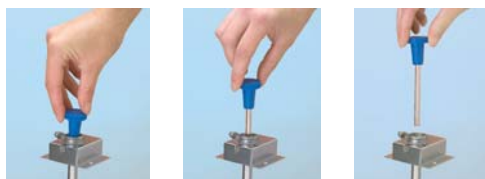
See pages 206-211 for details.

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.



20181



No more
burned
fingers!

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



22186

MLE
Make Life
Easier!

Everything you need in one complete kit!

Make Life Easier (MLE) Capillary Tool Kit for Agilent GCs

Includes:

- capillary installation gauge for Agilent GCs
- injector wrench for Agilent GCs
- septum nut removal tool
- 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 (0.25–0.65 mm 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/insert tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15 cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

Description	qty.	cat. #	price
MLE Capillary Tool Kit for Agilent GCs	kit	22186	

The Claw and The Claw Holder Kit

- Easily removes hot liners from injection ports.
- 4mL vials (not included) can be replaced when dirty.

Never again will you have to burn your fingers removing a hot injection port liner. The Claw safely and cleanly removes liners, O-rings, or other small objects from the injection port. You can then place the hot objects in a clean 4 mL vial situated in the Claw holder until ready for reuse.



Description	qty.	cat. #	price
The Claw	ea.	26261	
The Claw Holder Kit (includes The Claw and holder)	kit	26262	
WISP 48 Snap Seal Vial	100-pk.	24658	



also **available**

Looking for autosampler vials?

Restek carries a full line of autosampler vials for Agilent autosamplers. See **pages 353 to 363** or visit **www.restek.com** and search on autosampler vial.

Column Hanger for Agilent 7890, 6890, 5890, and 5880A GCs

NEW!



Description	qty.	cat. #	price
Column Hanger for Agilent 7890, 6890, 5890, and 5880A GCs	ea.	22128	

Direct Injection (DI) Inserts and Liner Adaptor for 1/4-Inch Packed Column Injection Ports (for 0.25, 0.32, & 0.53 mm ID columns)



DI Glass Inserts

for Agilent 5890 Packed Column GC

- Tolerances closely controlled.
- Can be removed from the septum nut weldment.

Description	Similar to Agilent part #	qty.	cat.#	price
DI Glass Inserts for Agilent 5890 Packed Column GC (1.7mm ID x 3.0mm OD x 93mm)	5181-3382, 5080-8732	5-pk.	20967	



DI Uniliner® Liners

for Agilent 5890 Packed Column GC

- Press-Tight® taper forms dead-volume-free connection to column.
- Minimizes solvent and peak tailing.
- Use with 0.25, 0.32, and 0.53 mm ID capillary columns.
- Can be removed from the septum nut weldment.

Description	Fits same liner adaptor as Agilent part #	qty.	cat.#	price
DI Uniliner Liner for Agilent 5890 Packed Column GC (1.7mm ID x 3.0mm OD x 93mm)	5181-3382, 5080-8732	ea.	20964	
		5-pk.	20965	
		25-pk.	20966	

DI Liner Adaptor

for Agilent 5890 Packed Column GC

- Uses standard 1/16-inch capillary nut and ferrules.
- Convenient wrench pad at base.
- Includes 1/4-inch graphite ferrule and stainless steel nut.
- Use with Agilent or Restek DI glass inserts or Restek DI Uniliner® liners for an Agilent 5890 packed column GC.



Description	Similar to Agilent part #	qty.	cat.#	price
DI Liner Adaptor for Agilent 5890 Packed Column GC	19244-80540	ea.	21303	

Siltek® Septum Packed Purge Port Weldment

for Agilent 5890 GCs

Siltek® treatment makes weldment inert and eliminates adsorption of sensitive compounds (e.g., DDT and Endrin). Order Viton® O-rings (below) and appropriate septa separately. See page 219.



Description	Similar to Agilent part #	qty.	cat.#	price
Siltek Septum Packed Purge Port Weldment for Agilent 5890 GCs	19243-80570	ea.	21691	
Viton Replacement O-rings	5080-8898	10-pk.	21685	

Micropacked Inlet Conversion Kits

- Convert a capillary GC split/splitless inlet for use with 1/16" OD micropacked columns.
- For use with Agilent 5890 and 6890 GCs.
- Sample pathways deactivated for ultimate inertness.

Description	qty.	cat.#	price
Micropacked Column Adaptor Kit for Split/Splitless Injection			
<i>Injection Port Adaptor Kit</i>			
Kit includes: Dual Vespel Ring Inlet Seal, large bore; reducing nut, large bore; 1/16" ferrule, Vespel/graphite; 1/16" nut, stainless steel; 4mm splitless liner, intermediate polarity deactivated	kit	22426	
Micropacked Column Adaptor Kit for On-Column Injection			
<i>Injection Port Adaptor Kit</i>			
Kit includes: Dual Vespel Ring Inlet Seal, large bore; reducing nut, large bore; 1/16" ferrule, Vespel/graphite; Siltek treated metal liner installation guide; 1/16" nut, stainless steel	kit	22427	
Replacement Inlet Seals for Micropacked Column Adaptor			
Dual Vespel Ring Inlet Seals, large bore (2)	2-pk.	22429	
Replacement Metal Liner Installation Guide for On-Column Injection, Siltek Treated	ea.	22430	
Replacement 4mm Splitless Liner	ea.	20772	



Large-Bore Dual Vespel® Ring Inlet Seals



1/4" SS Nut



Large-Bore FID Adaptor



1/4" Vespel®/Graphite Ferrule



1/16" SS Nut



Large-Bore Reducing Nut



1/16" Vespel®/Graphite Ferrules



22430



20772



Looking for packed and micropacked columns?

See **pages 122-143**

also **available**

Looking for more information or products on converting packed columns to capillary columns? See pages 265-267.

Dual-Column *mini-Lam* Direct Injection Tee

- Inverted cup design offers complete sample vaporization.
- Permits larger sample volumes.
- Incorporates a Press-Tight® taper in each outlet leg, to make a perfect, dead-volume-free connection to each analytical column (ODs ranging from 0.4 to 0.8 mm).
- Allows visual confirmation of the column connection.
- Open-top design makes it easy to pack with glass wool, keeping sample residue from contaminating the cup.

Description	qty.	cat.#	price
<i>mini-Lam</i> DI Tee Kit (includes all fittings and ferrules)	kit	20436	
Replacement 4mm <i>mini-Lam</i> DI Tee	ea.	20435	



Inlet Adaptor Kit for Dual Column Installation for Agilent Capillary Injectors

(Split/splitless fitting for capillary columns)

- 1/16-inch split/splitless fitting that accepts standard, two-hole capillary ferrules.
- Easier to install capillary columns due to the nut protruding farther from the insulated injection port chamber.
- Same column insertion depth as the original manufacturer's equipment.
- Kit includes adaptor fitting, 1/16" capillary nut, gold-plated 1.2 mm ID Dual Vespel® Ring Inlet Seal, one 0.4 mm ID two-hole ferrule, and one 0.5 mm ID two-hole ferrule.

Description	qty.	cat.#	price
Inlet Adaptor Kit for Dual Column Installation for Agilent Capillary Injectors	kit	27185	
	2-pk.	21246	
1.2mm ID Dual Vespel Ring Inlet Seal, Gold-Plated	10-pk.	21247	

Dual-Column Direct Injection Tee

- Designed with a glass spiral to promote sample vaporization and provide even sample distribution to the two columns.
- Traps sample residue and minimizes the need for guard columns.
- Press-Tight® taper in each outlet leg facilitates a perfect dead-volume-free connection to each analytical column (OD 0.4 to 0.8 mm) and allows visual confirmation of the column connection.



20412

Description	qty.	cat.#	price
DI Tee Kit	kit	20412	
Replacement Tee	ea.	20411	



For use with
0.53 mm ID columns.

20645

1/8-Inch Capillary Inlet Adaptor Fitting Kit

(Split/splitless fitting for 0.53 mm ID capillary columns)

- 1/8-inch split/splitless fitting accepts standard two-hole capillary ferrules and a standard 1/8-inch nut.
- Makes column installation easy due to the nut protruding farther from the insulated injection port chamber.
- The column insertion depth is the same as the original equipment.
- Kit includes adaptor fitting, capillary nut, stainless steel inlet seal, washer, and one 0.8 mm ID two-hole ferrule.
- Use recessed gooseneck liners with this adaptor.

Description	qty.	cat.#	price
1/8-Inch Capillary Inlet Adaptor Fitting Kit	kit	20645	
0.53mm ID Dual-Column Installation	2-pk.	20392	
1/16-inch ID (Opening) Replacement Inlet Seal	10-pk.	20393	

Two-Hole Ferrules

for 1/8-Inch and 1/16-Inch Compression-Type Fittings

- Use 1/16-inch, two-hole ferrules with the 1/16-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 27185)
- Use 1/8-inch, two-hole ferrules with the 1/8-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 20645).



Fitting Size	Ferrule ID	Fits Column ID	qty.	Vespel/Graphite
1/16"	0.4mm	0.25/0.28mm	5-pk.	24848
1/16"	0.5mm	0.32mm	5-pk.	24849
1/8"	0.8mm	0.45/0.53mm	5-pk.	20246

also **available**

Looking for more information or products on dual column analyses?

See pages 268-270.

EZ No-Vent® GC Column-Mass Spectrometer Connector for Agilent GCs with 5971/5972, 5973, or 5975 GC/MS

- Change GC/MS columns in minutes without venting—100 µm transfer line throttles vacuum and eliminates the need to vent.
- 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.

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 as is required for other manufacturer's vent systems. This enables 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 down-time with each column change. The EZ No-Vent® connector easily attaches to the MS source without special tools or extra plumbing. Figure 1 shows the internal structure of the connector. Figure 2 illustrates the high performance achieved with the EZ No-Vent® Connector.

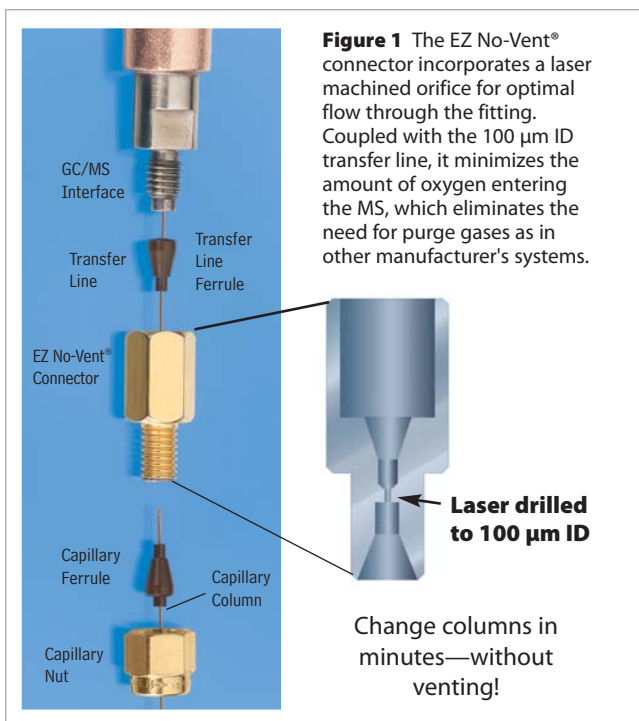
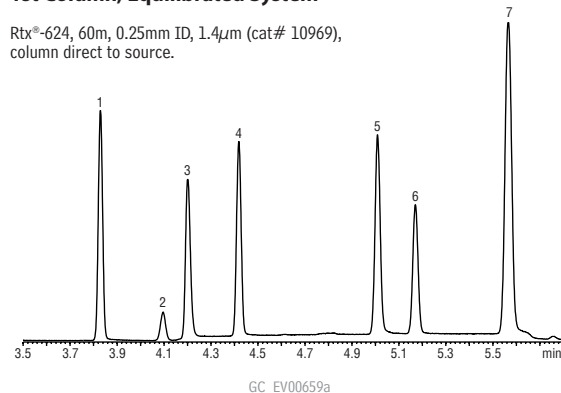


Figure 1 The EZ No-Vent® connector incorporates a laser machined orifice for optimal flow through the fitting. Coupled with the 100 µm ID transfer line, it minimizes the amount of oxygen entering the MS, which eliminates the need for purge gases as in other manufacturer's systems.

Figure 2 Sharp, symmetric peaks for gases show the EZ No-Vent® connector does not add dead volume and allows rapid column changes.

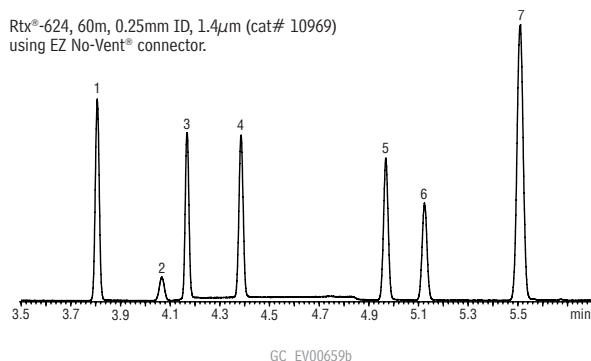
1st Column, Equilibrated System

Rtx®-624, 60m, 0.25mm ID, 1.4µm (cat# 10969), column direct to source.



Acquired 76 minutes after installing 2nd column

Rtx®-624, 60m, 0.25mm ID, 1.4µm (cat# 10969) using EZ No-Vent® connector.

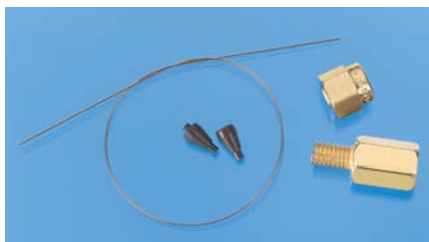


1. dichlorodifluoromethane
2. 1,2-dichlorotetrafluoroethene (Freon® 114)
3. chloromethane
4. vinyl chloride
5. bromomethane
6. chloroethane
7. trichlorofluoromethane

Sample:	Volatile Gas Mix 502.2 Calibration Mix#1 (gases) cat# 30042	Oven temp.:	60°C isothermal
Inj.:	Agilent 6890	Det:	Agilent 5973 GC/MS
GC:	Agilent 6890	Transfer line temp.:	280°C
Inj. temp.:	300°C	Scan range:	35-550amu
Carrier gas:	helium, constant flow	Tune:	BFB
Flow rate:	1.0mL/min.	Ionization:	EI

restek
innovation!

Kit installs easily, without special tools or plumbing.



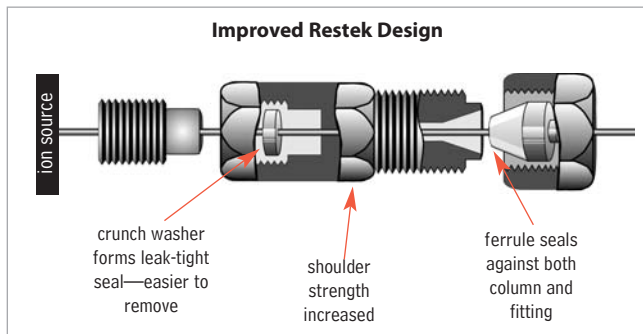
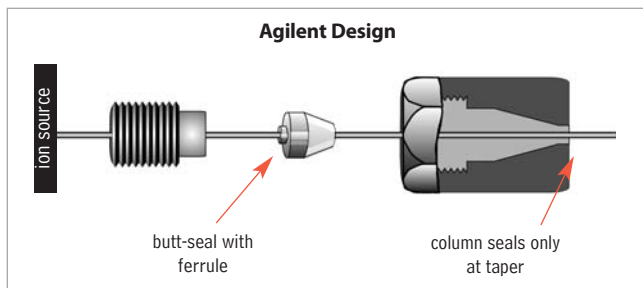
Description	qty.	cat.#	price
EZ No-Vent Connector Kit			
includes: EZ No-Vent Connector, two 0.4mm ID adaptor ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut	kit	21323	
Replacement ferrules for connecting capillary 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	20-pk.	23100	
Replacement EZ No-Vent Plug	5-pk.	23112	
Open-End Wrenches, 1/4" x 5/16"	2-pk.	20110	

Restek 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.
- Improved design reduces chance of leaks.



Agilent's MSD interface uses a butt-seal to seal the MSD source to the capillary column. This system is prone to leakage. Restek's MSD conversion fitting is designed with two separate seals to reduce the chance of leaks: a crush washer seals the MSD conversion fitting to the source; a ferrule seals the capillary tubing to the conversion fitting.



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

For Vespel ferrules, see page 210.

Restek MSD Source Nut

- 1.2 mm 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.
- Design enhances ease of threading onto the transfer line and improves overall lifetime.



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

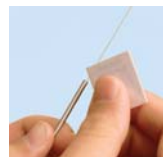
restek innovation!

Capillary Installation Gauge for Agilent 5973/5975 MS

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



Install the nut and ferrule onto the column, then insert the column through the installation tool, exposing several centimeters at the exit end.

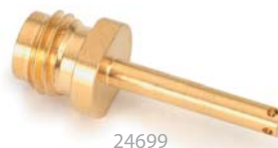


Tighten the nut. (not depicted)



Score and remove the exposed end of the column, then loosen the nut.

Description	Similar to Agilent part #	qty.	cat.#	price
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 original manufacturer's performance.

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



Replacement Interface with Bellows for Agilent 5971/5972 MS

- Meets or exceeds manufacturer's performance.
- Made of high-quality stainless steel.

Description	Similar to Agilent part #	qty.	cat.#	price
Replacement Interface with Bellows for Agilent 5971/5972 MS	05971-60302	ea.	22659	

ETP Electron Multipliers for Mass Spectrometry

- Air stable.
- 2-year shelf life guarantee.
- Discrete dynode design results in extended operating life.

The multi-dynode approach of all ETP multipliers results in longer lifetimes and better sensitivities compared with channel multipliers because of greater surface area.



23074

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 downtime to a minimum.

did you **know**?

A typical ETP electron multiplier has a total active dynode surface area of ~1,000 mm² compared to a standard continuous dynode multiplier that only has a total channel surface area of around 106 mm². The increased surface area of the ETP slows the aging process and improves operating life.

Description	qty.	cat.#	price
Electron Multipliers for Agilent GC/MS and LC/MS			
For Agilent 5970 GC/MS	ea.	23072	
For Agilent 5971, 5972, GC 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.

also **available**

Other ETP Electron Multipliers are available upon request. Call us if you do not see your instrument listed.

22660

Replacement Interface Guide Tube for Agilent 5971/5972 MS

- Meets or exceeds manufacturer's performance.
- Made of high-quality stainless steel.

Description	Similar to Agilent part #	qty.	cat.#	price
Replacement Interface Guide Tube for Agilent 5971/5972 MS	05971-20307	ea.	22660	



22661

Replacement Cold Sensor for Agilent 5971/5972 MS Diffusion Pump

- Meets or exceeds manufacturer's performance.
- Made of high-quality stainless steel.

Description	Similar to Agilent part #	qty.	cat.#	price
Replacement Cold Sensor for Agilent 5971/5972 MS Diffusion Pump	3103-0145	ea.	22661	



Tom Bloom, Technical Service

Technical Service

Do you have a technical question? Restek's Technical Service group has answers! Drawing from our extensive libraries of technical information and many years of collective chromatography experience, the experts in Technical Service can help you from set-up to method development.

Contact us:

For quick answers to commonly asked questions any time of the day, visit www.restek.com/answers or contact us directly:

In the U.S.

Phone: 1-800-356-1688, ext. 4
 Fax: 814-353-1568
 e-mail: support@restek.com

Outside the U.S.

Contact your Restek representative.



22662

Replacement Diffusion Pump Fan Assemblies for Agilent 5971/5972 MS

110/120 VAC

Description	Similar to Agilent part #	qty.	cat.#	price
Replacement Diffusion Pump Fan Assembly for Agilent 5971 MS	05971-60540	ea.	22662	
Replacement Diffusion Pump Fan Assembly for Agilent 5972 MS	05972-60540	ea.	22663	

Inland 45 is the highest quality rough pump oil you
can use for your mass spectrometer.

Inland 45 Pump Oil

Recommended for most mass spectrometers.

- Ease at cold start.
- Low vapor pressure 10^{-7} torr.
- Nontoxic and noncorrosive.
- Compatible with buna-N, neoprene, and Viton® seals.
- Optimum vacuum pump performance.
- Lowest mass spectrometer background.
- Recommended for optimum mass spec performance.



24819

Description	Similar to Agilent part #	qty.	cat.#	price
Inland 45 Pump Oil	6040-0834	1 liter	24819	

Rough Pump Oil #19

for MSD Pumps, Oil Vacuum Pump

- Formulated from crude oil stocks known for their durability and line lubricating qualities.
- Use in Agilent 5973/5972/5971 and GCD mass spec systems, or in other manufacturers' MSD systems that require rough pump oil.
- Under average use, the oil in the foreline rough pump should be replaced every six months.



22687

Description	qty.	cat.#	price
Rough Pump Oil for MSD Pumps	1 liter	22687	

Ion Source Cleaning Powder

Use this aluminium oxide powder to clean surfaces that contact the sample or ion beam when you encounter poor sensitivity and inadequate abundances at high masses.



22685

Description	Similar to Agilent part #	qty.	cat.#	price
Ion Source Cleaning Powder	8660-0791	1 kg	22685	



27194

GC/MS Cleaning Kit

Poor sensitivity, loss of sensitivity at high masses, or high multiplier gain during an auto tune are all indicators that your mass spectrometer source may need to be cleaned. Restek has assembled all of the necessary components for cleaning and polishing your ion source.

The Restek GC/MS Cleaning Kit (cat.#s 27194, 27195) includes:

- lint free nylon gloves (small-2 pair)
- lint free nylon gloves (large-2 pair)
- lint free cotton cloth, 9 x 9 (10-pk.)
- micro mesh 4 x 6 sheet (4-pk.)
- aluminum oxide (75 gram jar)
- cotton tip applicators
- tweezers, large
- tweezers, small
- septum puller
- Dremel® tool, battery-operated (optional, 27194)
- tool kit bag

Reorder Kit (cat.# 27196) includes:

- lint free nylon gloves (small-2 pair)
- lint free nylon gloves (large-2 pair)
- lint free cotton cloth, 9 x 9 (10-pk.)
- micro mesh 4 x 6 sheet (4-pk.)

Description	qty.	cat.#	price
Mass Spec Cleaning Kit with Dremel Tool	kit	27194	
Mass Spec Cleaning Kit without Dremel Tool	kit	27195	
Mass Spec Cleaning Kit Replacement Parts Kit Includes: cloths, micro mesh sheets, small and large gloves	kit	27196	



Heater Cartridge & Platinum Resistance Thermometer (PRT) Sensor for Agilent 5890 GCs

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

Description	Similar to Agilent part #	qty.	cat.#	price
Injector/FID Heater and				
Injector/FID PRT Sensor	05890-61140	kit	22068	
Injector/FID Heater	19231-60620	ea.	22069	
Injector/FID PRT Sensor	19231-60660	ea.	23035	



FID Collector Housing Kits for Agilent GCs

- Meets or exceeds original manufacturer's performance.
- Available for Agilent 5890, 6890, or 7890 GCs.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Collector Housing Kit for Agilent 5890 GCs (includes collector body, spanner nut, and silicone washer—order mount separately)	19231-20920	kit	23037	
FID Collector Housing Kit for Agilent 6890/7890 GCs (includes collector body, silicone washer, nut, and mount)	G1531-20550	kit	23045	
FID Collector Housing for Agilent 6890/7890 GCs	G1531-20740	ea.	23044	
Replacement Silicone Washers for FID Collector Housing				
for Agilent 5890/6890/7890 GCs	5180-4165	12-pk.	23064	



FID Collector Mount for Agilent GCs

- Meets or exceeds original manufacturer's performance.
- Available for Agilent 5890, 6890, or 7890 GCs.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Collector Mount for Agilent 5890 GCs	19231-20930	ea.	23036	
FID Collector Mount for Agilent 6890/7890 GCs	G1531-20550	ea.	23043	



FID Base Weldment for Agilent GCs

- Meets or exceeds original manufacturer's performance.
- Includes brass nut.
- Available for Agilent 5890, 6850, or 6890 GCs.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Base Weldment for Agilent 5890 GCs	19231-80580	ea.	23041	
FID Base Weldment, Pack Column FID for Agilent 6850/6890 GCs	G1531-80580	ea.	23052	
FID Base Weldment, Capillary Column FID for Agilent 6850/6890 GCs	G1531-80630	ea.	23053	

Note: 6890 GC connections to EPC modules are not compatible with the 7890 EPC modules.

Spanner Wrench for Agilent 5890/6890/6850/7890 FID Collector Assemblies

- Easily remove the nut from the FID collector without damaging the nut.
- Unique, ergonomic handle—easy to grip.
- Fits all instrument models.



Remove FID ignitor castle.



Easily loosen the nut by aligning the two pins on the bottom of the wrench with the two open slots on the nut...

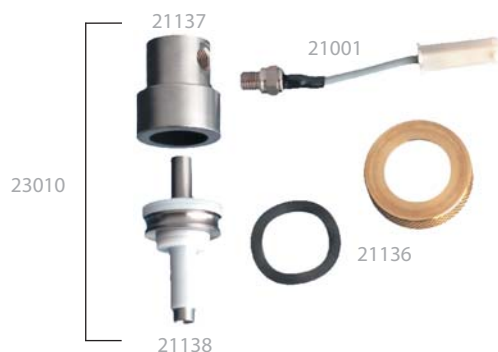


...then turn counterclockwise...



...and remove.

Description	Similar to Agilent part #	qty.	cat.#	price
Spanner Wrench for Agilent 5890/6890/6850/7890 FID Collector Assembly	19231-00130	ea.	22329	



FID Collector Assembly Kit for Agilent 5890 GCs

- Constructed of high-quality stainless steel.
- Meets or exceeds original manufacturer's performance.
- Individual replacement parts available.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Collector Assembly Kit (includes insulators)	19231-60690	kit	23010	
FID Collector Assembly Kit w/Siltek Ignitor Castle		kit	21131	
FID Collector (includes insulators)	19231-20970, 19231-20960, 19231-20950, 19231-20940,	ea.	21138	
FID Collector Nut and Washer	5181-3311	set	21136	
FID Ignitor*	19231-60680	ea.	21001	
FID Ignitor Castle	19231-20910	ea.	21137	
Siltek FID Ignitor Castle		ea.	21135	

*Also fits OI Analytical 4410 detector (similar to OI part # 191833).



FID Collector Assembly Kit for Agilent 6890/6850/7890 GCs

- Constructed of high-quality stainless steel.
- Meets or exceeds original manufacturer's performance.
- Individual replacement parts available.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Collector Assembly Kit (includes insulator)	G1531-60690	kit	21699	
FID Collector Assembly Kit w/Siltek Ignitor Castle		kit	21132	
FID Collector (includes insulators)	G1531-20690, G1531-20700, 19231-20940,	ea.	21139	
FID Collector Nut and Washer	5181-3311	set	21136	
FID Ignitor*	19231-60680	ea.	21001	
FID Ignitor Castle	19231-20910	ea.	21137	

*Also fits OI Analytical 4410 detector (similar to OI part # 191833).



FID Flow Measuring Adaptor for Agilent 5890/6890/6850/7890 GCs

- Makes setting flows easy.
- Meets or exceeds original manufacturer's performance.

Description	Similar to Agilent part #	qty.	cat.#	price
FID Flow Measuring Adaptor	19301-60660	ea.	21000	

FID Gauge Pack for Agilent 5890 GCs

- Pressure regulators and gauges for air & hydrogen.
- 1/8-inch bulkhead allows easy hookup to instrument.
- Rated for inlet pressures to 250 psi (1,724 kPa).
- Rated for outlet pressures of 0 to 60 psi (0-414 kPa).



Description	qty.	cat.#	price
FID Gauge Pack for Agilent 5890 GCs	ea.	22071	

FID Maintenance Kits for Agilent GCs

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

FID kits include:

- 1/4", 0.4, 0.5, and 0.8 mm ID graphite ferrules.
- FID/NPD capillary adaptor.
- Capillary nuts.
- Jet reamers/ferrule removers.
- 1/4" nut.
- Scoring wafer.
- Capillary column caps.
- Ignitor for either Agilent 5890 or 6890/6850/7890 GCs.
- FID flow measuring adaptor.
- 1/4" x 3/16" 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.



Description	qty.	cat.#	price
FID Maintenance Kit for Agilent 5890 GCs	kit	22180	
FID Maintenance Kit for Agilent 6850/6890/7890 GCs	kit	22179	



Which FID Jet Should I Use?

There are two FID jet configurations for Agilent GCs. The longer "adaptable" jet fits both 5890 and 6890 GCs, and can be used with capillary or packed columns. The shorter "dedicated" jet is for the FID in the 6890/7890 GC that is designed only for use with capillary columns.

FID Replacement Jets

Standard Version

- Engineered with a fluted tip to guide the capillary column into the jet.
- Threads specially coated for easy installation and removal.
- Special processing ensures the highest degree of cleanliness.
- Meets or exceeds original manufacturer's performance.

High-Performance Version—Siltek® Treated

- Similar to the standard version, but Siltek® treated.
- Extremely inert, for use with active compounds.

Capillary Adaptable FID Replacement Jet for Agilent 5890/6890/6850 GCs

Description	Similar to Agilent part #	qty.	cat.#	price	qty.	cat.#	price
Standard, 0.011-Inch ID Tip	19244-80560	ea.	20670	\$56	3-pk.	20671	
High-Performance Siltek Treated, 0.011-Inch ID Tip	19244-80560	ea.	20672	\$63	3-pk.	20673	

Capillary Dedicated FID Replacement Jet for Agilent 6890/6850/7890 GCs

Description	Similar to Agilent part #	qty.	cat.#	price	qty.	cat.#	price
Standard, 0.011-Inch ID Tip	G1531-80560	ea.	21621	\$46	3-pk.	21682	
High-Performance Siltek Treated, 0.011-Inch ID Tip	G1531-80560	ea.	21620	\$51	3-pk.	21683	
High-Temperature, 0.018-Inch ID Tip	G1531-80620	ea.	23078	\$53	3-pk.	23079	

Packed Column FID Replacement Jets for Agilent 5890/6890/6850 GCs

- 0.018-inch ID jets: Used for most general-purpose packed column applications.
- 0.030-inch ID jets: For packings that exhibit high bleed and that frequently clog the tip of smaller 0.018-inch jets.

Description	Similar to Agilent part #	qty.	cat.#	price	qty.	cat.#	price
Standard, 0.018-Inch ID Tip	18710-20119	ea.	21694	\$45	3-pk.	21695	
High-Performance Siltek Treated, 0.018-Inch ID Tip	18710-20119	ea.	21696	\$56	3-pk.	21697	
Description	Similar to Agilent part #	qty.	cat.#	price	qty.	cat.#	price
Standard, 0.030-Inch ID Tip	18789-80070	ea.	21688	\$43	3-pk.	21689	
High-Performance Siltek Treated, 0.030-Inch ID Tip	18789-80070	ea.	21686	\$56	3-pk.	21687	

FID Jet Removal Tool

for Agilent 5890/6890/6850/7890 FIDs

- Securely grips jet in socket for easy removal or installation.
- Unique, ergonomic handle—easy to hold.



Slip tool over FID jet...

...loosen jet...

...and remove.

Description	qty.	cat.#	price
FID Jet Removal Tool for Agilent 5890/6890/6850/7890 FIDs	ea.	22328	

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22328

Torx® Screwdriver Set

- Set includes TR-10, TR-15, and TR-20.
- Ideal for performing routine maintenance on Agilent 6890 and 7890 GCs.



23034

Description	qty.	cat.#	price
Torx Screwdriver Set	set	23034	



20120

FID/Injector Cleaning Kit

The FID/Injector Cleaning Kit includes:

- Nylon tube brushes ($\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ").
- Pipe cleaner.
- Stainless steel tube brushes ($\frac{3}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ").
- Stainless steel surface brush.
- Stainless steel jet reamers.
- Emery cloth.

Description	qty.	cat.#	price
FID/Injector Cleaning Kit	kit	20120	



Injector/Detector Plug Nuts

- Use to cap off an injector to isolate leaks.
- Use to cap off a detector for thermal cleaning.
- Use to check a detector or make-up gas flow rate.
- Use to cap off a detector and prevent hydrogen from accidentally diffusing into the oven from an unused detector base.



21883

Description	Similar to Agilent part#	qty.	cat.#	price
Injector/Detector Plug Nuts	5020-8294	2-pk.	21883	



20884

FID/NPD Adaptor Fitting

- Easy to use, sturdy, compact stainless steel fitting.
- $\frac{1}{16}$ -inch nut uses standard graphite or Vespel®/graphite ferrules.
- Wrench pad won't turn when installing a capillary column.
- Includes $\frac{1}{4}$ - and $\frac{1}{16}$ -inch stainless steel nuts, and $\frac{1}{4}$ -inch Vespel® and 0.4mm ID graphite ferrules.

Description	qty.	cat.#	price
FID/NPD Adaptor Fitting	kit	20884	



22077

FID/NPD Capillary Adaptor Fitting

for Agilent 5890/6890/6850 GCs

- High-quality stainless steel construction.
- Meets or exceeds original manufacturer's performance.

Description	Similar to Agilent part #	qty.	cat.#	price
FID/NPD Capillary Adaptor Fitting	19244-80610	ea.	22077	



21301



21302

27192

27190

ECD/FID Dual-Purpose Make-Up Gas Kit

for Agilent 5890 GCs

Kit includes: replacement fitting, $\frac{1}{4}$ " nut, Vespel/graphite ferrule, $\frac{1}{16}$ " nut, 0.4 mm ID graphite ferrule, Siltek treated guide

Description	Similar to Agilent part #	qty.	cat.#	price
ECD/FID Replacement Fitting Kit with Flow Manifold Connection		kit	21301	
Replacement ECD Siltek Metal Guide		2-pk.	21302	
Replacement ECD Fused Silica Liner	19233-20625	ea.	27192	
		5-pk.	27193	
Replacement Micro ECD Liner	G2397-20540	ea.	27190	
		5-pk.	27191	

also **available**

Looking for more detector replacement parts?

See page 271.

Replacement Cables

for Agilent GCs, Integrators, & Autosamplers

- Considerable savings over original manufacturer's equipment.
- Instructions and wiring diagrams included.
- Manufactured with only the highest-quality components.



Connect an Agilent 5890 GC to an Agilent integrator (for second Inet integrator).

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	35900-60610	6 ft.	ea.	20650	



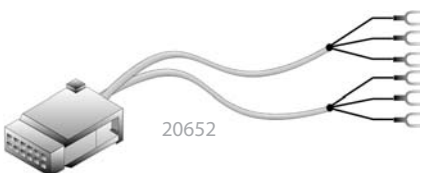
Connect an Agilent 5890 GC to an Agilent 3396 integrator to enable remote starts (non-Inet connection from GC to integrator).

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	03394-60560	6 ft.	ea.	20654	



Connect an Agilent 3396 integrator to remote-start another piece of equipment or to start the Agilent 3396 integrator from that other piece of equipment.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	03394-60540	6 ft.	ea.	20655	



Connect an Agilent 5890 GC to a non-Agilent integrator or standard strip chart recorder.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	05890-60800	6 ft.	ea.	20652	



Connect an Agilent 5890 GC to remote-start another piece of equipment or to start the Agilent 5890 GC from that piece of equipment.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	05890-61080	6 ft.	ea.	20657	



Connect an Agilent 3396 integrator to a non-Agilent GC.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	35900-60630	6 ft.	ea.	20658	



Connect an Agilent 5890 GC to an Agilent 35900C Interface or to an Agilent 7673A Autosampler to enable remote starts.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	35900-60700	6 ft.	ea.	20660	



Automatic liquid sampler stop/start cable for Agilent GCs.

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	G1530-60930	7 ft.	ea.	20929	



Connect an Agilent 6890 GC to a PC 9F/9F (RS232).

Description	Similar to Agilent part #	length	qty.	cat.#	price
Replacement Cable	G1530-60600	6 ft.	ea.	22694	

Replacement Parts for Agilent Autosamplers

All parts meet or exceed original manufacturer's performance.



Injector Mounting Posts and Parking Post for Agilent 7673 & 7683 Autosamplers

Description	Similar to Agilent part #	qty.	cat.#	price
Injector Mounting Post for Agilent 7673 Series Autosamplers for use with 6890 GCs	07673-21140	ea.	21237	
Injector Mounting Post for Agilent 7683 Series Autosamplers for use with 6850/6890 GCs	G2613-20500	ea.	21172	
Parking Post for Agilent 7673/7683 Series Autosamplers for use with 5890/6890/7890 GCs	05890-61525	ea.	22343	



Turret Tray Assembly for Agilent 5890/6890 GC

Holds sample, waste, and solvent vials.

Description	Similar to Agilent part #	qty.	cat.#	price
Turret Tray Assembly for Agilent 5890/6890 GC	07673-60605	ea.	22855	



Autosampler Plunger Carrier Belt for Agilent 7673A & 7673B Autosamplers

Description	Similar to Agilent part #	qty.	cat.#	price
Autosampler Plunger Carrier Belt for Agilent 7673A and 7673B	07673-61275	ea.	22695	



Carriage Motor Belt for Agilent 7673A & 7683B Autosamplers

Description	Similar to Agilent part #	qty.	cat.#	price
Carriage Motor Belt for Agilent 7673A and 7673B	1500-0676	ea.	22692	



Z-Belt for Agilent 7673B Autosampler

Description	Similar to Agilent part #	qty.	cat.#	price
Z-Belt for Agilent 7673B Autosampler	1500-0803	ea.	22332	



Injector Turret Motor for Agilent 7673A & 7673B Injectors




Description	Similar to Agilent part #	qty.	cat.#	price
Injector Turret Motor for Agilent 7673A & 7673B Injectors	07673-60810	ea.	22337	



also available Autosampler Vials

See pages 353-365.

Liners for APEX ProSep 800 & ProSep 800 Plus GCs

COLUMN INSTALLS THIS END	APEX Liners for ProSep 800 & ProSep 800 Plus GCs	Benefits/Uses:	ID* OD x Length	Similar to APEX part #	cat.#/price ea.
		injections $\leq 125\mu\text{L}$	4.0mm 6.0mm x 243mm	L-00410	21075
		injections $\leq 5\mu\text{L}$	1.0mm 6.0mm x 243mm	L-00110	21073
		injections $\leq 25\mu\text{L}$	2.0mm 6.0mm x 243mm	L-00210	21074
	MIDI II (2.0mm ID)				

*Nominal ID at syringe needle expulsion point.

Accessories
for APEX GCsViton® O-Rings
for Apex Liners

Description	Max. temp.	qty.	cat.#	price
O-Rings for APEX liners	250°C	25-pk.	22067	

Deactivated Wool

This deactivated wool is more inert than our traditional fused silica wool. This wool can be used to vaporize a sample in a liner prior to introduction into a capillary column.



Description	qty.	cat.#	price
Deactivated Wool	10 grams	24324	

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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.#	price
Inlet Liner Removal Tool	3-pk.	20181	







Septum Puller

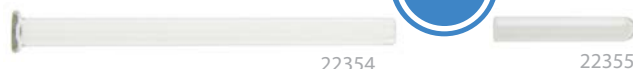
- Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or debris.
- Keep several on hand in your laboratory—can be used in many different ways.

Description	qty.	cat.#	price
Septum Puller	ea.	20117	

Liners for ATAS Injectors

COLUMN INSTALLS THIS END	Liners for ATAS Injectors	Benefits/Uses:	ID* OD x Length	Similar to ATAS part #	cat.#/price ea.
		universal	3.0mm 5.0mm x 80mm		22415 \$25
	ATAS Open Liner, 3mm				
		trace, active samples $< 1\mu\text{L}$	1.0mm 5.0mm x 80mm	A100049	22417 \$42
	ATAS Open Liner, 1mm				
		dirty samples	3.0mm 5.0mm x 80mm	A100126	22419 \$40
	ATAS Fritted Gooseneck				
	Liners for ATAS LINEX DMI System OPTIC 2 and 3 inlets		ID* OD x Length		cat.#/price 5-pk.
			3.3mm 5.0mm x 81mm		22353
	ATAS LINEX DMI Liner				


















*Nominal ID at syringe needle expulsion point.

Accessories
for ATAS LINEX DMI System

Description	qty.	cat.#	price
Needle Guide for ATAS LINEX DMI Liner	5-pk.	22354	
Microvial/Insert for ATAS LINEX DMI Liner	100-pk.	22355	

ordering **note**

For additional liner ordering information, see **pages 206-213**.

Split Liners for PerkinElmer GCs	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Straight	universal, for most common analyses	3.5mm 5.0mm x 100mm	N6502008	20736	20737	—
 Cup Splitter	high & low MW compounds	3.5mm 5.0mm x 100mm	—	20739	20740	—
 Cyclosplitter	dirty samples, many injections before cleaning required	3.5mm 5.0mm x 100mm	—	20745	20746	—
 Auto SYS Splitter w/Wool	universal for most common analyses	4.0mm 6.2mm x 92.1mm	N6502009	20832	20833	20834
 Auto SYS Cup Splitter	high & low MW compounds	4.0mm 6.2mm x 92.1mm	N6502011	20835	20836	—
 Auto SYS Cyclosplitter	dirty samples, many injections before cleaning required	4.0mm 6.2mm x 92.1mm	N6502012	20910	20911	—
 Auto SYS Laminar Cup Splitter	high MW compounds	4.0mm 6.2mm x 92.1mm	—	20827	20828	—
 Auto SYS Split Precision Liner w/Wool	dirty samples, trace samples	4.0mm 6.2mm x 92.1mm	N6121020	21026	21027	—
Splitless Liners for PerkinElmer GCs	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Splitless (2mm ID)	trace samples	2.0mm 5.0mm x 100mm	N6502007	20730	20731	20732
 Auto SYS Splitless	headspace & purge & trap	1.0mm 6.2mm x 92.1mm	N6502006	21272	21273	21274
 Auto SYS Splitless (2mm ID) w/Wool	trace samples	2.0mm 6.2mm x 92.1mm	N6121021	20829	20830	—
 Auto SYS Double Gooseneck	trace, active samples up to 4µL	4.0mm 6.2mm x 92.1mm	N6502003	20853	20854	—
 Auto SYS Cyclo Double Gooseneck	trace, dirty, active samples, up to 4µL	4.0mm 6.2mm x 92.1mm	N6502005	20899	20900	—
PSS Liners for PerkinElmer GCs	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 PSS Split/Splitless (1mm ID)	trace samples	1.0mm 4.0mm x 86.2mm	N6121006	20738	20741	—
 Auto SYS XL PSS Split/Splitless w/Wool	most common analyses	2.0mm 4.0mm x 86.2mm	N6121004	21717	21718	—
 PSS Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	2.0mm 4.0mm x 86.2mm		22986	22987	—
 PSS Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	2.0mm 4.0mm x 86.2mm		22988	22989	—

*Nominal ID at syringe needle expulsion point.

All liners are
100%
deactivated

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

Sky
Inlet Liners

Introducing **Sky™** Liners



See page 206 for more details.

RESTEK

HROMalytic +61(0)3 9762 2034
ECHnology Pty Ltd

Australian Distributors
Importers & Manufacturers
www.chromtech.net.au















11/12

www.restek.com

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Zero Dilution Liners for PerkinElmer Auto SYS and Clarus GCs	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Zero Dilution Inner Liner	headspace analysis	1.0mm 2.0mm x 73mm	N1011446	22990	22991	—
 Zero Dilution Outer Liner	headspace analysis	2.5mm 6.2mm x 90mm	N1011445	22992	22993	—
Zero Dilution Liners for PerkinElmer GCs with PSS Inlets	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Zero Dilution Inner Liner	headspace analysis	1.0mm 2.0mm x 73mm	N1011446	22990	22991	—
 Zero Dilution Outer Liner	headspace analysis	2.5mm 4.2mm x 83mm	N1011447	24978	24979	—
PTV Liners for PerkinElmer GCs	Benefits/Uses:	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 PTV Press-Tight	high linearity for 0.25, 0.32, & 0.53mm ID columns	1.0mm 2.0mm x 88mm	—	20733	20734	20735
 1.0mm PTV Liner	high linearity	1.0mm 2.0mm x 88mm	—	20742	20743	20744
DI Liners for PerkinElmer GCs (0.32/0.53mm ID)	Benefits/Uses:	ID* OD x Length	Similar to PE part#	ea.	cat.#/price 5-pk.	25-pk.
 Uniliner	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 100mm	N6502018	20855	20856	—
 Cyclo-Uniliner	trace, dirty, active samples, high linearity	3.5mm 5.0mm x 100mm	N6502019	20857	20858	—
 Auto SYS Open-top Uniliner w/Wool	trace, dirty, active samples, high recovery & linearity	4.0mm 6.2mm x 92.1mm	N6502016	20837	20838	—
 Auto SYS Cyclo-Uniliner	trace, dirty, high MW active samples, high linearity	4.0mm 6.2mm x 92.1mm	N6502017	20839	20840	—
DI Liners for PerkinElmer GCs (For 0.32/0.53mm ID Columns)	Benefits/Uses	ID* OD x Length	Similar to PE part #	ea.	cat.#/price 5-pk.	25-pk.
 Auto SYS Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0mm 6.2mm x 92.1mm	N6121022	20819	20822	—
 Auto SYS Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0mm 6.2mm x 92.1mm	N6502013	21293	21294	—
 Auto SYS Gooseneck Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0mm 6.2mm x 92.1mm	N6502014	21295	21296	—
 Auto SYS Gooseneck Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0mm 6.2mm x 92.1mm	N6502015	21297	21298	—

*Nominal ID at syringe needle expulsion point.

Graphite O-Rings

for PerkinElmer Auto SYS XL or Clarus GCs with PSS Injector

Description	Max. temp.	Similar to PE part #	qty.	cat.#	price
Graphite O-Rings for PerkinElmer Auto SYS XL or	450°C	N610-1751	10-pk.	21475	
Clarus GCs w/PSS Injector	450°C	N610-1751	25-pk.	21476	

Viton® O-Rings

for PerkinElmer PSS Injector

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

Silicone O-Rings

for PerkinElmer Auto SYS XL or Clarus with CAP Injector

Description	Max. temp.	Similar to PE part #	qty.	cat.#	price
Silicone O-Rings for PerkinElmer Auto SYS XL or Clarus with CAP Injector	250°C	N6101374	10-pk.	20262	

IceBlue®



Precision molded!

BTO®

Thermolite®

Septa (11mm)

for PerkinElmer GCs

- Preconditioned and ready to use.
- Packaged in precleaned glass jars.

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.#	price	qty.	cat.#	price	qty.	cat.#	price
25-pk.	27141		50-pk.	27162		50-pk.	27110	
50-pk.	27142		100-pk.	27163		100-pk.	27111	
100-pk.	27143							

HANDY
septum size chart

PerkinElmer Instrument	Septum Diameter (mm)
Sigma series	11
900,990	11
8000 series	11
Auto SYS	11
Auto SYS XL	11



also **available**

Looking for packed column parts for PerkinElmer instruments?

See pages 265-267.

Merlin Microseal Septa

for PerkinElmer GCs
350 °C max injection port temperature.



The advantages of the Merlin Microseal Septum include elimination of septum coring, longer life, and consistent low needle insertion force. The Microseal septum incorporates two separate sealing mechanisms. These sliding seals eliminate septum coring and the resulting accumulation of septum crumbs in the injection port liner.

The Microseal septum uses a 23 gauge (0.63 mm, .025") needle or probe with a blunt, truncated conical tip. Since the syringe plunger end details are determined by manual or autosampler compatibility, often a removable needle syringe is an effective way to match both of these requirements. Installation is simple, requiring no modification of the injection port.

22781



Microseal Septa for PerkinElmer GCs	Merlin#	Similar to PE#	cat.#	price
PerkinElmer Kit (septum cap adapter, O-ring, nut, 2 septa)	51-12w	N9303344	22781	
Replacement Septum for PerkinElmer Kits (1 septum)	21-01w	N9303345	22782	



Injector Adaptor

for PerkinElmer Auto SYS XL

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

Description	Similar to PE part #	qty.	cat.#	price
For use with PE style capillary nuts				
Injector Adaptor for PerkinElmer Auto SYS XL	N6100157	ea.	22318	
Siltek Treated Injector Adaptor for PerkinElmer Auto SYS XL	—	ea.	22320	
For use with 1/8" compression style nuts				
Injector Adaptor for PerkinElmer Auto SYS XL	—	ea.	22319	

FID Capillary Column Adaptor

for PerkinElmer Auto SYS XL

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



Description	Similar to PE part #	qty.	cat.#	price
For use with PE style capillary nuts				
FID Capillary Column Adaptor for PerkinElmer Auto SYS XL	N6120020	ea.	22608	
For use with 1/8" compression style nuts				
FID Capillary Column Adaptor for PerkinElmer Auto SYS XL		ea.	22609	

RESTEK

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**FID Replacement Parts**

for PerkinElmer Auto SYS XL and Clarus 500

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

Description	Similar to PE part #	qty.	cat.#	price
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	

**The Claw and The Claw Holder Kit**

- Easily removes hot liners from injection ports.
- 4mL vials (not included) can be replaced when dirty.

Never again will you have to burn your fingers removing a hot injection port liner. The Claw safely and cleanly removes liners, O-rings, or other small objects from the injection port. You can then place the hot objects in a clean 4 mL vial situated in the Claw holder until ready for reuse.

Description	qty.	cat. #	price
The Claw	ea.	26261	
The Claw Holder Kit (includes The Claw and holder)	kit	26262	
WISP 48 Snap Seal Vial	100-pk.	24658	

also available

Restek carries Swagelok® fittings in brass & stainless steel. See pages 313-315 or visit www.restek.com and search on Swagelok.



Everything you need
in one complete kit!

Make Life Easier (MLE) Capillary Tool Kit
for PerkinElmer GCs**Includes:**










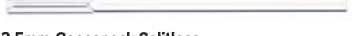

- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench
- 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
- 15 cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

Description	qty.	cat.#	price
MLE Capillary Tool Kit	kit	22185	

**Open-End Wrench Set**

High-quality 1/4" x 5/16", 3/8" x 7/16", 7/16" x 1/2", and 1/2" x 9/16" wrenches for tightening a wide variety of chromatography fittings.









Description	qty.	cat.#	price
Open-End Wrench Set	set	20387	

Split Liners for Shimadzu 14A GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 Split	universal, for most common analyses	3.5mm 5.0mm x 99mm	221-32544-01	20860	20861	20862
 Cyclo splitter	dirty samples, many injections before cleaning required	3.5mm 5.0mm x 99mm	—	20870	20871	—
 Laminar Cup Splitter	high MW compounds	3.5mm 5.0mm x 99mm	—	20868	20869	—
Splitless Liners for Shimadzu 14A GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 3.5mm Splitless	trace samples	3.5mm 5.0mm x 99mm	221-32544-00	20863	20864	20865
DI Liners for Shimadzu 14A GCs (0.25/0.32/0.53mm ID)	Benefits/Uses	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 Uniliner	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 99mm	—	20876	20877	—
 Cyclo-Uniliner	trace, dirty, high MW active samples, high recovery & linearity	3.5mm 5.0mm x 99mm	—	20893	20894	—
Split Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 1mm Split	purge & trap, fast GC	1.0mm 5.0mm x 95mm	—	20976	20977	20978
 3.5mm Split	universal, for most common analyses	3.5mm 5.0mm x 95mm	221-41444-01	22283	22284	22285
 2mm Split Precision Liner w/Wool	dirty samples, trace samples	2.0mm 5.0mm x 95mm		22171	22172	—
 3.5mm Split Precision Liner w/Wool	dirty samples, trace samples	3.5mm 5.0mm x 95mm	—	21020	21021	—
 Single Gooseneck w/Wool	dirty samples, trace samples	3.5mm 5.0mm x 95mm		22173	22174	—
 Cyclo splitter	dirty samples, many injections before cleaning required	3.5mm 5.0mm x 95mm	—	22072	22073	—
Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 2mm Gooseneck Splitless	universal, trace samples	2.0mm 5.0mm x 95mm	—	22276	22277	—
 3.5mm Gooseneck Splitless	universal, trace samples	3.5mm 5.0mm x 95mm	221-48335-01	22286	22287	—
 Double Gooseneck Splitless	reduces backflash and catalytic decomposition	3.5mm 5.0mm x 95mm	—	22274	22275	—

*Nominal ID at syringe needle expulsion point.

All liners are
100%
deactivated

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

Split/Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 Split/Splitless w/Wool	universal, for most common analyses	3.5mm 5.0mm x 95mm	221-41444-00	20955	20956	20957
SPME Liner for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 SPME Liner	ideal for low volume SPME applications	0.75mm 5.0mm x 95mm		22278	22279	—
Liners for Shimadzu 17A PTV GCs	Benefits/Uses	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 17A PTV Liner w/Wool	trace, dirty, high & low MW active samples	1.6mm 4.0mm x 95mm	225-09212-01	21705	21706	21707
DI Liners for Shimadzu 17A, 2010, and 2014 GCs (0.25/0.32/0.53mm ID)	Benefits/Uses	ID* OD x Length	Similar to Shimadzu part #	ea.	cat.#/price 5-pk.	25-pk.
 Uniliner w/Wool	trace, dirty, high MW active samples, high recovery & linearity	3.5mm 5.0mm x 95mm	—	21713	21719	—
 Open-top Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 95mm	—	21285	21286	—
 Open-top Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 95mm	—	21287	21288	—
 Gooseneck Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 95mm	—	21289	21290	—
 Gooseneck Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 95mm	—	21291	21292	—

*Nominal ID at syringe needle expulsion point.



Introducing Sky™ Liners



See page 206 for more details.

Siltek® Treated Metal Inlet Liners for Shimadzu GCs

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

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



Viton® O-Rings

for Shimadzu 17A, 2010, and 2014 GCs

Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#	price
Viton O-Rings for Shimadzu 17A, 2010, and 2014 GCs	250°C	036-11203-84	10-pk.	24899	

Graphite O-Rings

for Shimadzu 2010, and 2014 GCs

Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#	price
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	

Septa (Plug)

for Shimadzu GCs

Thermoste 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.#	price	qty.	cat.#	price	qty.	cat.#	price
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.#	price
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, 0.4 mm graphite ferrule, and 1/16-inch stainless steel capillary nut.

Description	qty.	cat.#	price
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 original manufacturer's performance.

Description	Similar to Shimadzu part #	qty.	cat.#	price
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 original manufacturer's performance.

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

5 mm Ferrules

for Shimadzu 17A GCs

- For use with packed columns.
- Graphite construction.

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

Graphite Ferrules

for Shimadzu 17A, 2010, & 2014 GCs

- Graphite 2-piece construction.
- Available in 0.4, 0.5, and 0.8 mm sizes.
- Packaged on mandrel for easy handling.

Ferrule ID	Fits Column ID	Similar to Shimadzu part #	qty.	cat.#	price
0.4mm	0.25mm and less	220-90765-00	10-pk.	24827	
0.5mm	0.32mm	221-32126-05	10-pk.	24828	
0.8mm	0.53mm	221-32126-08	10-pk.	24829	



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.#	price
Injector Wrench for Shimadzu 17A, 2010, and 2014 GCs	221-46977-00	ea.	21159	



Open-End Wrench Set

for use with Shimadzu 17A, 2010, and 2014 Capillary Installation Gauge

Description	qty.	cat.#	price
1/4" x 3/16" and 10mm x 11mm Open-End Wrench Set for use with Shimadzu 17A, 2010, and 2014 Capillary Installation Gauge	ea.	22334	



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.
- For use with graphite ferrules.

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



Everything you need
in one complete kit!

22182

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

Includes:

- capillary installation gauge for Shimadzu GCs
- injector wrench for Shimadzu 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 (0.25–0.65 mm OD)
- 1/4" x 3/16" open end wrench
- 3/8" x 1/16" open end wrench
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm 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
- 15 cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

















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



did you know?

Restek offers a full line of Parker® gas generators.

Gas generators are a safe and cost-effective alternative to gas cylinders. See **pages 304-308** for more information.

Split Liners for Thermo Scientific 4000-5000-6000 Series GCs		Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
	Laminar Cup Splitter	high MW compounds	4.0mm 5.4mm x 79.5mm	—	20809	20810	—
	Cyclosplitter	dirty samples, many injections before cleaning required	4.0mm 5.4mm x 79.5mm	—	20817	20818	—
	Cup Splitter Gooseneck	high & low MW compounds	4.0mm 5.4mm x 79.5mm	—	20885	20886	—
Splitless Liners for Thermo Scientific 4000-5000-6000 Series GCs		Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
	Splitless (2mm ID)	trace samples	2.0mm 5.4mm x 79.5mm	—	20811	20812	20813
	Splitless (4mm ID)	trace samples	4.0mm 5.4mm x 79.5mm	—	20814	20815	20816
DI Liners for Thermo Scientific 4000-5000-6000 Series GCs (0.32/0.53 ID)		Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
	Open-top Uniliner w/Wool	trace, dirty, active samples, high recovery & linearity	4.0mm 5.4mm x 79.5mm	—	20841	20842	—
Split Liners for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL		Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
	1mm Split	purge & trap & fast GC	1.0mm 8.0mm x 105mm	453 20075	20916	20917	—
	3mm Split	universal	3.0mm 8.0mm x 105mm	453 20031	20936	20937	20938
	5mm Split	universal	5.0mm 8.0mm x 105mm	453 20030	20939	20940	20941
	Laminar Cup Splitter	high MW compounds	4.0mm 8.0mm x 105mm	—	20948	20949	—
	Cup Splitter	high & low MW compounds	4.0mm 8.0mm x 105mm	—	20950	20951	—
	5mm Split Precision Liner w/Wool	dirty samples, trace samples	5.0mm 8.0mm x 105mm	—	22288	22289	—
Splitless Liners for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL		Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
	Splitless (3mm ID)	trace samples	3.0mm 8.0mm x 105mm	453 20032	20942	20943	20944
	Splitless (5mm ID)	trace samples	5.0mm 8.0mm x 105mm	453 20033	20945	20946	20947
	Double Gooseneck	trace, active samples up to 4µL	4.0mm 8.0mm x 105mm	—	20952	20953	—
	5mm Splitless Precision Liner w/Wool	dirty samples, trace samples	5.0mm 8.0mm x 105mm	—	21028	21029	—







*Nominal ID at syringe needle expulsion point.

All liners are
100%
deactivated

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

Supplies for Thermo Scientific GCs: Liners

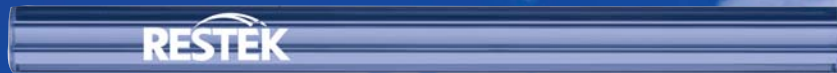
COLUMN INSTALLS THIS END

Split Liners for Thermo Scientific TRACE PTV	Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
 1mm ID Glass Liner	trace samples, high recovery & linearity	1.0mm 2.75mm x 120mm	453 22054	21114	21115	—
 2mm ID Glass Liner	universal	2.0mm 2.75mm x 120mm	453 22045	21116	21117	—
 Baffle Liner	trace samples	2.0mm 2.75mm x 120mm	—	22074	22075	—
DI Liners for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL (0.32 & 0.53mm ID columns)	Benefits/Uses:	ID* OD x Length	Similar to TS part #	ea.	cat.#/price 5-pk.	25-pk.
 Uniliner w/Wool	trace, active samples, high recovery, & linearity	5.0mm 8.0mm x 105mm	—	21005	21006	—
 Drilled Uniliner (hole near top)	trace, active samples, high recovery, & linearity	5.0mm 8.0mm x 105mm	—	22411	22412	—
 Drilled Uniliner (hole near bottom)	trace, active samples, high recovery, & linearity	5.0mm 8.0mm x 105mm	—	22413	22414	—

*Nominal ID at syringe needle expulsion point.

Sky
Inlet Liners

Introducing Sky™ Liners



See page 206 for more details.

Siltek® Treated Metal Inlet Liners for Thermo Scientific GCs

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

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

**Works with PTV injectors.



Inlet Liner Seals

for Thermo Scientific TRACE PTV



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

Graphite Sealing Ring

for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL Instruments

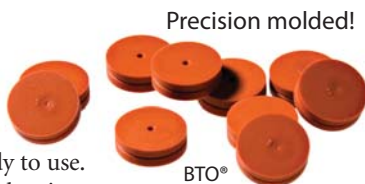


Description	Max. temp.	Similar to TS part #	qty.	cat.#	price
Graphite Sealing Ring for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	450°C	290-334-06	ea.	21898	
	450°C	290-334-06	2-pk.	21899	

Septa (9.5 mm, 17 mm)

for Thermo Scientific GCs

- Preconditioned and ready to use.
- Packaged in precleaned glass jars.



Precision molded!

BTO®

Septum Diameter	25-pk./price	50-pk./price	100-pk./price
BTO Septa (usable to 400°C inlet temp.)			
9mm CenterGuide	—	27104	27105
9.5mm (3/8")	—	27106	27107
17mm CenterGuide	—	27116	27117

Due to the injection port temperatures, Restek recommends using only BTO septa in Thermo Scientific instruments.

**HANDY
septum
size chart**

Instrument	Septum Diameter (mm)
Thermo Scientific TRACE GC, 8000, 8000 TOP, GCQ w/TRACE, PTV, 8000 series	17
Finnigan (TMQ) 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.#	price
Septum Cap for Split/Splitless Injector on Thermo Scientific TRACE, 8000, 8000 TOP & 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.
- Silcosteel®-AC treated version helps with septum removal.

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

Gold-Plated Liner Cap

for Split/Splitless Injector on Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL



22089

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

Silver Seals

for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL



23057

Description	Similar to TS part #	qty.	cat.#	price
Silver Seal for Split/Splitless Injector	29033629	10-pk.	23057	
	29033629	20-pk.	23058	

**Lab Gas Issues?**
Restek has the solution!

The ProFLOW 6000 Electronic Flowmeter measures volumetric flow for gases across a range of 0.5-500 mL/min.

See **page 274** for more information.

**Adapters for Capillary Columns**

on Thermo Scientific TRACE and Focus SSL

- Use same installation distance as manufacturer's adaptors.
- Made of high-quality stainless steel.
- Siltek® treated version available for additional inertness.

Description	Similar to TS part #	qty.	cat.#	price
For use with standard 1/8" ferrules.				
Adaptor for Capillary Column on Detector Base		ea.	24916	
Adaptor for Capillary Column on Split/Splitless Injector		ea.	24917	
Siltek Treated Adaptor for Capillary Column on Split/Splitless Injector		ea.	20543	
For use with M4 ferrules.				
Adaptor for Capillary Column on Detector Base	347 25 436	2-pk.	24969	
Adaptor for Capillary Column on Split/Splitless Injector	347 05 451	ea.	24970	
Siltek Treated Adaptor for Capillary Column on Split/Splitless Injector		ea.	20544	

Nut for Terminal Fitting
for Thermo Scientific TRACE GCs

Description	Similar to TS part #	qty.	cat.#	price
Nut for Terminal Fitting for Thermo Scientific TRACE GCs	350 221 25	2-pk.	24896	

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.#	price
Fixing Nut for Capillary Column for Split/Splitless Injector on Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	350 32 423	5-pk.	24973	

Graphite Ferrules

(M4 Fittings) for Thermo Scientific TRACE, 8000, 8000 TOP & Focus GCs



Ferrule ID	Fits Column ID	Similar to TS part #	Graphite 2-pk. price	Graphite 10-pk. price
0.3mm	0.10/0.15mm	—	22221	22222
0.4mm	0.18/0.28mm	29013488 (2-pk.) 29053488 (10-pk.)	20280	20281
0.5mm	0.32mm	29013487 (2-pk.) 29053487 (10-pk.)	20282	20283
0.8mm	0.45/0.53mm	29013486 (2-pk.) 29053486 (10-pk.)	20284	20285

FID Jet

for Thermo Scientific TRACE and Focus GCs

Meets or exceeds original manufacturer's performance.



Description	Similar to TS part #	qty.	cat.#	price
FID Jet for Thermo Scientific TRACE and Focus GCs	404 043 01	ea.	23080	

Restek Electronic Leak Detector**Protect your GC and analytical column!**

Don't forget to leak check after connecting all adaptors and fittings. The Restek Electronic Leak Detector will help ensure a leak-free connection!

See page 204.www.restek.com/leakdetector

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.



24937



Remove septum cap, septum holder, septum, and septum support.



Place tool on liner cap. Align two pins on bottom of tool with two open slots on liner cap.



Turn counter-clockwise to loosen liner cap.



Use tweezers (cat. #20101) to remove liner cap.

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



22997

Metric Wrench Set

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

Description	qty.	cat.#	price
Metric Wrench Set	set	22997	



22999

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, 10 mm.

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



22330

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.



Install nut and ferrule onto column. Cut column end squarely. Slide column into installation gauge to recommended insertion distance. Finger-tighten column nut.

Tighten assembly to ensure a properly seated ferrule. Loosen assembly and remove column and column nut.

The ferrule will be properly seated, and should remain in place when light force is applied. If it slides loosely on the column, repeat procedure.

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



22183

Everything you need
in one complete kit!

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 (0.25–0.65 mm OD)
- 1/4" x 3/16" open end wrench
- 3/8" x 7/16" open end wrench
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench
- rubber-tipped slide-lock tweezers
- scoring wafers with handles
- inlet liner removal tool
- septum puller
- mini wool puller/insert tool
- 4-inch tapered needle file
- swivel head flashlight
- mini hand drill set
- 15 cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

Description	qty.	cat.#	price
MLE Capillary Tool Kit	kit	22183	

ETP Electron Multipliers for Mass Spectrometry

- Air stable.
- 2-year shelf life guarantee.
- Discrete dynode design results in extended operating life.

The multi-dynode approach of all ETP multipliers results in longer lifetimes and better sensitivities compared with channel multipliers because of greater surface area.

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 downtime to a minimum.

Electron Multiplier for Thermo Scientific GC/MS	qty.	cat.#	price
For Thermo TRACE DSQ, DSQII, and Polaris-Q GC/MS	ea.	23081	

Other ETP Electron Multipliers are available upon request. Call us if you do not see your instrument listed.

did you know?

A typical ETP electron multiplier has a total active dynode surface area of ~1,000 mm² compared to a standard continuous dynode multiplier that only has a total channel surface area of around 106 mm². The increased surface area of the ETP slows the aging process and improves operating life.



22082

Transfer Line Reducing Kit

for Thermo Scientific TRACE and Focus DSQ Mass Spectrometers

Meets or exceeds original manufacturer's performance.

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

EZ No-Vent® GC Column-Mass Spectrometer Connector

for Thermo Scientific Focus DSQ GC Mass Spectrometers

- Change GC/MS columns in minutes without venting—100 µm 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.



22454

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 as is required for other manufacturer's vent systems. This enables 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 down-time with each column change. The EZ No-Vent® connector easily attaches to the MS source without special tools or extra plumbing.

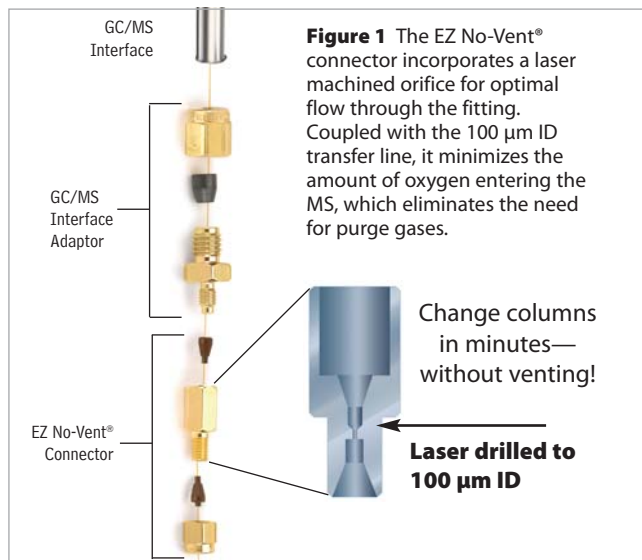


















Figure 1 The EZ No-Vent® connector incorporates a laser machined orifice for optimal flow through the fitting. Coupled with the 100 µm ID transfer line, it minimizes the amount of oxygen entering the MS, which eliminates the need for purge gases.

Description	qty.	cat.#	price
EZ No-Vent Connector Kit for Thermo Scientific Focus DSQ GC Mass Spectrometers Includes: EZ No-Vent Connector, interface adaptor, two 0.4mm ID adaptor 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	20-pk.	23100	
Replacement EZ No-Vent Plug	5-pk.	23112	
Open-End Wrenches, 3/8" x 5/16"	2-pk.	20110	
Open-End Wrenches, 3/8" x 7/16"	2-pk.	22455	

Splitless Liners for Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 2mm Splitless	trace samples <2µL	2.0mm 6.3mm x 74mm	190010905	20721	20722	20723
 4mm Splitless	trace samples >2µL	4.0mm 6.3mm x 74mm	—	20904	20905	20906
 Double Gooseneck	trace, active samples up to 4µL	4.0mm 6.3mm x 74mm	—	20847	20848	20849
 Cyclo Double Gooseneck	trace, dirty, active samples up to 4µL	4.0mm 6.3mm x 74mm	—	20897	20898	—
Split Liners for Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 1mm Split	purge & trap inlet splitting or samples <1µL	1.0mm 6.3mm x 72mm	—	20970	20971	—
 Splitter w/Wool	universal, use with rapid autosamplers	4.0mm 6.3mm x 72mm	190010901	20792	20793	20794
 Laminar Cup Splitter	high MW compounds	4.0mm 6.3mm x 72mm	190010902	20803	20804	—
 Cup Splitter	high & low MW compounds	4.0mm 6.3mm x 72mm	—	20724	20725	—
 Cyclo splitter	dirty samples, many injections before cleaning required	4.0mm 6.3mm x 72mm	—	20727 \$55	20728	—
 Frit Splitter	dirty samples, non-active compounds	4.0mm 6.3mm x 72mm	190010903	20715	20716	20717
 Baffle Splitter	compounds with close boiling points	4.0mm 6.3mm x 72mm	190010904	20718	20719	20720
 Split Precision Liner w/Wool	dirty samples, active samples	4.0mm 6.3mm x 72mm	—	21030	21031	—
DI Liners for Varian 1075/1077 S/SL Injection Ports (0.32/0.53mm ID)	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 Uniliner	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 72mm	—	20345	20346	—
 Cyclo-Uniliner	trace, dirty, high MW, active samples, linearity	4.0mm 6.3mm x 72mm	—	20347	20348	—
 Open-top Uniliner w/Wool	trace, dirty, active samples, high recovery & linearity	4.0mm 6.3mm x 72mm	—	20845	20846	—
SPME Liners for Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 SPME Liner	ideal for low-volume SPME applications	0.75mm 6.3mm x 74mm	—	21112	21113	—




*Nominal ID at syringe needle expulsion point.









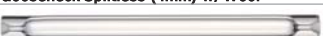
All liners are
100%
deactivated



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



COLUMN INSTALLS THIS END

SPI Liners for Varian S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 0.5mm SPI	high linearity for 0.25 & 0.32mm ID columns	0.53mm 4.6mm x 54mm	190010906	20775	20776	20777
 0.8mm SPI	high linearity for 0.53mm ID columns	0.80mm 4.6mm x 54mm	190010907	20778	20779	20780
 SPI with Buffer	dirty samples >1μL, fits 0.25, 0.32 & 0.53mm ID columns	2.4mm 4.6mm x 54mm	190010908	20850	20851	20852







Liners for Varian 1177 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 4mm Split w/Glass Frit	universal	4.0mm 6.3mm x 78.5mm	—	21045	21046	—
 4mm Split w/Wool	universal, use with Agilent 7673 autosampler	4.0mm 6.3mm x 78.5mm	392611934	—	21079	—
 4mm Split Precision Liner w/Wool	dirty samples, trace samples	4.0mm 6.3mm x 78.5mm	—	20759	20762	—
 Low Pressure Drop Precision Liner w/Wool	trace samples <2μL, dirty samples	2.0mm 6.3mm x 78.5mm	—	22421	22422	—
 Laminar Cup Splitter	high MW compounds	4.0mm 6.3mm x 78.5mm	—	20765	20768	—
 2mm Splitless w/Wool	trace samples <2μL	2.0mm 6.5mm x 78.5mm	392599903	—	21077	—
 Gooseneck Splitless (4mm)	trace samples <2μL	4.0mm 6.5mm x 78.5mm	392611927	21896	21897	—
 Gooseneck Splitless (4mm) w/Wool	trace samples <2μL	4.0mm 6.5mm x 78.5mm	392611928	21896-200.1	21897-200.5	—
 Double Gooseneck Splitless (4mm)	trace, active samples <2μL	4.0mm 6.5mm x 78.5mm	392611929	21891	21892	—



DI Liners for Varian 1177 S/SL Injection Ports (For 0.25/0.32/0.53mm ID Columns)	Benefits/Uses	ID* OD x Length	Similar to Varian part #	cat.#/price ea.	cat.#/price 5-pk.
 Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	—	21470	21471
 Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0mm 6.3mm x 78.5mm	—	21468	21469

*Nominal ID at syringe needle expulsion point.

All liners are
100%
 deactivated

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

Liners for Varian 1078/1079 Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Varian part #	ea.	cat.#/price 5-pk.	25-pk.
 1078/1079 Split w/CarboFrit	dirty samples, non-active compounds	3.4mm 5.0mm x 54mm	392611946	21708	21709	—
 1078/1079 Splitless	trace samples <2µL	2.0mm 5.0mm x 54mm	392611947	21711	21712	—
 Open 0.5mm ID	trace samples <1µL	0.5mm 5.0mm x 54mm	392611949	20992	20993	—
 1078/1079 Split-No Frit	active samples	3.4mm 5.0mm x 54mm	392611945	20859	20901	20909
 Open 0.75mm ID	trace, low volume samples	0.75mm 5.0mm x 54mm	392611948	21714	21715	21716
 1078/1079 Split Precision Liner w/Wool	dirty samples, trace samples	3.4mm 5.0mm x 54mm	—	21024	21025	—

DI Liners for Varian 1078/1079 Injection Ports (For 0.25/0.32/0.53mm ID Columns)	Benefits/Uses	ID* OD x Length	Similar to Varian part #	cat.#/price ea.	cat.#/price 5-pk.
 Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 54mm	—	24974	24975
 Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	3.5mm 5.0mm x 54mm	—	22280	22281

*Nominal ID at syringe needle expulsion point.

i tech tip

Drilled Uniliner® Liners

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 Varian GCs

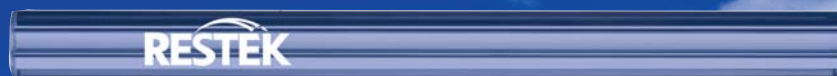
- Won't crack, chip, or break like glass liners.
- Excellent response for pesticides, phenols, and other active compounds.

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



Sky
Inlet Liners

Introducing **Sky™** Liners



See page 206 for more details.

RESTEK

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Importers & Manufacturers
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11/12

www.restek.com

261

Inlet Liner Seals

for Varian 1177 Injectors

Meets or exceeds original manufacturer's performance.

Description	Max. temp.	Similar to Varian part #	10-pk. cat.# price	50-pk. cat.# price
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 GCs

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



Septa

for Varian GCs

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

Septum Diameter	25-pk./price	50-pk./price	100-pk./price
Thermolite Septa (usable to 340°C inlet temp.)			
9mm	27132	27133	27134
9.5mm (3/16")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143

IceBlue Septa (usable to 250°C inlet temp.)			
9mm	—	27156	27157
9.5mm (3/16")	—	27158	27159
10mm	—	27160	27161
11mm (7/16")	—	27162	27163

BTO Septa (usable to 400°C inlet temp.)			
9mm CenterGuide	—	27104	27105
9.5mm (3/16")	—	27106	27107
10mm	—	27108	27109
11mm (7/16") CenterGuide	—	27110	27111

HANDY
septum size chart

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



Merlin Microseal Septa

for Varian GCs

350 °C max injection port temperature.



The advantages of the Merlin Microseal Septum include elimination of septum coring, longer life, and consistent low needle insertion force. The Microseal septum incorporates two separate sealing mechanisms. These sliding seals eliminate septum coring and the resulting accumulation of septum crumbs in the injection port liner.

The Microseal septum uses a 23 gauge (0.63 mm, 0.025") needle or probe with a blunt, truncated conical tip. Since the syringe plunger end details are determined by manual or autosampler compatibility, often a removable needle syringe is an effective way to match both of these requirements. Installation is simple, requiring no modification of the injection port.

Description	Merlin#	cat.#	price
Varian 1078/1079 Kit (septum cap adapter, O-ring, nut, septum)	21-11w	22779	
Varian 1177 Kit (septum cap adapter, O-ring, nut, spacer ring, septum)	22-11w	22780	
Replacement Septum for Varian Kits (1 septum)	21-01w	22782	

also available

Looking for ferrules?
See pages 284-286.





20881

Capillary Nuts for Varian GCs

Choose brass or stainless steel construction.

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



21690

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

Siltek® treated to eliminate sample adsorption.

Description	Similar to Varian part #	qty.	cat.#	price
Siltek Treated Inlet Support Springs for Varian 1075/1077 Split Injectors	03-949786-00	3-pk.	21690	



22335

Capillary Installation Gauge

for Varian GCs for use with 1/16" ferrules

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

Description	qty.	cat.#	price
Capillary Installation Gauge for Varian GCs for use with 1/16" ferrules	ea.	22335	

*Recommended for use with graphite ferrules.

Everything you need
in one complete kit!



22184

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

Includes:

- capillary installation gauge for Varian 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 (0.25–0.65 mm 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
- 15 cm compact steel ruler
- pocket magnifier
- high temperature string (1 meter)
- pipe cleaner (12-inch)
- cotton tip swabs (pk. of 25)

Description	qty.	cat.#	price
MLE Capillary Tool Kit	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!

Simply screw the rethreading tool onto the part, unscrew, and inspect the threads. Repeat as necessary. When done, wipe threads clean with methanol to remove any debris.

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

Sky

Introducing Sky™ Liners

See page 206 for more details.

restek
innovation!

Kit installs easily,
without special tools
or plumbing.

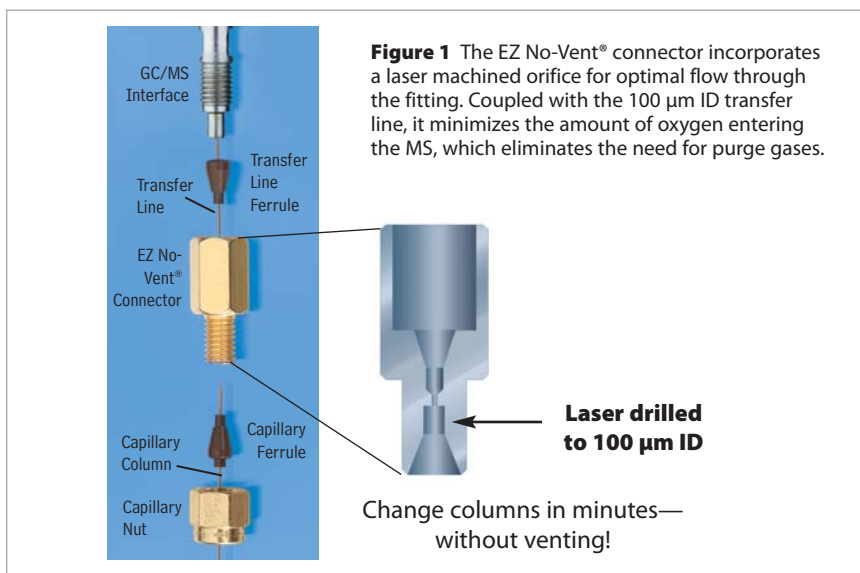


22423

EZ No-Vent® GC Column-Mass Spectrometer Connector for Varian Saturn 2000 Series Mass Spectrometers

- Change GC/MS columns in minutes without venting—100 µm 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.

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 as is required for other manufacturer's vent systems. This enables 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 down-time with each column change. The EZ No-Vent® connector easily attaches to the MS source without special tools or extra plumbing.



Description	qty.	cat.#	price
EZ No-Vent Connector Kit for Varian Saturn 2000 Series MSs			
Includes: EZ No-Vent Connector, two 0.4mm ID adaptor ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut			
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	20-pk.	23100	
Replacement EZ No-Vent Plug	5-pk.	23112	
Open-End Wrenches, 1/4" x 5/16"	2-pk.	20110	

Converting Packed Inlets to Capillary Column Use

Two types of inlet conversion kits are available for a 1/4-inch packed column injection port to fit either 0.32 or 0.53 mm ID capillary columns: the Vu-Tight liner and the Uniliner® liner with adaptor (next page). The Vu-Tight liner fits directly into the 1/4-inch injection port and allows visual confirmation of the connection between the column and the liner. The Uniliner® liner and adaptor work together to allow either direct or on-column injection when using 0.53 mm ID columns. Both systems incorporate a Press-Tight® connection between the liner and column inlet, minimize dead volume, and reduce solvent peak tailing.

Features of Both Conversion Kits:

- Fit Agilent, Varian, and other common GCs with 1/4-inch packed column injection ports (with maximum insertion depth of 4 inches).
- Install easily within fifteen minutes.
- Accommodate either 0.32 or 0.53 mm ID fused silica columns (tubing OD ≥ 0.5 mm).
- Liners are deactivated and extremely inert.
- Liners designed to accept dirty samples are available for either system.
- Press-Tight® connections between the liner and column inlet minimize dead volume, reduce solvent peak tailing, and sharpen early-eluting components.

Vu-Tight Inlet Liners

for 1/4-Inch Packed Injection Port Conversion

- Visually observe the Press-Tight® connection between the column end and liner.
- Fit 0.32 and 0.53 mm ID capillary columns (column ODs from 0.5 mm to 0.8 mm).
- Slotted top prevents obstruction of carrier gas flow.
- Two designs available.
- Operate in the direct injection mode.



Vu-Tight Inlet Liners

for 1/4-Inch Packed Injection Port Conversion

Can easily be packed with wool for dirty samples.

Description	qty.	cat.#	price
Vu-Tight DI Liner	ea.	20342	
Vu-Tight DI Liner	5-pk.	20343	
Vu-Tight DI Liner	25-pk.	20344	

Cyclo Vu-Tight DI Liner (1/4-inch OD)

Ideal for dirty samples. Spiral bore prevents nonvolatile residue from contaminating the column.

Description	qty.	cat.#	price
Cyclo Vu-Tight DI Liner	ea.	20787	
Cyclo Vu-Tight DI Liner	5-pk.	20788	

Vu-Tight Installation Fittings Kit

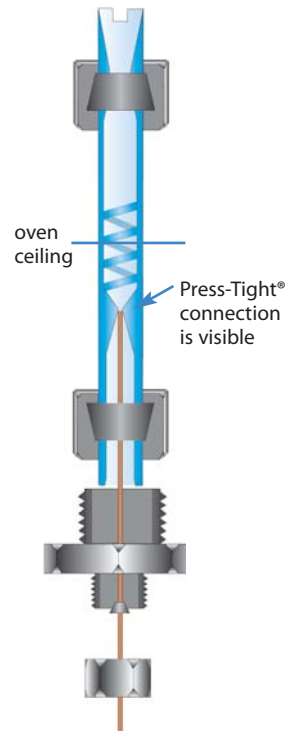
Includes a 1/4-inch stainless steel nut and graphite ferrule for attaching the liner to the GC inlet and a 1/4 to 1/16-inch stainless steel reducer, plus a 1/4-inch and 0.5 mm ID graphite ferrule for attaching the column to the liner.

Description	qty.	cat.#	price
Vu-Tight Installation Fittings Kit	kit	20504	

it's a fact

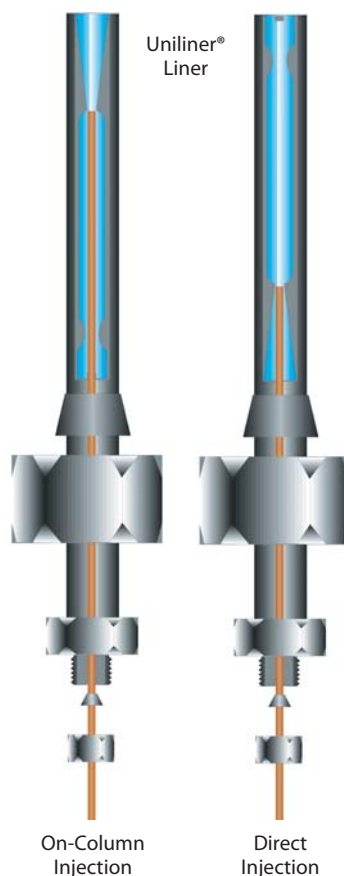
Vu-Tight Inlet Liners

The 1/4-inch Vu-Tight liner fits directly into a 1/4-inch injection port. The connection between the liner and the column is in the GC oven, allowing visual confirmation of the seal. Problems, such as a crushed column end in the Press-Tight® taper, can be detected easily, making proper installation worry-free. The Cyclo Vu-Tight liner prevents nonvolatile residue from contaminating the column.



it's a fact

5 mm Uniliner® liners fit into the 1/4-inch Uniliner® Liner Adaptor, which fits into a 1/4-inch injection port. The Uniliner® liner can be inserted in one direction for direct injections or inverted for on-column injections. Because the 1/4-inch injection port ferrule seals against the metal liner adaptor surface, it is virtually impossible to crack the glass Uniliner® liner during installation.



Uniliner® Liner

for 1/4-Inch Packed Injection Port Conversion

- Reduces solvent tailing.
- Versatile—0.53 mm ID version can be used in the direct (DI) or on-column (OC) injection mode.
- Incorporates a gentle taper that seals the column and reduces dead volume in direct injection mode.
- Available in various designs.

On-column injections can be performed only with 0.53 mm ID columns because 26-gauge needles do not fit into the bore of 0.32 mm ID columns, or into the Uniliner® liner taper.

Description	Column ID Injection Mode*	ea. cat.#/price	5-pk. cat.#/price
Uniliner Liner (small buffer volume chamber 60mm long, for injections $\leq 2\mu\text{L}$)	0.53mm DI or OC	20902	20903
Uniliner Liner (large buffer volume chamber 85mm long, for injections $\leq 4\mu\text{L}$)	0.32 & 0.53mm DI only	20308	20309
	0.53mm DI or OC	20301	20305
Cyclo-Uniliner Liner (for active, dirty samples)	0.32 & 0.53mm DI only	20319	20320
Open-Top Uniliner Liner (packed with wool)	0.32 & 0.53mm DI only	20315	20316
Low Volume/Purge & Trap Uniliner Liner (1mm ID x 5mm OD: use in 1/4" injection ports to troubleshoot purge & trap units)	0.32 & 0.53mm DI only	20307	20314

Includes 1/4-inch nut & graphite ferrule, 1/16-inch nut, and 0.8mm ID graphite ferrule.

Uniliner Liner Adaptor

(required for installing Uniliner liners in 1/4" injection ports)



	Stainless Steel	Siltek-Treated
For injection ports <8cm	20310	22282
For injection ports 8-15cm	20311	

1/4" Ferrules for Uniliner Liner Adaptor

cat.# 20234 (5-pk.)

*DI = direct injection, OC = on-column injection

Note: a Uniliner liner must be used with a Uniliner Liner Adaptor (cat.# 20310 or 20311) for 1/4-inch injection ports. Remember to include a liner adaptor when ordering a Uniliner liner, unless you are purchasing replacement Uniliner liners.



also available

Looking for other packed column accessories for Agilent GCs?
See page 232.

Injection Port Conversion Chart

Instrument	Uniliner Liner Set-Up		Vu-Tight Fitting	
	Uniliner Liner: cat.# 20301, 20305, 20308, 20309, 20315, 20316, 20319, 20320, 20902, & 20903	Liner Adaptor: cat.# 20310	Vu-Tight Fitting Kit: cat.# 20504 Liner: cat.# 20342, 20343, 20344, 20787, & 20788	Vu-Tight Fitting Kit: cat.# 20504
Agilent GCs (1/4-inch injection ports) Models: 5700, 5710, 5711, 5712, 5830, 5840, 5880, 5890, 6850, 6890	✓	✓	✓	✓
Varian GCs (1/4-inch injection ports) Models: 1200, 1400, 2100, 2400, 3300-3700, 4400, 4600, 6000	✓	✓	✓	✓
Tracor GCs (1/4-inch injection ports) Models: 540, 550, 560, 565, 570	✓	✓	✓	✓
Packard Becker GCs (1/4-inch injection ports) Models: 427, 428, 429, 430, 433, 436, 437, 438	✓	✓	✓	✓
Gow-Mac GCs (1/4-inch injection ports) Models: 69-750, 69-550	✓	✓	✓	✓
HNU GCs (1/4-inch injection ports) Models: 301, 401, 421	✓	✓	✓	✓
PerkinElmer GCs (1/4-inch injection ports) Models: Sigma, 1B-4B, 300, 2001, 2100	✓	✓	✓	✓
PerkinElmer Auto SYS*	✓			

*Does not require Uniliner liner adaptor.





Introducing Sky™ Liners

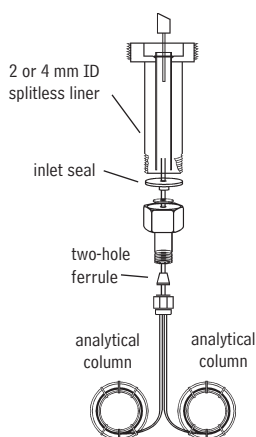


See page 206 for more details.

Dual Column Analysis: Which technique is right for you?

Split/Splitless Injection

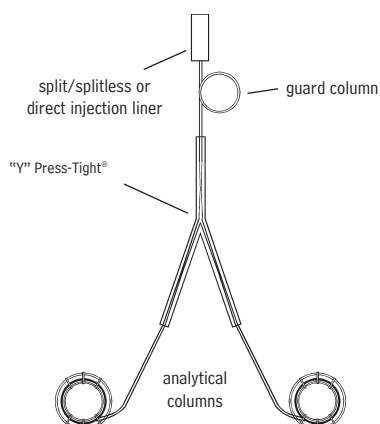
Two-hole ferrules allow dual-column confirmational analysis in the same split/splitless inlet.



0.25 and 0.32 mm ID columns can be used with standard $\frac{1}{16}$ -inch inlet fittings (cat. # 27185). 0.53 mm ID columns require $\frac{1}{8}$ -inch fittings (cat. # 20645) to allow both columns to fit side by side in the injector. Use either straight or extended gooseneck split/splitless liners.

Split/Splitless or Direct Injection

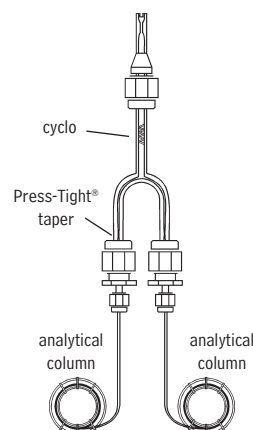
The "Y" Press-Tight® configuration allows dual columns to be used in either a split/splitless or direct injection inlet.



The "Y" Press-Tight® configuration offers versatility because it allows any diameter column or guard column to be connected to a split/splitless or direct injection liner.

Direct Injection

The direct injection "T" allows two 0.32 or 0.53 mm ID columns to be connected to one $\frac{1}{4}$ -inch packed column inlet.



The direct injection "T" incorporates a glass spiral to ensure complete vaporization prior to splitting the sample onto two columns. The dual sealing mechanisms increase ease of use and confidence in the connection relative to the "Y" Press-Tight® configuration.

Analyzing the same sample on two columns of different polarity can increase both qualitative and quantitative reliability. However, having to repeat the analysis on a second column will significantly reduce sample throughput. The simple solution to improving analytical reliability without reducing sample throughput is to use a simultaneous dual-column technique. This involves connecting two capillary columns to one GC inlet and connecting each column to its own detection system. Both columns are usually of the same internal diameter so the flow rates are balanced and similar amounts of the analytes are directed onto each column. This approach will result in confirmational analysis without reducing sample throughput. Simultaneous dual-column analysis has become a more routine technique used by laboratories involved with complex analyses in complicated matrices.

Split or Splitless Injectors

Split or splitless injections are the easiest dual-column analyses to perform. Both columns can be inserted into the split/splitless inlet fitting and terminate in the inlet liner. Columns with internal diameters of 0.32 mm or less (or 0.5 mm OD) can be inserted directly into the $\frac{1}{16}$ -inch standard capillary fitting (cat.# 27185, page 269) by using a two-hole capillary ferrule. Columns with internal diameters of 0.53 mm cannot be inserted into a standard $\frac{1}{16}$ -inch capillary fitting because the outside column diameter (0.8 mm) is too large for both to fit simultaneously. Special fittings that use a $\frac{1}{8}$ -inch fitting and $\frac{1}{8}$ -inch, two-hole ferrule can be used for 0.53 mm ID column (cat.# 20645, page 269).*

On-Column or Direct Injections

On-column or direct injections require a Press-Tight® connection to the inlet liner. Usually a section of 0.53 mm ID guard tubing is attached to one leg of a Press-Tight® "Y" connector (cat.# 20405, page 270). Analysts must use columns of equivalent length and ID so that the flow through both legs of the "Y" is similar, or the detector response will differ. Another approach is to use a Dual Column Direct Injection Tee (cat.# 20412, page 269) or *mini-Lam* Direct Injection Tee (cat.# 20436, page 269), that is installed into the injector, with each column connected to the remaining legs of the tee. The Dual Column Direct Injection Tee has a vaporization chamber to reduce sample backflash and a glass spiral to ensure sufficient vaporization and to reduce discrimination or preferential splitting. The *mini-Lam* Direct Injection Tee is similar—it incorporates an inverted cup in place of the glass spiral. More information on these types of injection tees is given on the facing page.

*Instrument-specific fittings for performing dual column analyses can be found in the **Supplies for Agilent** and **Supplies for Varian** sections.

Packed Column Inlet Fittings

(Direct Injection into 0.32 or 0.53 mm ID Capillary Columns)

Dual Column Direct Injection Tee
(for 1/4-inch packed column inlets)

- Designed with a glass spiral to promote sample vaporization and provide even sample distribution to the two columns.
- Traps sample residue and minimizes the need for guard columns.
- Press-Tight® taper in each outlet leg facilitates a perfect dead-volume-free connection to each analytical column (OD 0.4 to 0.8 mm) and allows visual confirmation of the column connection.



20412

Description	qty.	cat.#	price
DI Tee Kit (includes all fittings/ferrules)	kit	20412	
Replacement Tee	ea.	20411	

Dual Column mini-Lam Direct Injection Tee
(for 1/4-inch packed column inlets)

- Inverted cup design offers complete sample vaporization.
- Permits larger sample volumes.
- Incorporates a Press-Tight® taper in each outlet leg, to make a perfect, dead-volume-free connection to each analytical column (ODs ranging from 0.4 to 0.8 mm).
- Allows visual confirmation of the column connection.
- Open-top design makes it easy to pack with glass wool, keeping sample residue from contaminating the cup.



20436

Description	qty.	cat.#	price
mini-Lam DI Tee Kit (includes all fittings and ferrules)	kit	20436	
Replacement 4mm mini-Lam DI Tee	ea.	20435	

Graphite Replacement Ferrules

ID	fitting size	qty.	cat.#	price
0.5mm	1/16"	10-pk.	20201	
	1/16"	50-pk.	20228	
0.8mm	1/16"	10-pk.	20202	
	1/16"	50-pk.	20224	
1/4-inch	1/4"	10-pk.	20210	

**Inlet Adaptor Kit for Dual Column Installation for****Agilent Capillary Injectors**

(Split/splitless fitting for capillary columns)

- 1/16-inch split/splitless fitting that accepts standard, two-hole capillary ferrules.
- Easier to install capillary columns due to the nut protruding farther from the insulated injection port chamber.
- Same column insertion depth as the original manufacturer's equipment.
- Kit includes adaptor fitting, 1/16" capillary nut, gold-plated 1.2 mm ID Dual Vespe® Ring Inlet Seal, one 0.4 mm ID two-hole ferrule, and one 0.5 mm ID two-hole ferrule.



27185

Description	qty.	cat.#	price
Inlet Adaptor Kit for Dual Column Installation for Agilent Capillary Injectors	kit	27185	
	2-pk.	21246	
1.2mm ID Dual Vespe® Ring Inlet Seal, Gold-Plated	10-pk.	21247	



20645

1/8-Inch Capillary Inlet Adaptor Fitting Kit

(Split/splitless fitting for 0.53 mm ID capillary columns)

- 1/8-inch split/splitless fitting accepts standard two-hole capillary ferrules and a standard 1/8-inch nut.
- Makes column installation easy due to the nut protruding farther from the insulated injection port chamber.
- The column insertion depth is the same as the original equipment.
- Kit includes adaptor fitting, capillary nut, stainless steel inlet seal, washer, and one 0.8 mm ID two-hole ferrule.
- Use recessed gooseneck liners with this adaptor.

Description	qty.	cat.#	price
1/8-Inch Capillary Inlet Adaptor Fitting Kit	kit	20645	
0.53mm ID Dual-Column Installation	2-pk.	20392	
1/16-inch ID (Opening) Replacement Inlet Seal	10-pk.	20393	

Two-Hole Ferrules

for 1/8-Inch and 1/16-Inch Compression-Type Fittings

- Use 1/16-inch, two-hole ferrules with the 1/16-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 27185)
- Use 1/8-inch, two-hole ferrules with the 1/8-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 20645).



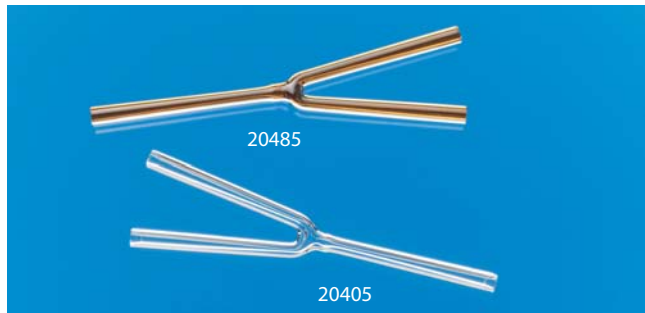
Fitting Size	Ferrule ID	Fits Column ID	qty.	Vespe®/Graphite
1/16"	0.4mm	0.25/0.28mm	5-pk.	24848
1/16"	0.5mm	0.32mm	5-pk.	24849
1/8"	0.8mm	0.45/0.53mm	5-pk.	20246

also available

Please see our detailed GC column ferrule product listing on pages 284–286.

Press-Tight® Connectors

- 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 0.33–0.74 mm (Restek 0.1 mm–0.53 mm ID).

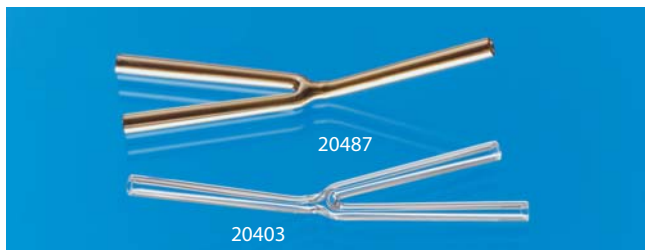


Universal “Y” Press-Tight® Connectors

An alternative method of performing dual-column confirmational analyses!

- Split sample flow onto two columns.
- Split a single column flow to two detectors—perform confirmation analysis with a single injection.

Description	ea./price	3-pk./price
Universal “Y” Press-Tight Connector	20405 \$78	20406
Universal “Y” Press-Tight Connector, Deactivated	20405-261 \$79	20406-261
Universal “Y” Press-Tight Connector, Siltek Treated	20485 \$80.50	20486



Universal Angled “Y” Press-Tight® Connectors

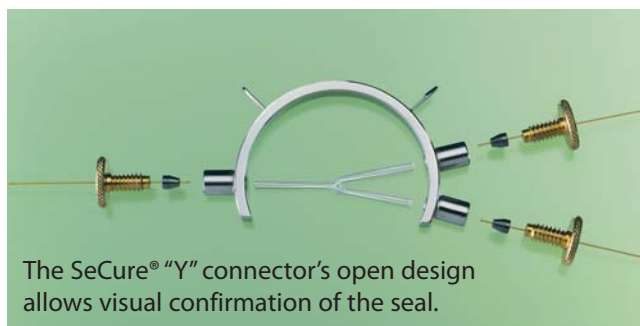
- Perform confirmation analysis with a single injection.
- Made from inert fused silica.
- Inlet and outlet ends conform to the column curvature—alleviates column-end connection strain.

Description	ea./price	3-pk./price
Universal Angled “Y” Press-Tight Connector	20403 \$77	20404
Universal Angled “Y” Press-Tight Connector, Deactivated	20403-261 \$78	20404-261
Universal Angled “Y” Press-Tight Connector, Siltek Treated	20487 \$87.50	20469

Polyimide Resin

Securely connects a Press-Tight® connector to a fused silica column.

Description	Max. Temp.	qty.	cat.#	price
Polyimide Resin	350°C	5 grams	20445	



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.#	price
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	

MXT® “Y”-Union Connector Kits for Fused Silica Columns

- Low-dead-volume, leak-tight connection.
- Reusable.
- Siltek® treatment ensures maximum inertness.
- Ideal for connecting a guard column or transfer line to an analytical column.
- Use to oven temperatures of 360 °C.
- Available in union and “Y” configurations.
- Can also be used for fused silica to metal connections.



Each kit contains the MXT® union, three 1/32-inch nuts and three one-piece fused silica adaptors.

Description	qty.	cat.#	price
For 0.25mm ID Fused Silica Columns	kit	21389	
For 0.32mm ID Fused Silica Columns	kit	21388	
For 0.53mm ID Fused Silica Columns	kit	21387	

also **available**

See the complete connector product listing on **pages 287–293.**

Replacement Accessories for Hall 1000



ELCD Nickel Reaction Tubes

for Hall 1000

- Pretreated for maximum sensitivity.
- Quality-controlled for reliability.
- Available for many popular models.

To replace these instrument part numbers:		Order these Restek part numbers:		
ELCD Model #	Instrument #	qty.	cat. #	price
	PerkinElmer # N660-1072			
	Shimadzu # 220-90435-00			
	Tremetrics # 117459-0003			
Hall 1000	Varian # 00-997625-12	2-pk.	21581	
O.I. 4420	O.I. Analytical # 260323	2-pk.	21582	

ELCD Nickel Reaction Tube Nut

High-quality stainless steel ELCD nut mounts nickel reaction tube into ELCD.



Description	qty.	cat. #	price
ELCD Nickel Reaction Tube Nut	2-pk.	21584	

1/16-Inch Vespel®/Graphite Sealing Ring

Installs onto the nickel reaction tube after the screw. Easily compresses on the reaction tube to provide a leak-tight seal and prevent detector oxidation.



Description	qty.	cat. #	price
1/16-Inch Sealing Ring, Vespel/Graphite	2-pk.	21583	

Cleaned Teflon® Transfer Lines for ELCDs

We stringently clean our ELCD Teflon® transfer lines with an HCl solution to remove any contaminants, then rinse with methanol. Convenient 6.5-inch pre-cut pieces directly interface the nickel reaction tube and conductivity cell in Tracor, Tremetrics, O.I., and many other ELCDs.



Description	qty.	cat. #	price
Teflon Transfer Lines for ELCDs, 1/16" OD x 0.020" ID (five 6.5-inch lines)	5-pk.	20121	

Antifoam Agent for Purge & Trap Samples

- Efficiently controls foam; effective over a wide pH range.
- No hazardous materials, no components that are target analytes.
- Effective at less than 0.1% of sample volume.

See page 452.



Purge-and-Trap Spargers

for Tekmar 2000, 3000, or 3100

- Available with uniform frits, to ensure maximum purging efficiency.
- Use nonfritted spargers for wastewater samples.
- Manufactured to tight tolerances to ensure a leak-tight seal.



Description	Volume	qty.	cat. #	price
Fritted Spargers				
Fritted, 1/2-inch mount	5mL	ea.	21150	
Fritted, 1/2-inch mount	10mL	ea.	26138	
Fritted, 1/2-inch mount	25mL	ea.	21151	
Non-Fritted Spargers				
Non-Fritted, 1/2-inch mount	5mL	ea.	26139	
Non-Fritted, 1/2-inch mount	10mL	ea.	26140	
Non-Fritted, 1/2-inch mount	25mL	ea.	26141	



Moisture Control By-Pass Lines

for Tekmar Instruments

- Increase response for ketones, alcohols, and acetates.
- Silcosteel®-deactivated tubing for increased inertness.
- Suitable for US EPA Methods 8260, 524.2, and OLM4.1.
- Easily attaches in minutes.

Description	qty.	cat. #	price
Moisture Control By-Pass Line for Tekmar 3000	ea.	21035	
Moisture Control By-Pass Line for Tekmar 3100	ea.	21109	



20676



20675



23020

Photoionization Lamps

Model 108-10.0/10.6 offers both 10.0 and 10.6 eV potential, has a 0.781" base diameter, and is used in Tracor, OI, and Baseline instruments. Model 103 has a 1.375" base and is used in HNU and SRI detectors. Model 108-BTEX lamp's higher output makes it ideal for detection of BTEX compounds.

Features

Benefits

Longer life.	More for your money with each lamp.
Model 108-BTEX has 33% more output than older models.	Operate continuously at 1 ma and 250°C for 6 months and still have better than 50% of the initial output.
Lamps individually tested.	Your lamp will work to specifications.
Variety of models.	Among the best lamps available for most instrumentation.

Description	eV Rating	Base	qty.	cat. #	price
PID Lamp, Model 103 C	10.2	1.375"	ea.	20676	
PID Lamp, Model 108	10.0/10.6	0.781"	ea.	20675	
PID Lamp, Model 108-BTEX	10.0/10.6	0.781"	ea.	23020	
PID Lamp Polishing Kit (contains iron oxide cleaning compound, swabs, and instructions)			kit	20674	