

Genuine Restek Replacement Parts

for Agilent GCs



HRMalytic RESTEK '07
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Chromatography Products

From Injector to Detector

Restek is your #1 source for consumables and supplies for Agilent GC and GC/MS systems!

Restek designs, develops, and markets OEM-equivalent parts and supplies for Agilent systems—even difficult-to-find parts for older models. A team of Restek chemists and engineers is dedicated to creating innovative tools to make your work easier, your system work faster, your analyses more reproducible, and your data more accurate. And, as always, we back our products with friendly, knowledgeable technical service and customer service.

We also offer an extensive selection of capillary, packed, micropacked, and PLOT columns to use in your Agilent system, plus analytical reference materials, vials, syringes, and much more. We also manufacture HPLC columns and accessories. If you don't have a copy of our current catalog, simply call us and ask for one—or request one from our website. Whether you want to order a product, discuss an application or chromatography in general, we look forward to talking with you.



Donna Lidgett
Product Marketing Manager, GC Accessories
20+ Years of Service

Donna Lidgett

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Restek Performance Coatings

As needs for improved performance of system components increase, coatings often are an effective solution. Restek's Performance Coatings Division specializes in innovative surface treatments for steel, stainless steel, alloys, glass, and other materials. Our surface treatments increase resistance to corrosion, reduce interactions between steel surfaces and active (e.g., sulfur) compounds, inhibit coking on process system surfaces, and offer many other advantages.

Restek's involvement in coatings began in 1987. The focus of our initial work was to produce a coating on stainless steel that would be inert to low levels of reactive organic compounds, such as explosives and volatile organic compounds (VOCs). The end product from this work was the Silcosteel® surface treatment for stainless steel tubing. Silcosteel® treated tubing currently is used for constructing analytical testing equipment by all major manufacturers of gas chromatography sampling and testing instruments.

Since this initial project, our coatings experts have developed a family of surface treatments to address other specific needs, and thereby enhance the performance of system components. Products of our processes are more correctly described as surface treatments, rather than as coatings, because, unlike coatings, the introduced layer permeates and chemically bonds to the treated surface. And unlike coatings, this layer cannot chip, flake, or blister. In brief, these treatments are:

- **Silcosteel®**—A general purpose passivation layer for steel and stainless steel. US Patent 6,511,760.
- **Siltek®**—The ultimate passivation of treated surfaces, from glass to high nickel alloys of steel. US Patent 6,444,326.
- **Silcosteel®-AC**—Dramatically reduces carbon buildup on stainless steel components. US Patent 6,444,326.
- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater. US Patent 7,070,833.
- **Silcosteel®-UHV**—Greatly reduces outgassing from components of ultra-high vacuum systems. US Patent 7,070,833.
- **Sulfinert®**—A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds. US Patent 6,444,326.

Restek surface treatments are now used in many applications, spanning multiple industries and market areas. Restek coated components increase the lifetime of stack monitoring equipment. Treated injector nozzles have longer service life because coking is inhibited. Sulfinert® treated sampling equipment increases the reliability of process measurements in refineries and petrochemical plants. A mass spectrometer manufacturer demands Silcosteel® treated parts to increase instrument sensitivity for analyzing pesticides. Restek coated air sampling equipment is used in applications as diverse as sampling city air and monitoring submarine cabins.

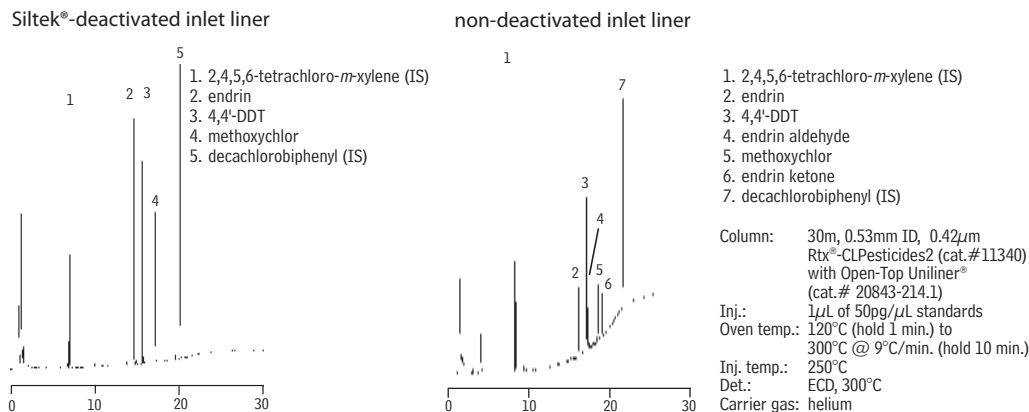
Siltek® Surface Deactivation

- Eliminate activity by using the most advanced surface treatment available.
- Increase component lifetime—the non-stick surface cleans easily with solvent sonication.
- Ideal for acidic conditions. Siltek® treatment will improve reproducibility and protect hardware.
- Stable to 600°C. A no-bleed deactivation treatment, ideal for all analytical methods.
- Custom service available.

Endrin is more prone to break down on glass surfaces than metal, and DDT is more prone to break down on metal surfaces. Siltek® deactivation of sample-contacting surfaces minimizes endrin and DDT breakdown, to less than 1%!

In addition to our many stock Siltek®-treated products, custom coating service is available. Contact our Technical Service Team at 800-356-1688 or 814-353-1300, ext. 4, or contact your Restek representative.

A Siltek®-deactivated Uniliner® inlet liner reduces endrin breakdown to less than 1%; DDT and methoxychlor breakdown are undetectable.



Industries currently benefiting from the reliability of Restek's performance coatings include:

- petroleum, petrochemical, and refineries
- analytical instrument manufacturers
- analytical labs



Silcosteel® is a general purpose passivation for metals.



Silcosteel®-CR treatment improves the corrosion resistance of stainless steel 10X or more.



Siltek® treatment provides the ultimate passivation for many surfaces, from glass to high nickel alloys of steel.



A Sulfinert® layer on metal components is required when analyzing for parts-per-billion levels of organosulfur compounds.



Small, compact unit—
easy to hold and operate.

Restek Electronic Leak Detector

- Reliable thermal conductivity leak detector.
- Responds to leaks in less than 2 seconds.
- Audible alarm plus LED readout.
- Auto zeros with the touch of a button.
- Built-in rechargeable 9 volt battery.

Improve GC Performance; Save Your Column!

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

Leaks can cause detector noise and baseline instability, waste carrier gas, and shorten column lifetimes, so leak checks should be a regular part of a GC maintenance program. The Restek Electronic Leak Detector responds in less than 2 seconds to leaks of gases with thermal conductivities different from air, indicating leaks with both an audible alarm and an LED readout. The leak detector detects minute gas leaks that can go undetected by liquid leak detectors. Never use liquid leak detectors on a capillary GC system; liquids drawn into the system through the leaks will contaminate the system.

How does the Restek Electronic Leak Detector work?

The Restek Electronic Leak Detector detects minute leaks of any gas with a thermal conductivity different from air. The reference gas inlet draws in ambient air for comparison to air drawn into the sample probe. A thermal conductivity difference between the two indicates a leak, and the leak is revealed to the user by both an LED bar graph and an audible tone. The leak detector operates on one rechargeable 9-volt Ni-MH battery (included).

tech tip

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

Leak Detector Facts

Detectable gases:	helium, nitrogen, argon, carbon dioxide
Battery:	Rechargeable Ni-MH, 9 volt
Operating	
Temperature Range:	32°-120°F (0°-48°C)
Humidity Range:	0-97%
CE Approved:	Yes



Easy-to-clean probe
assembly



Mike Goss

Instrument Innovations
Specialist
7+ years of service!

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

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

Leak Detector Accessory Kit

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



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



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

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

Liner Deactivations

Intermediate Polarity (IP) Deactivation

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

Siltek® Deactivation

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

Base Deactivation

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

Siltek® Deactivation—The Next Generation

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



All liners are
100%
deactivated

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

Our Siltek® deactivation process (US Patent 6,444,326) 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 with Wool		Siltek® Liner with CarboFrit™	
each	-214.1	addl. cost	-213.1	addl. cost	-216.1	addl. cost
5-pk.	-214.5	addl. cost	-213.5	addl. cost	-216.5	addl. cost
25-pk.	-214.25	addl. cost	-213.25	addl. cost	-216.25	addl. cost

Base-Deactivated Inlet Liners

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

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

← Ideal for amines and basic compounds!

a plus 1 story

“I installed Siltek® liners on one of our GCs to replace standard quartz liners that required deactivating daily. I found the results to be excellent, saving many hours of instrument time with no detrimental effects on the analysis.”

Matthew Turner, Laboratory Manager—food contaminants, Global Analysis (UK)

Liner Packing Materials & Accessories



Matt Lininger
Instrument Innovations
Engineer
2+ years of service!

Why Use Deactivated Wool for a Liner Packing?

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



Deactivated Wool

Further improving our proprietary deactivation process, we make this deactivated wool more inert than our traditional fused silica wool, yet it is as flexible as our traditional borosilicate glass wool.

Description	qty.	cat.#
Deactivated Wool	10 grams	24324

Base-Deactivated Wool

Ideal for amines and other basic compounds.

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



Mini Wool Puller/Inserter

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



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

Not recommended for use with double gooseneck liners.



Inlet Liner Packing Tool

- Easy to use—position wool reproducibly every time.
- Accurate to a specific, measured depth.

Eliminates user variation!



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

Prepacked Inlet Liners

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

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

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

Add the corresponding suffix number to the liner catalog number.

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

CarboFrit™ Puller/Inserter Tool

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

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

**a plus 1 story**

"Restek sent us some carbon material (CarboFrit™ packing) with the suggestion to test it as liner packing. Initially, I didn't even want to try it because carbon is usually highly retentive and catalytically active. As we nevertheless gave it a chance, we were highly surprised...it exhibited low retentive power and good inertness."

excerpt from: *Sample Evaporation in Hot GC Injectors*
Dr. Konrad Grob, *The Restek Advantage*, Winter 1996.

Deactivated Fused Silica Beads

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

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

**Inlet Liner Removal Tool**

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


























No more burned fingers!

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

**tech tip****Use of Packings with Splitless Liners**

We recommend using an injection port liner with wool or CarboFrit™ packing when making splitless injections with an autosampler. If there is no packing material in the liner, the solvent droplets act like water on a hot iron: they bounce around until vaporized (Leidenfrost phenomenon). Because autosamplers make rapid injections, samples can be incompletely vaporized, leading to non-reproducible 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.








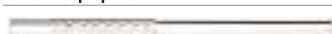

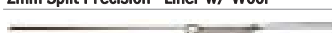








Splitless Liners for Agilent GCs	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 2mm Splitless	trace samples <2µL	2.0 ID 6.5 OD x 78.5	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	20712	20713	20714
 4mm Splitless	trace samples >2µL	4.0 ID 6.5 OD x 78.5	210-3003 (ea.) 210-3003-5 (5-pk.)	20772	20773	20774
 Siltek® 4mm Splitless	trace samples >2µL	4.0 ID 6.5 OD x 78.5	—	20772-214.1	20773-214.5	20774-214.25
 4mm Splitless w/ Wool	trace samples >2µL	4.0 ID 6.5 OD x 78.5	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	22400	22401	22402
 2mm Splitless (quartz)	trace samples <2µL	2.0 ID 6.5 OD x 78.5	18740-80220 (ea.) 5183-4707 (5-pk.)	20914	20915	—
 4mm Splitless (quartz)	trace samples >2µL	4.0 ID 6.5 OD x 78.5	—	20912	20913	—
 4mm Splitless (quartz) w/ Wool	trace samples >2µL	4.0 ID 6.5 OD x 78.5	—	22403	22404	—
 Gooseneck Splitless (2mm)	trace samples <2µL	2.0 ID 6.5 OD x 78.5	—	20795	20796	20797
 Siltek® Gooseneck Splitless (2mm)	trace samples <2µL	2.0 ID 6.5 OD x 78.5	—	20795-214.1	20796-214.5	20797-214.25
 Gooseneck Splitless (4mm)†	trace samples >2µL	4.0 ID 6.5 OD x 78.5	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	20798	20799	20800
 Siltek® Gooseneck Splitless (4mm)†	trace samples >2µL	4.0 ID 6.5 OD x 78.5	—	20798-214.1	20799-214.5	20800-214.25
 Gooseneck Splitless (4mm) w/ Wool†	trace samples >2µL	4.0 ID 6.5 OD x 78.5	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	22405	22406	22407
 Siltek® Gooseneck Splitless (4mm) w/ Wool†	trace samples >2µL	4.0 ID 6.5 OD x 78.5	—	22405-213.1	22406-213.5	22407-213.25
 Double Gooseneck Splitless (4mm)	trace, active samples >2µL	4.0 ID 6.5 OD x 78.5	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	20784	20785	20786
 Siltek® Double Gooseneck Splitless (4mm)	trace, active samples >2µL	4.0 ID 6.5 OD x 78.5	—	20784-214.1	20785-214.5	20786-214.25
 Cyclo Double Gooseneck (2mm)	trace, active, dirty samples <2µL	2.0 ID 6.5 OD x 78.5	—	20907	20908	—
 Cyclo Double Gooseneck (4mm)	trace, active, dirty samples >2µL	4.0 ID 6.5 OD x 78.5	—	20895	20896	20997
 Siltek® Cyclo Double Gooseneck (4mm)	trace, active, dirty samples >2µL	4.0 ID 6.5 OD x 78.5	—	20895-214.1	20896-214.5	20997-214.25
 Recessed Gooseneck (2mm)**	base easily packs with wool for dirty samples <2µL	2.0 ID 6.5 OD x 78.5	—	20980	20981	20982
 Recessed Gooseneck (4mm)**	base easily packs with wool for dirty samples >2µL	4.0 ID 6.5 OD x 78.5	—	20983	20984	20985
 Siltek® Recessed Gooseneck (4mm)**	base easily packs with wool for dirty samples >2µL	4.0 ID 6.5 OD x 78.5	—	20983-214.1	20984-214.5	20985-214.25
 Recessed Gooseneck (4mm) w/ Wool**	base easily packs with wool for dirty samples >2µL	4.0 ID 6.5 OD x 78.5	—	22408	22409	22410
 Recessed Double Gooseneck (4mm)**	base easily packs with wool for dirty, active samples >2µL	4.0 ID 6.5 OD x 78.5	—	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%
deactivatedAll liners are shipped intermediate
polarity (IP) deactivated unless
otherwise requested.

Split Liners for Agilent GCs	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part#	ea.	cat.# 5-pk.	25-pk.
 1mm Split**	for purge & trap inlet splitting or sample <1µL	1.0 ID 6.3 OD x 78.5	18740-80200 (ea.) 5183-4709 (5-pk.)	20972	20973	—
 4mm Split w/ Wool	universal, use with Agilent 7673 autosampler	4.0 ID 6.3 OD x 78.5	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	20781	20782	20783
 Siltek® 4mm Split w/ Wool	universal, use with Agilent 7673 autosampler	4.0 ID 6.3 OD x 78.5	—	20781-213.1	20782-213.5	20783-213.25
 Laminar Cup Splitter	high MW compounds	4.0 ID 6.3 OD x 78.5	—	20801	20802	—
 mini-Lam™ Split	high MW compounds	4.0 ID 6.3 OD x 78.5	—	20990	20991	—
 Cup Splitter	high & low MW compounds	4.0 ID 6.3 OD x 78.5	18740-80190 (ea.) 5183-4699 (5-pk.)	20709	20710	—
 Siltek® Cup Splitter	high & low MW compounds	4.0 ID 6.3 OD x 78.5	—	20709-214.1	20710-214.5	—
 Cyclosplitter*	dirty samples, many injections before cleaning required	4.0 ID 6.3 OD x 78.5	—	20706	20707	20708
 2mm Split Precision™ Liner w/ Wool	dirty samples, trace samples	2.0 ID 6.3 OD x 78.5	—	20823	20824	—
 4mm Split Precision™ Liner w/ Wool	dirty samples, trace samples	4.0 ID 6.3 OD x 78.5	210-4004-5 (5-pk.)	21022	21023	20979
 Siltek® 4mm Split Precision™ Liner w/ Wool	dirty samples, trace samples	4.0 ID 6.3 OD x 78.5	—	21022-213.1	21023-213.5	20979-213.25
Split/Splitless Liners for Agilent GCs	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 Low Pressure Drop Liner w/ Wool	universal, use with Agilent 6890 GCs	4.0 ID 6.3 OD x 78.5	5183-4647 (ea.) 5183-4701 (5-pk.)	21032	21033	—
 Low Pressure Drop Liner w/ Wool	universal, use with Agilent 6850 GCs	4.0 ID 6.3 OD x 78.5	5183-4711 (ea.) 5183-4712 (5-pk.) 5183-4713 (25-pk.)	20994	20995	20996
CIS4 and PTV Liners for Agilent GCs	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part#		cat.# 10-pk.	
 Straight Glass	general use	2.0 ID 3.0 OD x 71	5183-2036		21157	
 Baffled Glass	active compounds, drugs, pesticides	1.5 ID 3.0 OD x 71	5183-2037		21704	
 Siltek® Baffled Glass	active compounds, drugs, pesticides	1.5 ID 3.0 OD x 71	—		21704-214.10	
 Glass w/ Wool	large volume injections	2.0 ID 3.0 OD x 71	5183-2038		21156	
SPME Liners for Agilent GCs	Benefits/Uses	ID*/OD & Length (mm)		cat.# ea.	cat.# 5-pk.	
 SPME Liner	ideal for low-volume SPME applications	0.75 ID 6.35 OD x 78.5		21110	21111	

*Nominal ID at syringe needle expulsion point.

**Use this liner for increased sensitivity.















tech tip

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.

ordering note

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

DI Liners for Agilent GCs (For 0.32/0.53mm ID Columns)		Benefits/Uses	ID*/OD & Length (mm)		cat.# ea.	cat.# 5-pk.	
	1mm Uniliner***†	trace, active samples, samples <1µL	1.0 ID 6.3 OD x 78.5		21052	21053	
	Siltek® 1mm Uniliner***†	trace, active samples, samples <1µL	1.0 ID 6.3 OD x 78.5		21052-214.1	21053-214.5	
	Uniliner***	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5		20335	20336	
	Siltek® Uniliner***	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	<div>All liners are</div> <div>100% deactivated</div> <div>All liners are shipped intermediate polarity (IP) deactivated unless otherwise requested.</div>	20335-214.1	20336-214.5	
	Cyclo-Uniliner***	trace, dirty, high MW active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5		20337	20338	
	Siltek® Cyclo-Uniliner***	trace, dirty, high MW active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5		20337-214.1	20338-214.5	
	Open-top Uniliner® w/ Wool**	trace, dirty, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5		20843	20844	
	Siltek® Open-top Uniliner® w/ Wool**	trace, dirty, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5		20843-213.1	20844-213.5	
DI Liners for Agilent 5890 & 6890 GCs (For 0.25/0.32/0.53mm ID Columns)		Benefits/Uses***	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
	Drilled Uniliner® (hole on top)	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	—	21054	21055	20998
	Siltek® Drilled Uniliner® (hole on top)	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	—	21054-214.1	21055-214.5	20998-214.25
	Drilled Uniliner® (hole on bottom)	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	G1544-80730	20756	20771	—
	Double Gooseneck Drilled Uniliner® (hole on top)	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	—	20508	20509	—
	Double Gooseneck Drilled Uniliner® (hole on bottom)	trace, active samples, high recovery & linearity	4.0 ID 6.3 OD x 78.5	G1544-80700	20954	20989	—
	Siltek® 1mm Drilled Uniliner® (hole on top)	trace, active samples, high recovery & linearity	1.0 ID 6.3 OD x 78.5	—	21390-214.1	21391-214.5	—
†Hole in Drilled Uniliner makes direct injection possible with EPC-equipped 6890 GCs!					*Nominal ID at syringe needle expulsion point		

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

*Nominal ID at syringe needle expulsion point.
 **These Uniliner® liners are for split/splitless injection ports.
 †This liner for use with 0.25, 0.32, or 0.53mm ID columns.

tech tip

Drilled Uniliner®

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



Siltek® Metal Inlet Liners for Agilent GCs

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

Liner Type (5.2mm ID x 6.3mm OD x 78.5mm)	5-pk.	25-pk.
Cyclo/Single Gooseneck	20974	20975
Single Gooseneck	21702	21703
Cycloplitter®	20726	20729
Split/Splitless w/Wool	21700	21701

Viton® O-Rings for Agilent GCs

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

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

Graphite O-Rings for Agilent and Varian 1177 GCs

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

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

**HANDY
septum size
chart**

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

Thermolite® Septa for Agilent GCs

- Usable to 340°C inlet temperature; precision molded for consistent fit.

Septum Diameter	25-pk.	50-pk.	100-pk.
5mm ($\frac{1}{16}$ ")	27120	27121	27122
9.5mm ($\frac{3}{8}$ ")	27135	27136	27137
10mm	27138	27139	27140
11mm ($\frac{7}{16}$ ")	27141	27142	27143

IceBlue™ Septa for Agilent GCs

- Usable to 250°C inlet temperature; precision molded for consistent fit.

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

BTO® Septa for Agilent GCs

- Usable to 400°C inlet temperature; precision molded for consistent fit.

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

Septum Puller

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



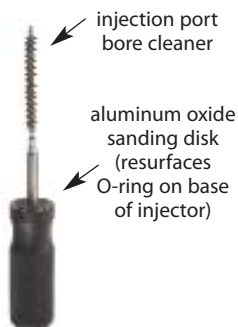
Description	qty.	cat.#
Septum Puller	ea.	20117





tech tip

Always use the Manual Injection Septum Nut (for 26-gauge needles) for on-column injections.



Make your injection port threads like new!

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

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

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

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

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

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

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

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

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

Injector Wrench for Agilent 5890/6890/6850 GCs

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



Use the smaller end to remove the septum nut.



Use the larger end to tighten the split/splitless weldment nut.

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

Injection Port Repair Tool for Agilent Split/Splitless Injection Ports

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



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

Rethreading Tool

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



- 1) Worn & damaged threads can allow oxygen into the system—compromising analytical results and destroying columns.
- 2) 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.#
Rethreading Tool for 1/4" compression fittings (Agilent split/splitless injection ports)	ea.	23018

Capillary Column Nuts for Agilent 5890/6890 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.#
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

Capillary Column Nuts for Agilent 6850 GCs

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

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



Finger-Tight Capillary Column Nut

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

Description	Similar to Agilent part #	qty.	cat.#
For use with "compact" Agilent-style ferrules.*			
Finger-Tight Capillary Column Nut	5020-8293	ea.	21311
Finger-Tight Capillary Column Nut	5020-8292	ea.	21312
For use with standard ferrules.			
Finger-Tight Capillary Column Nut	5020-8293	ea.	21312

*Similar to Agilent part # 5020-8293 and 5020-8292, except that the Restek nut can be used with Vespe® ferrules.



also **available**

Ferrules

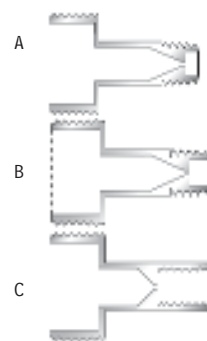
See **pages 31-32** for our listing of ferrules.

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	qty.	cat.#
For use with "compact" Agilent-style ferrules.		
A) Finger-Tight Capillary Column Nuts	2-pk.	21040
For use with standard 1/16"-type ferrules.		
B) Finger-Tight Capillary Column Nuts	2-pk.	21041
For use with standard 1/16" compression fittings		
C) Finger-Tight Capillary Column Nuts	2-pk.	21042



Capillary Installation Gauge

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



A

B



Thread...



...tighten...



...done.

Easily seat ferrules for
consistent
installations!

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

*Recommended for use with graphite ferrules.



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



Dual VespeL® Ring Inlet Seals

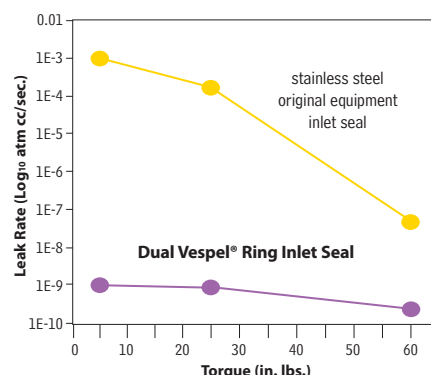
- VespeL® ring embedded in bottom surface eliminates need for washer.
- VespeL® ring embedded in top surface reduces operator variability by requiring minimal torque to seal.
- Prevents oxygen from permeating into the carrier gas, increasing column lifetime.

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

Our Dual VespeL® Ring Inlet Seal greatly improves injection port performance—it stays sealed, even after repeated temperature cycles, without retightening the reducing nut! This seal features two soft VespeL® rings, one embedded in its top surface and the other embedded in its bottom surface. These rings eliminate the need for a washer, and ensure very little torque is needed to make a leak-tight seal. The rings will not harm the critical seal in the injector body, or any other surface, and are outside the sample flow path. Tests using a high sensitivity helium leak detector show Dual VespeL® Ring Inlet Seals will seal equally effectively at torques from 5 in. lb. to 60 in. lb. (Figure 1).

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

Figure 1 The Dual VespeL® Ring Inlet Seal achieves leak-tight seals even at low torque, reducing the chance of leak-related problems.



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



Patent pending.

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

Replacement Inlet Seals with Washers

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

Replacement Inlet Seals for Agilent 5890/6890/6850 Split/Splitless Injection Ports

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

The Restek inlet seal design increases column lifetime because oxygen cannot permeate into the carrier gas. Detector noise also is reduced with high-sensitivity detectors (e.g., ECDs or MSDs). To reduce breakdown and adsorption of active compounds, use Siltek® or gold-plated seals.



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

Single-Column Installation, 0.8mm Opening*		0.25/0.32mm ID Dual-Column Installation, 1.2mm Opening		0.53mm ID Dual-Column Installation ($\frac{1}{16}$ -inch opening)	
2-pk.	10-pk.	2-pk.	10-pk.	2-pk.	10-pk.
Stainless Steel Inlet Seal					
21315	21316	20390	20391	20392	20393
Gold-Plated Inlet Seal					
21317	21318	21305	21306	—	—
Siltek® Treated Inlet Seal					
21319	21320	21307	21308	—	—

*0.8mm ID stainless steel inlet seal is similar to Agilent part #18740-20880,
0.8mm ID gold-plated inlet seal is similar to Agilent part #18740-20885.

All seals include washers.

Replacement Inlet Seal Washers

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

**Replacement Inlet Cross-Disk Seal for Agilent GCs**

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

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

**Silver PTV Seals for Agilent 6890 GCs**

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



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

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

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

Description	Similar to Agilent part #	qty.	cat.#
A) Replacement Weldment*	19251-60575	ea.	20265
-Siltek® Weldment**	19251-60575	ea.	20267
-B) Replacement Shell Weldment	19251-80570	ea.	20266
-Siltek® Shell Weldment**	19251-80570	ea.	20268
-O-rings for Agilent Trap Fittings	5180-4181	25-pk.	22064

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

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

*For use with large canister type filter on Agilent 5890 GCs. For use with manual flow only on Agilent 6890/6850 GCs.

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

Replacement Chemical Traps for Agilent GCs

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

Description	Similar to Agilent part #	qty.	cat.#
G) Optional Split Vent Trap Assembly for Agilent 6890/6850 GCs	G1544-60610	kit	23031
H) Replacement Traps (2) and O-rings (4)	G1544-80530	kit	23032

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

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

For Agilent GCs with Tekmar Purge and Trap Systems

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

For Agilent GCs with OI Purge and Trap Systems

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

tech tip**Installing a New Weldment**

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

EPC Test Kit for Agilent 6890 GCs

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

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

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

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

- Use with 5890 FID and split/splitless weldments.
- Meets or exceeds OEM performance.

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

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

- Meets or exceeds OEM performance.

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

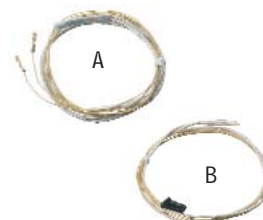
**Heater Block Retaining Nuts for Agilent GC Split/Splitless Injectors**

- Aluminum construction.
- Meet or exceed OEM performance.

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

**Oven Temp Sensor Assembly**

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

**60psig Backpressure Regulator Kit**

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

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

**Replacement Chemical Traps for Agilent GCs**

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

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





Dual-Column *mini-Lam*™ Direct Injection Tee

(for 1/4-inch packed column inlets)

The inverted cup design offers complete sample vaporization and permits larger sample volumes. It 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 0.8mm). Allows visual confirmation of the column connection. The open-top design makes it easy to pack with glass wool, keeping sample residue from contaminating the cup.

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

Low-Volume Injector for Agilent Split/Splitless Injectors

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

Our low-volume injector can be installed in a matter of minutes. Remove the septum nut or splitless weldment and insert the Restek low-volume injector through the split injector. Tighten the base nut and you're ready! Includes a 1/16-inch nut, a 1/16-inch ferrule, a base nut and 1/4-inch Vespel®/graphite ferrule, a 1/16-inch capillary nut, a 5-pack of low-bleed plug septa, and a low-mass septum nut. Order appropriate capillary ferrules separately.



Description	qty.	cat.#
Low-Volume Injector for Agilent Split/Splitless Injectors	kit	21692



Siltek® Septum Packed Purge Port Weldment for Agilent 5890 GCs

Siltek® treatment eliminates adsorption of sensitive compounds (e.g., DDT and endrin). Order Viton® O-rings (below) and appropriate septa (page 9) separately.

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

tech tip

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).

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

All liners are
100%
deactivated

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

SILTEK[®]
version available.

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 0.53mm ID capillary columns.
- Can be removed from the septum nut weldment.

Description	Fits same liner adaptor as Agilent part #	qty.	cat.#
DI Uniliner [®] Liner for Agilent 5890 Packed Column GC (1.7mm ID x 3.0mm OD x 93mm)	5181-3382 5080-8732	ea.	20964
DI Uniliner [®] Liners for Agilent 5890 Packed Column GC (1.7mm ID x 3.0mm OD x 93mm)	5181-3382 5080-8732	5-pk.	20965
DI Uniliner [®] Liners for Agilent 5890 Packed Column GC (1.7mm ID x 3.0mm OD x 93mm)	5181-3382 5080-8732	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.#
DI Liner Adaptor for Agilent 5890 Packed Column GC	19244-80540	ea.	21303





For use with 0.25/0.32mm ID columns.

1/16-Inch Capillary Inlet Adaptor Fitting Kit

(Split/splitless fitting for 0.25 or 0.32mm ID capillary columns)

We have specially engineered a high-precision, 1/16-inch split/splitless fitting that accepts standard, two-hole capillary ferrules. Our design makes it easier to install capillary columns because the nut protrudes 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 0.4mm ID ferrule.

Description	qty.	cat.#
1/16-Inch Capillary Inlet Adaptor Fitting Kit	kit	20633
Replacement Inlet Seal (1.2mm hole)	2-pk.	20390
Replacement Inlet Seal (1.2mm hole)	10-pk.	20391



For use with 0.53mm ID columns.

1/8-Inch Capillary Inlet Adaptor Fitting Kit

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

Our specially engineered high-precision, 1/8-inch split/splitless fitting accepts standard two-hole capillary ferrules and a standard 1/8-inch nut. This design makes column installation easy because the nut protrudes 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 0.8mm ID two-hole ferrule.

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



Direct Replacement Reducing Nut

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

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



Replacement Ferrules for Dual-Column Confirmational Analysis

Use 1/16-inch, two-hole ferrules with the 1/16-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 20633); and 1/8-inch, two-hole ferrules with the 1/8-Inch Capillary Inlet Adaptor Fitting Kit (cat.# 20645).

Two-Hole Ferrule Size	Fits Nut	Fits Column ID	qty.	Vespal®/Graphite cat.#
0.4mm (1/16")	1/16"	0.25/0.28mm	5-pk.	20241
0.5mm (1/16")	1/16"	0.32mm	5-pk.	20242
0.8mm (1/8")	1/8"	0.45/0.53mm	5-pk.	20246



Dual-Column Direct Injection Tee

(for 1/4-inch packed column inlets)

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

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

Air Diverters for Agilent GCs

- Divert GC exhaust heat away from the lab bench.
- Meet OEM performance.
- Easy to install—no tools required.

Description	Similar to Agilent part #	qty.	cat.#
Air Diverter for Agilent 5890/6890 GCs	19247-60510	ea.	22076
Air Diverter for Agilent 6850 GCs	G2630-60710	ea.	20926

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



new!

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



Injector Wrench for Agilent 5890/6890/6850 GCs

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



Use the smaller end to remove the septum nut.



Use the larger end to tighten the split/splitless weldment nut.

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



Make your injection port threads like new!

Rethreading Tool

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



- 1) Worn & damaged threads can allow oxygen into the system—compromising analytical results and destroying columns.
- 2) 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.#
Rethreading Tool for 1/4" compression fittings (Agilent split/splitless injection ports)	ea.	23018

FID/Injector Cleaning Kit

The FID/Injector Cleaning Kit includes:

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



Use Restek's Cleaning Kit with ANY injection port!

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

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.



No more burned fingers!



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

new! Flashlight with Swivel Head

- Ideal for tight spaces—like inside a GC oven.
- Uses two AA batteries (included).



Description	qty.	cat.#
Flashlight with Swivel Head	ea.	22187



Injection Port Split/Splitless Weldment Retaining Ring Pliers

- Easily removes snap ring on split/splitless weldment assemblies.
- Use with Agilent 5890/6890/6850 GCs.

Description	qty.	cat.#
Injection Port Split/Splitless Weldment Retaining Ring Pliers	ea.	26186

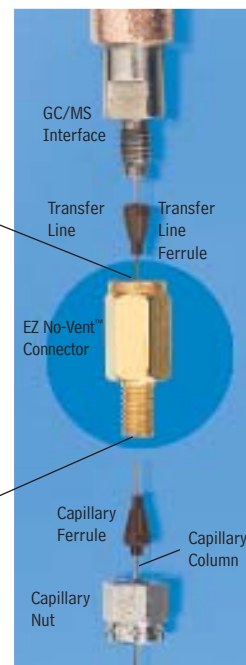
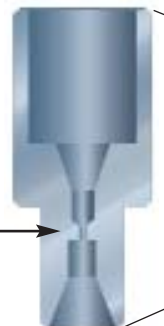
EZ No-Vent™ GC Column-Mass Spectrometer Connector

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

We designed the EZ No-Vent™ GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent™ connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas and enabling you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change. This can save nearly a day of downtime with each column change. The EZ No-Vent™ connector easily attaches to the MS source without special tools or extra plumbing. Figure 1 shows the internal structure of the connector.

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

Laser drilled to 100µm ID

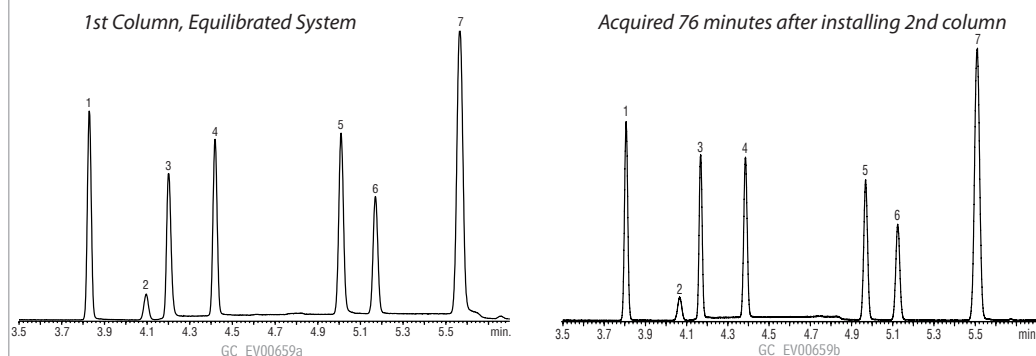


Change columns in minutes—without venting!

Kit installs easily, without special tools or plumbing.



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



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

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

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
Inj.: Purge & Trap
GC: Agilent 6890
Inj. temp.: 300°C
Carrier gas: helium, constant flow
Flow rate: 1.0mL/min.

Oven temp.: 60°C isothermal
Det: Agilent 5973 GC/MS
Transfer line temp.: 280°C
Scan range: 35-550 amu
Tune: BFB
Ionization: EI

Description	qty.	cat.#
EZ No-Vent™ Connector Kit for Agilent 5971/5972 and 5973 GC/MS		
Kit includes: EZ No-Vent™ Connector; two 0.4mm ID ferrules for capillary column, two 0.4mm ID ferrules for transfer line, 100µm deactivated transfer line (3 ft.), column plug, column nut.	kit	21323
Replacement ferrules for connecting capillary column to EZ No-Vent™ Connector:		
0.4mm ID (Polyimide)	2-pk.	21015
0.5mm ID (Polyimide)	2-pk.	21016
Replacement ferrules for connecting transfer line to EZ No-Vent™ Connector: 0.4mm ID	2-pk.	21043
Replacement 100µm deactivated transfer line	3 ft.	21018
Replacement EZ No-Vent™ Column Nut	5-pk.	21900
Replacement EZ No-Vent™ Plug	2-pk.	21915
Open-End Wrenches (7/16" x 5/16")	2-pk.	20110

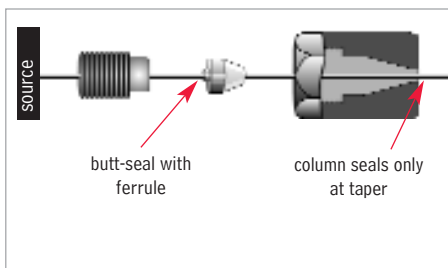


Agilent's MSD interface uses a butt-seal to simultaneously seal the MSD source to the capillary column. This system is prone to leakage. Restek's MSD conversion fitting is designed with two separate seals to reduce the chance of leaks: a crunch washer seals the MSD conversion fitting to the source; a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

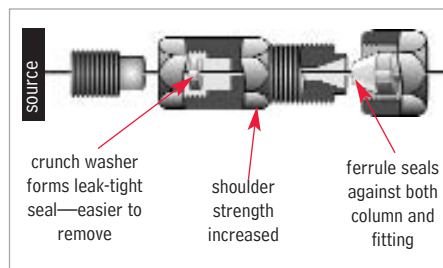
MSD Conversion Fitting

- 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.

Agilent Design



Improved Restek Design



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

Improved design!



MSD Source Nut

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

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

Capillary Installation Gauge for Agilent 5973/5975 MS

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



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.



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



The ferrule will be properly seated and should remain in place when light force is applied. Install the column into the GC/MS interface.

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



Gold Tip Transfer Line

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

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

Replacement Interface with Bellows for Agilent 5971/5972 MS

- Meets or exceeds OEM performance.
- Made of high-quality stainless steel.

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

**Replacement Interface Guide Tube for Agilent 5971/5972 MS**

- Meets or exceeds OEM performance.
- Made of high-quality stainless steel.

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

**Replacement Cold Sensor for Agilent 5971/5972 MS Diffusion Pump**

- Meets or exceeds OEM performance.
- Made of high-quality stainless steel.

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

**Replacement Diffusion Pump Fan Assemblies for Agilent 5971/5972 MS**

- 110/120 VAC

Description	Similar to Agilent part #	qty.	cat. #
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

**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.

Description	Similar to Agilent part #	qty.	cat. #
Rough Pump Oil for MSD Pumps	6040-0834	1 liter	22687

**Ion Source Cleaning Powder**

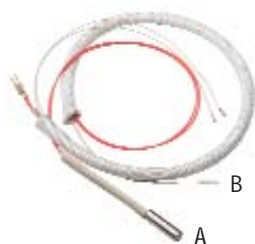
- Use this aluminium oxide powder to clean surfaces that contact the sample or ion beam when you encounter poor sensitivity and inadequate abundances at high masses.

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



Heater Cartridge & PRT Sensor for Agilent 5890 GCs

- Use with 5890 FID and split/splitless weldments.
- Meets or exceeds OEM performance.



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

FID Collector Housing Kits for Agilent GCs

- Meets or exceeds OEM performance.



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

new!



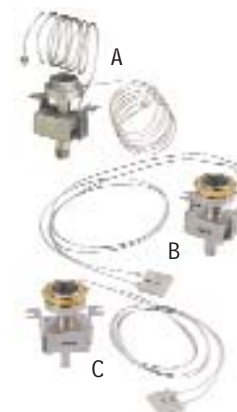
FID Collector Mount for Agilent GCs

- Meets or exceeds OEM performance.

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

FID Base Weldment for Agilent GCs

- Meets or exceeds OEM performance.
- Includes brass nut.



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

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

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



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.#
Spanner Wrench for Agilent 5890/6890/6850 FID Collector Assembly	19231-00130	ea.	22329

Direct Replacement FID Collector Assembly for Agilent 5890 GCs

- Constructed of high-quality stainless steel.
- Meets or exceeds OEM performance.

Description	Similar to Agilent part #	qty.	cat. #
FID Collector Assembly (includes insulators)	19231-60690	kit	23010
FID Collector Assembly w/Siltek® Ignitor Castle	—	kit	21131

Replacement FID Parts for Agilent 5890 GCs

- Meets or exceeds OEM performance.

Description	Similar to Agilent part #	qty.	cat. #
	19231-20970		
	19231-20960		
A) FID Collector (includes insulators)	19231-20950	ea.	21138
	19231-20940		
B) FID Collector Nut and Washer	5181-3311	set	21136
C) FID Ignitor*	19231-60680	ea.	21001
D) FID Ignitor Castle	19231-20910	ea.	21137
Siltek® FID Ignitor Castle	—	ea.	21135

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



SILTEK®
versions available.

Direct Replacement FID Collector Assembly for Agilent 6890/6850 GCs

- Constructed of high-quality stainless steel.
- Meets or exceeds OEM performance.

Description	Similar to Agilent part #	qty.	cat. #
FID Collector Assembly (includes insulator)	G1531-60690	kit	21699
FID Collector Assembly w/Siltek® Ignitor Castle	—	kit	21132

Replacement FID Parts for Agilent 6890/6850 GCs

- Meets or exceeds OEM performance.

Description	Similar to Agilent part #	qty.	cat. #
	G1531-20690		
A) FID Collector (includes insulators)	G1531-20700	ea.	21139
	19231-20940		
B) FID Collector Nut and Washer	5181-3311	set	21136
C) FID Ignitor*	19231-60680	ea.	21001
D) FID Ignitor Castle	19231-20910	ea.	21137
Siltek® FID Ignitor Castle	—	ea.	21135

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



Direct Replacement FID Flow Measuring Adaptor for Agilent 5890/6890/6850 GCs

- Makes setting flows easy.
- Meets or exceeds OEM performance.

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



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.

High-Performance Version

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

Capillary Adaptable FID Replacement Jet for Agilent 5890/6890/6850 GCs (0.011-inch ID tip)

Description	Similar to Agilent part #	qty.	cat.#	qty.	cat.#
Standard	19244-80560	ea.	20670	3-pk.	20671
High-Performance Siltek® Treated	19244-80560	ea.	20672	3-pk.	20673

Capillary Dedicated FID Replacement Jet for Agilent 6890/6850 GCs

0.011-Inch ID	Similar to Agilent part #	qty.	cat.#	qty.	cat.#
Standard	G1531-80560	ea.	21621	3-pk.	21682
High-Performance Siltek® Treated	G1531-80560	ea.	21620	3-pk.	21683

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

0.018-Inch ID	Similar to Agilent part #	qty.	cat.#	qty.	cat.#
Standard	18710-20119	ea.	21694	3-pk.	21695
High-Performance Siltek® Treated	18710-20119	ea.	21696	3-pk.	21697

0.030-Inch ID	Similar to Agilent part #	qty.	cat.#	qty.	cat.#
Standard	18789-80070	ea.	21688	3-pk.	21689
High-Performance Siltek® Treated	18789-80070	ea.	21686	3-pk.	21687

tech tip

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 GC that is designed only for use with capillary columns.

restek
innovation!

FID Jet Removal Tool for Agilent 5890/6890/6850 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.#
FID Jet Removal Tool for Agilent 5890/6890/6850 FIDs	ea.	22328

Torx® Screwdriver Set

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

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

Detector Plug Nut

Use Restek's detector plug nut to cap off a detector for thermal cleaning, to check detector or make-up gas flow rates, or to prevent hydrogen from accidentally diffusing into the oven from an unused detector base.

Description	Similar to Agilent part #	qty.	cat. #
Detector Plug Nut	5020-8294	2-pk.	21883



FID/NPD Adaptor Fitting

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

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



FID/NPD Capillary Adaptor Fitting for Agilent 5890/6890/6850 GCs

- High-quality stainless steel construction.
- Meets or exceeds OEM performance.

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



TCD Adaptor Fitting

Description	Similar to Agilent part #	qty.	cat. #
TCD Adaptor Fitting	19302-80020 G1532-80540	ea.	20269



ECD/FID Dual-Purpose Make-Up Gas Kit

Incorporates a better make-up gas flow profile and a straight section of inert Siltek® tubing as the capillary guide. To add make-up gas to an FID, remove the tubing guide and insert an FID jet tail. A direct replacement fitting with a special end connector is available for GCs factory-equipped with make-up gas. A complete kit is available for plumbing GCs that are not factory-equipped with make-up gas. Complete kit includes make-up gas fitting, Siltek® treated guide, 1/4" nut and ferrules, 1/16" nut, 0.4mm ID graphite ferrule, and fine metering valve.

Description	qty.	cat. #
ECD/FID Dual-Purpose Make-Up Gas Kit	kit	21300
ECD/FID Replacement Fitting for Restek Make-up Gas Kit	ea.	21324
Replacement ECD/FID Siltek® Guide	2-pk.	21302
ECD/FID Direct Replacement Fitting (includes 1/4" nut, Vespel®/graphite ferrule, 1/16" nut, 0.4mm ID graphite ferrule)	ea.	21301



Rugged design!

FID Gauge Pack for Agilent 5890 GCs

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

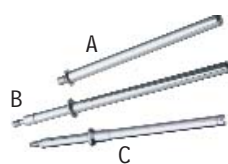
Description	qty.	cat. #
FID Gauge Pack for Agilent 5890 GCs	ea.	22071



Autosampler Parts

Replacement Parts for Agilent Autosamplers

- All parts meet or exceed OEM performance.



Injector Mounting Posts for Agilent Autosamplers

Description	Similar to Agilent part #	qty.	cat.#
A) Injector Mounting Post for Agilent 7673 Series Autosamplers for use with 5890 GCs	18597-60805	ea.	21236
B) Injector Mounting Post for Agilent 7673 Series Autosamplers for use with 6890 GCs	07673-21140	ea.	21237
C) Injector Mounting Post for Agilent 7683 Series Autosamplers	G2613-20500	ea.	21172



Turret Tray Assembly for Agilent 5890/6890 GC

- Holds sample, waste and solvent vials.

Description	qty.	cat.#
Turret Tray Assembly for Agilent 5890/6890 GC	ea.	22855



Autosampler Plunger Carrier Belt

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



Carriage Motor Belt

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

new!



Z-Belt for Agilent 7673B Autosampler

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



Carriage Motor

Description	Similar to Agilent part #	qty.	cat.#
Carriage Motor for Agilent 7673A and 7673B	07673-60890	ea.	22693



new!

Injector Turret Motor for Agilent 7673A & 7673B Injectors

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



Replacement Cables

(for Agilent GCs, Integrators, & Autosamplers)

- Priced less than original 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.#
Replacement Cable	35900-60610	6 ft.	ea.	20650
Replacement Cables	35900-60610	6 ft.	2-pk.	20651

did you know?

Restek provides
pin schematics.



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.#
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.#
Replacement Cable	03394-60540	6 ft.	ea.	20655
Replacement Cables	03394-60540	6 ft.	2-pk.	20656



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

Description	Similar to Agilent part #	length	qty.	cat.#
Replacement Cable	05890-60800	6 ft.	ea.	20652
Replacement Cables	05890-60800	6 ft.	2-pk.	20653



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.#
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.#
Replacement Cable	35900-60630	6 ft.	ea.	20658
Replacement Cables	35900-60630	6 ft.	2-pk.	20659



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.#
Replacement Cable	35900-60700	6 ft.	ea.	20660
Replacement Cables	35900-60700	6 ft.	2-pk.	20661



Automatic liquid sampler stop/start cable for Agilent GCs.

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





GC Racer by Zip Scientific

- Saves time and money by increasing throughput.
- Makes fast GC possible with any capillary GC column.
- Easy to operate and install—truly a “plug and use” accessory.

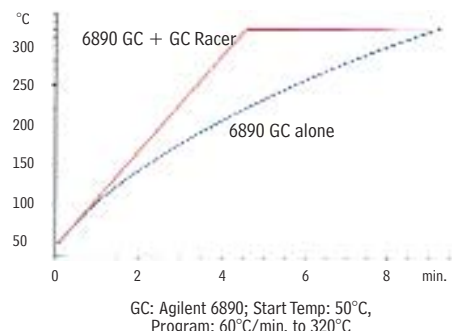
Fast gas chromatographic temperature programs can speed up elution of high boiling point compounds and late eluters, but often are not used to maximum advantage. The Agilent 5890 has a maximum temperature program rate of 70°C/min., but the factory heating elements in the 5890 only allow this maximum rate to be maintained up to a temperature of 100°C. The Agilent 6890 allows a maximum ramp rate of 75°C/min. at starting temperatures of 50–70°C and 20°C/min. at starting temperatures of 300–450°C.* For analysts trying to push temperature ramps as fast as possible, these restricted program rates can lead to longer analysis time and broader peaks.

The GC Racer system will maintain a temperature program rate of 70°C/min. up to 350°C or 60°C/min. to temperatures as high as 450°C in an Agilent 5890 or a rate of 70°C/min. up to 400°C in an Agilent 6890.

Restek and Zip Scientific have teamed up to bring you the GC Racer temperature programmer, a system that enhances conventional ovens with an auxiliary heater that is controlled by the GC. The GC Racer consists of a control unit and a resistive heating element that is placed on the floor of the GC oven. The heating element is connected to the controller, which is plugged into the main PC board of the GC and into a 120V standard grounded wall outlet. When the GC Racer controller detects that the factory heating elements are not keeping up with the programmed heating rate, the GC Racer heater is brought into the circuit to augment the heat being supplied to the oven.

The auxiliary heater design is similar to that of the original GC heater. At no time during the installation of the GC Racer system is the column removed from the oven, or disconnected from the detector or injection port.

Figure 1 Faster temperature programs increase sample throughput.



a plus 1 story

“We tried a GC Racer Temperature Programmer from Restek and now we want more! With the GC Racer, we can perform high

speed temperature programming to get the results we need, and we can use conventional columns and fittings. This is a great time and cost savings for us. Not only that, but, with this system, we don’t experience any leaks at the fittings, so we can use it with our mass spectrometer. All this for an economical price.”

Josh Hildabrand, Chemist, and **William Mock**, Lab Manager, Environmental Science Corporation

The simplicity of its components and installation make the Zip Scientific GC Racer system a valuable tool in the quest for high-speed GC, and a must-have add-on accessory for every 5890 or 6890 GC. The speed of analysis that can be achieved and the ease of installation will lead to direct savings of time and money by decreasing run time and increasing sample throughput.

for more info

GC Racer brochure
(lit. cat.# 59297) and
Applications Note
(lit. cat.# 59457)

Download your free printable
pdfs from our website.



Description	voltage	qty.	cat.#
GC Racer for Agilent 5890 Series II (only) GC	120 volt	ea.	23024
GC Racer for Agilent 5890A (only) GC	120 volt	ea.	23025
GC Racer for Agilent 6890 (only) GC	120 volt	ea.	23028

*Use of high voltage and amperage or a special insert purchased with the GC will allow slightly higher ramp rates.

Vespel® Ferrules

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

Graphite Ferrules

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

Vespel®/Graphite Ferrules

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



Vespel® ferrules

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

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

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

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

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



Reusable!

Compact Ferrules—For Agilent 5890/6890/6850 GCs

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



*For micropacked columns.

**For 0.28mm MXT® columns.

Standard Ferrules—For 1/16", 1/8", and 1/4-Inch Fittings



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

Two-Hole Ferrules—For 1/8-Inch and 1/16-Inch Compression-Type Fittings



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

Reducing Ferrules



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

Blank Ferrules—For 1/16-Inch Fittings



Fitting Size	Ferrule ID	qty.	Vespel®/Graphite
1/16"	no hole	10-pk.	20240

Alumaseal™ Ferrules*

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



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

*Patent pending.



tech tip

Choosing the Right Ferrule

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

Universal Press-Tight® Connectors

- Connect a guard column to an analytical column.
- Repair a broken column.
- Connect a column outlet to a transfer line.
- Deactivated Press-Tight® connectors assure better recovery of polar and non-polar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

Description	5-pk.	25-pk.	100-pk.
Universal Press-Tight® Connectors	20400	20401	20402
Deactivated, Universal Press-Tight® Connectors	20429	20430	20431
Siltek® Treated Universal Press-Tight® Connectors	20480	20449	20481

**Universal Angled Press-Tight® Connectors**

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

Description	5-pk.	25-pk.	100-pk.
Universal Angled Press-Tight® Connectors	20446	20447	20448
Deactivated Universal Angled Press-Tight® Connectors	20446-261	20447-261	20448-261
Siltek® Treated Universal Angled Press-Tight® Connectors	20482	20483	20484

**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.
- Deactivated Press-Tight® connectors assure better recovery of polar and non-polar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

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

**Universal Angled “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.
- Deactivated Press-Tight® connectors assure better recovery of polar and non-polar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

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

**Universal “X” Press-Tight® Connectors**

- Connect a column to three detectors.
- Connect a column to two detectors and a sniffer port.
- Split sample flow onto three columns.
- Deactivated Press-Tight® connectors assure better recovery of polar and non-polar compounds.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

Description	ea.	3-pk.
Universal “X” Press-Tight® Connector	20407	20408
Deactivated Universal “X” Press-Tight® Connector	20407-261	20408-261
Siltek® Treated Universal “X” Press-Tight® Connector	20407-266	20408-266

**Polyimide Resin**

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

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





Patent pending.

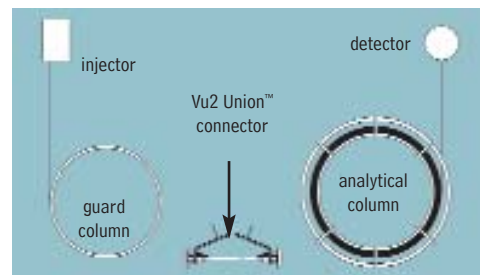
Secure, reliable
column-to-column
connections!

Vu2 Union™ Connectors

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

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

A guard column connected to an analytical column by a Vu2 Union™ connector.



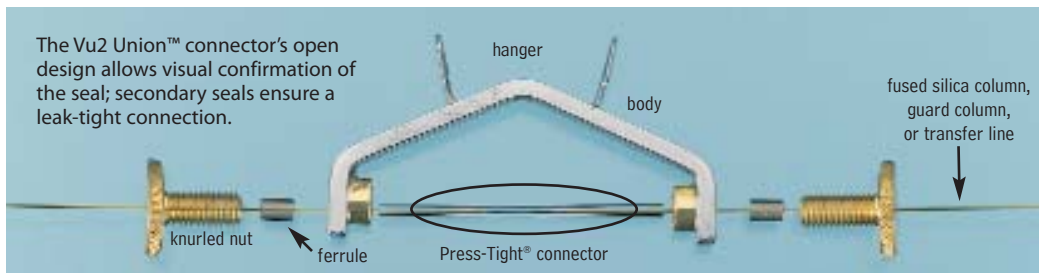
How does a Vu2 Union™ connector work?

A Press-Tight® union in the Vu2 Union™ connector joins the fused silica ends together; the ferrule and knurled nut at each end of the connector hold the tubing in place via a secondary seal between the ferrule and the Press-Tight® union. Each knurled nut applies independent pressure to each ferrule, to make a leak-tight seal with the column end. These ultra-strong connections will not unexpectedly disconnect under temperature changes, vibrations, or other stresses normally encountered in GC analyses. The open design allows visual confirmation of the seal between the column and the Press-Tight® union, to ensure confidence in the connection. Hang the connector from the column cage, to minimize stress on the connections.

Who will benefit from using Vu2 Union™ connectors?

Any analyst using guard columns, transfer lines, or restrictor tubing, performing a dual-column analysis with columns connected in series, or seeking to repair a broken column will find Vu2 Union™ connectors the simple, reliable, easy-to-use solution to their connection needs.

NOTE: Not recommended for GC column-to-MS connections—use the Vacuum Vu-Union® (see our general catalog or our website).



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

Universal Press-Tight® Connectors



Description	5-pk.	25-pk.	100-pk.
Universal Press-Tight® Connectors	20400	20401	20402
Deactivated, Universal Press-Tight® Connectors	20429	20430	20431
Siltek® Treated Universal Press-Tight® Connectors	20480	20449	20481

Graphite Ferrules for Vu2 Union™ Connectors

- High-purity, high-density graphite.
- Stable to 450°C.
- No binders that can off-gas or adsorb analytes.
- Smooth surface and clean edges.



Ferrule ID	Fits Column ID	Graphite 2-pk.	Graphite 10-pk.
0.3mm	0.10/0.15mm	22221	22222
0.4mm	0.18/0.28mm	20280	20281
0.5mm	0.32mm	20282	20283
0.8mm	0.45/0.53mm	20284	20285

www.restek.com •

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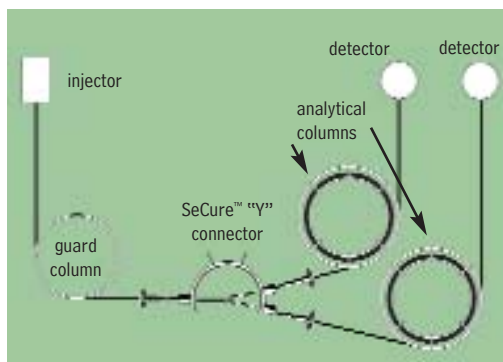
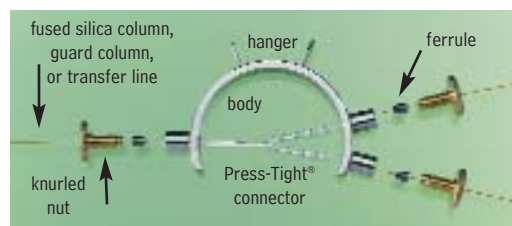
SeCure™ “Y” Connector Kits

- 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.

The SeCure™ “Y” Connector’s open design allows visual confirmation of the seal; secondary seals ensure a leak-tight connection.

Dual-column confirmational analysis with a single injection—one of the SeCure™ “Y” connector’s many uses.



Patent pending.

Secure, reliable
column-to-column
connections!

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

Description	Ferrules Fit Column ID	qty.	cat.#
SeCure™ “Y” Connector Kit	0.25/0.28mm	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

Universal “Y” Press-Tight® Connectors

- Split sample flow onto two columns.
- Split a single column flow to two detectors—perform confirmation analysis with a single injection.
- Deactivated Press-Tight® connectors assure better recovery of polar and non-polar compounds.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74mm (Restek 0.1mm–0.53mm ID).

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

Graphite Ferrules for SeCure™ “Y” Connectors

- Preconditioned to minimize out-gassing.
- High-purity, high-density graphite.
- Stable to 450°C.
- No binders that can off-gas or adsorb analytes.
- Smooth surface and clean edges.

Ferrule ID	Fits Column ID	Graphite 10-pk.	Graphite 50-pk.
0.4mm	0.18/0.25/0.28mm	20200	20227
0.5mm	0.32mm	20201	20228
0.8mm	0.45/0.53mm	20202	20224



please note

Use for fused silica-to-fused silica or fused silica-to-metal connections.

MXT™ Low-Dead-Volume Connector Kits for Metal Columns are also available. See our general catalog or our website.

MXT™-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 350°C.
- Available in union and “Y” configurations.

These MXT™ connectors can be used with fused silica tubing, because of a Valcon polyimide 1/32-inch one-piece fused silica adaptor. This unique graphite-reinforced composite allows a capillary column to slide into the adaptor and be locked in place simply by loosening and tightening the fitting.



MXT™-Union Connector Kits for Fused Silica Columns

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

Description	qty.	cat.#
For 0.25mm ID Fused Silica Columns	kit	21386
For 0.32mm ID Fused Silica Columns	kit	21385
For 0.53mm ID Fused Silica Columns	kit	21384



MXT™ ‘Y’-Union Connector Kits for Fused Silica Columns

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

Description	qty.	cat.#
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

1/32-Inch Replacement Nut

Description	qty.	cat.#
1/32" Replacement Nut	5-pk.	20389

Valco® Connectors—One-Piece Valcon Polyimide Adaptor Ferrule for Fused Silica

We recommend a one-piece adaptor ferrule for use in fittings in which the ferrule will not be removed. Connections are made or broken by tightening or loosening the fitting nut and sliding the tubing in or out. Fused silica adaptor ferrules are Valcon polyimide, a unique graphite-reinforced composite, specially prepared to maximize mechanical stability at temperatures to 350°C. The determining factor for selecting adaptor ferrule size is the fused silica tubing OD.



1/32-Inch Adaptor Ferrule (Valcon Polyimide)

Tubing OD	Tubing ID	Valco® #	qty.	cat.#
0.25 ≤ 0.40mm	0.25mm	FS.4-5	5-pk.	20137
0.40 ≤ 0.50mm	0.32mm	FS.5-5	5-pk.	20140
0.50 ≤ 0.80mm	0.53mm	ZF.5V-5	5-pk.	20141
1/32" Replacement Nut			5-pk.	20389



1/4-Inch–3/16-Inch Open-End Wrenches

High-quality miniature wrenches to use with MXT™ low-dead-volume connectors.

Description	qty.	cat.#
1/4"-3/16" Open-End Wrenches	2-piece set	20388

tech tip

Coupling GC Columns

An MXT™ connector is a good alternative to a glass connector when coupling GC columns. This connector is constructed from stainless steel and will not break; it uses ferrules for sealing. The design ensures low dead volume, and Siltek® treatment ensures the MXT™ connector is inert—both features help minimize peak tailing. MXT™ connectors can be used to connect metal to metal, metal to fused silica, or fused silica to fused silica tubing. When connecting metal tubing, use 1/32-inch stainless steel ferrules (see our general catalog or visit www.restek.com); for fused silica tubing, use Valcon polyimide adaptor ferrules (see above).

Thermal Gas Purifier*

- Removes oxygen, water, carbon monoxide, carbon dioxide, hydrocarbons (except methane) to ppb levels—pure enough for MS.
- Packed with reactor-grade, pure getter material for maximum efficiency and no contamination.
- Welded end-fittings on getter tubes eliminate leaks.
- Each tube has 12L oxygen and 35L water vapor capacity.
- Maximum flow: 1 liter/minute.

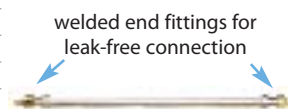
The getter material in Restek's re-engineered line of thermal gas purifiers reacts chemically with impurities in the carrier gas stream. Because the reaction is non-reversible, there is no possibility of contaminants breaking through the thermal gas purifier.

Gas purification is very economical when you use a thermal gas purifier. Getter tubes normally require changing only once per year; heavy use or very impure feed gas may require more frequent getter tube replacement.

Restek Single-Tube Thermal Gas Purifier, 110 Volt (1 tube included)**	qty.	cat.#
1/8" Fittings	ea.	21496
1/4" Fittings	ea.	21497
Restek Dual-Tube Thermal Gas Purifier, 110 Volt (2 tubes included)**	qty.	cat.#
1/8" Fittings	ea.	21498
1/4" Fittings	ea.	21499
Replacement Getter Tube	qty.	cat.#
1/8" Fittings (Similar to Supelco part# 2-2396)	ea.	21661
1/4" Fittings (Similar to Supelco part# 2-2398)	ea.	21660

*Use with helium or nitrogen carrier gas only. Do not use with hydrogen, oxygen, or air—a violent reaction and/or fire will occur.

**Single-tube model dimensions: 15" x 7" x 6" (38 x 17.8 x 15.2 cm). Dual-tube model dimensions: 15" x 10" x 6" (38 x 25.4 x 15.2 cm).

**Single-Tube Model****Dual-Tube Model**

Dimensions: 13" x 1/2"
(33 x 1.3 cm)

Pressure Gauge Kit

- Use an in-line pressure gauge to indicate when the Thermal Gas Purifier getter tube should be replaced.
- Includes 1/8" tee and 0–100 psi gauge.

Description	qty.	cat.#
In-line Pressure Gauge Kit for Thermal Gas Purifiers	kit	21657



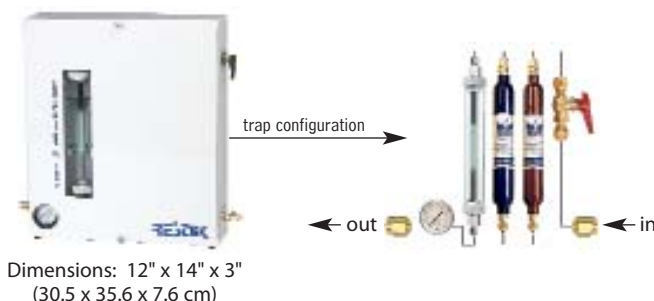
Always know the status of the Thermal Gas Purifier getter tube: change tube when pressure drops below 10psi.

Restek Gas Management System

- Removes moisture, hydrocarbons, and oxygen from carrier gas, extending column lifetime.
- Produces high-purity carrier gas for most applications.
- Includes one each: moisture, hydrocarbon, and indicating oxygen trap.
- Replacing traps is safe and easy.
- Maximum flow: 1 liter/minute.

did you know?

The Restek Gas Management System removes water vapor (to 10ppb), hydrocarbons (to 0.1ppm), and oxygen (to less than 0.1ppm) with three traps housed in one unit.



Description	qty.	cat.#
Restek Gas Management System (includes fittings for 1/8" and 1/4" gas line)	ea.	21999
Replacement Traps	qty.	cat.#
High-Capacity Moisture Trap, 1/8" Fittings	ea.	21997
Capillary-Grade Hydrocarbon Trap, 1/8" Fittings	ea.	21991
Indicating Oxygen Trap, 1/8" Fittings	ea.	22010



did you know?

All Super-Clean™ filter cartridges (except hydrocarbon filter cat.# 22030) feature easy-to-read indicators. The indicator code is shown on every trap so there is no confusion about when to replace it.

tech tip

Oxygen and Moisture Traps

We highly recommend oxygen and moisture traps for make-up gas when operating sensitive detectors such as electron capture detectors (ECD). The hydrogen reaction gas for sensitive electrolytic conductivity detectors (ELCD) also requires a hydrocarbon trap, to remove trace impurities.

Super-Clean™ Gas Filters

- High-purity output ensures 99.9999% pure gas.
- “Quick connect” fittings for easy, leak-tight cartridge changes.
- Glass inside to prevent diffusion; plastic outside for safety.

Designed for fast, simple cartridge changing

Cartridge systems make changing gas filters quick and easy, and Super-Clean™ gas filters are the latest in cartridge-style gas filtration. A baseplate allows cartridges to be exchanged without introducing oxygen. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place. There is no longer a need for loosening and tightening fittings every time a trap is changed, and your system will not become contaminated during the process.

With available 2- or 3-position baseplates, you can purify all GC gas streams at one location. Figure 1 shows some possible filter cartridge combinations using these baseplates. Any combination is possible because any Restek Super-Clean™ filter cartridge can be used with any Restek baseplate.

High-purity output for improved sensitivity (Table I)

The Triple Filter cartridge (cat.# 22020) is ideal for purifying carrier gas. This trap contains oxygen, moisture, and hydrocarbon scrubbers in one cartridge. The purity of your carrier gas after flowing through the Triple Filter is better than six-9s (99.9999% pure), which is ideal for sensitive mass spectrometry (MS) or ECD analyses, and for protecting your analytical columns against damage from contaminated carrier gas.

The Fuel Gas Filter cartridge (cat.# 22022) is perfect for purifying flame ionization detector (FID) fuel gases, removing both moisture and hydrocarbons. Using the Fuel Gas Filter for FID hydrogen and air will produce a stable baseline, improving overall reproducibility and sensitivity.

Figure 1 Filter cartridges can be configured for different applications.

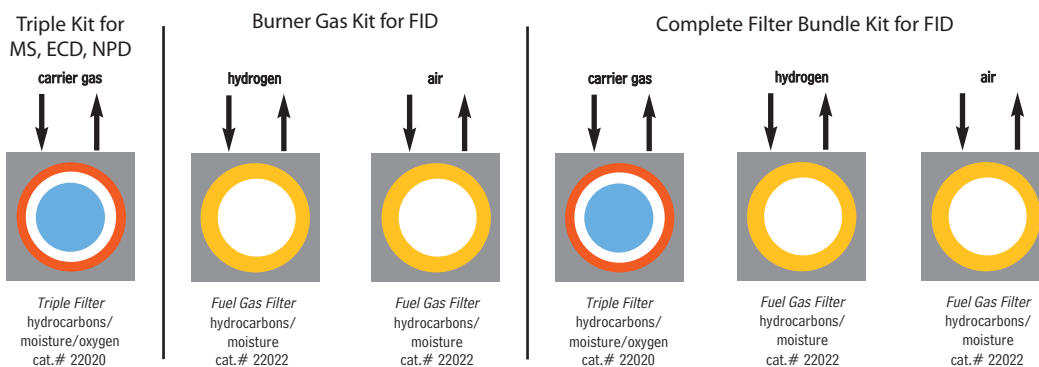


Table I Each Super-Clean™ filter provides high-purity outlet gas.

Type of Filter	Outlet Gas Quality (%)	Maximum Pressure or Maximum Flow Rates	Use for:	Indicator Color Change	H ₂ O (g)	O ₂ (mL)	Capacity Hydrocarbons (g)	Estimated Lifetime (years)
Moisture cat.# 22028	>99.9999	11 bar 159psi/ 7 L/min.	Inert carrier gas Air Hydrogen	Yellow to clear	7.2	—	—	>2
Oxygen cat.# 22029	>99.9999	11 bar 159psi/ 7 L/min.	Inert carrier gas	Green to grey	NA	1000	—	>2
Hydrocarbons cat.# 22030	>99.9999	11 bar 159psi/ 7L/min.	Inert carrier gas Air Hydrogen	No indicator	NA	—	12 ³	>2
Fuel Gas ¹ cat.# 22022	>99.9999	11 bar 159psi/ 7L/min.	Inert carrier gas Air Hydrogen	Yellow to clear	3.5	—	24 ³	>1.5
Triple ² cat.# 22020	>99.9999	11 bar 159psi/ 7L/min.	Inert carrier gas	Yellow to clear Green to grey	1.8	500	4 ³	>1
Helium Specific ² cat.# 21982	>99.9999	11 bar 159psi/ 7L/min.	Helium	Yellow to clear Green to grey	1.8	500	—	>1

¹Removes hydrocarbons, moisture.

²Removes hydrocarbons, moisture, oxygen.

³As *n*-butane.

Super-Clean™ Filter and Baseplate Kits

Description	qty.	cat.#
Carrier Gas Cleaning Kit (includes mounting baseplate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon Triple Filter)	kit	22019
Fuel Gas Purification Kit (includes mounting baseplate, 1/8" inlet/outlet fittings, and hydrocarbon/moisture Fuel Gas Filter)	kit	22021



All traps measure: 10³/₈" x 1³/₄"
(27 x 4.4 cm)
Each baseplate unit measures:
4" x 4" x 1⁷/₈"
(10.2 x 10.2 x 4.8 cm)

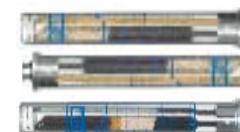
Replacement Filters

Description	qty.	cat.#
Replacement Triple Filter (removes oxygen, moisture and hydrocarbons)	ea.	22020
Replacement Fuel Gas Filter (removes moisture and hydrocarbons)	ea.	22022

**Filter Bundle Kit**

- Kit includes two Fuel Gas Filters for FID fuel gases and one Triple Filter for carrier gas.

Description	qty.	cat.#
Filter Bundle Kit	kit	22031

**Super-Clean™ Ultra-High Capacity Filters**

Description	qty.	cat.#
Ultra-High Capacity Hydrocarbon Filter	ea.	22030
Ultra-High Capacity Moisture Filter	ea.	22028
Ultra-High Capacity Oxygen Filter	ea.	22029

**Helium-Specific Super-Clean™ Filter and Kit**

- Specifically designed for purification of helium in GC/MS systems.
- Traps are packed and conditioned using helium.
- Uses standard single-position baseplate.

Description	qty.	cat.#
Helium-Specific Carrier Gas Cleaning Kit (includes mounting baseplate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon Helium-Specific Filter)	kit	21983
Replacement Helium-Specific Filter (removes oxygen, moisture and hydrocarbons)	ea.	21982

**Baseplates**

- Standard baseplate fittings are 1/8". To adapt to 1/4", order 1/8" to 1/4" tube-end unions (cat. # 21833, below).

Description	qty.	cat.#
Single-Position Baseplate	ea.	22025
2-Position Baseplate	ea.	22026
3-Position Baseplate	ea.	22027

**Wall Mounting Bracket**

- Baseplates can be mounted by using screws and the mounting holes on the baseplate, or by using this optional wall mounting bracket.

Description	qty.	cat.#
Wall Mounting Bracket for Super-Clean™ Baseplates	ea.	21984

**Replacement O-Rings for Cartridge Baseplates**

- Pack includes 10 large O-rings and 10 small O-rings.

Description	qty.	cat.#
Replacement O-Rings for Cartridge Baseplates	20-pk.	22023

**1/8-Inch to 1/4-Inch Tube-End Unions**

- To adapt 1/8" Super-Clean™ baseplate fittings to 1/4", use 1/8" to 1/4" tube-end unions.

Description	qty.	cat.#
1/8" to 1/4" Tube-End Unions	5-pk.	21833





Kelli Steindl
GC Accessories Associate
Product Marketing
Manager
2+ years of service!

Click-On Inline Super-Clean™ Traps

- High-purity output ensures 99.9999% pure gas.
- Click-On fittings for easy, leak-tight cartridge changes; brass or stainless steel, 1/4" or 1/8".
- Helium-Specific Triple Trap is ideal for GC/MS.

Using the same features and benefits as the Super-Clean™ base-plates and filters (page 39), Click-On adaptor connectors allow cartridges to be exchanged without introducing oxygen. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place. There is no need for loosening and tightening fittings every time a trap is changed, and your system will not become contaminated during the process.

The Triple Trap is ideal for purifying carrier gas—it contains oxygen, moisture, and hydrocarbon scrubbers in one cartridge.

The Fuel Gas Trap is ideal for purifying flame ionization detector (FID) fuel gases, removing both moisture and hydrocarbons.

The Helium-Specific Triple Trap is ideal for purifying helium in GC/MS systems. This trap is packed and purged under helium and contains oxygen, moisture, and hydrocarbon scrubbers in one cartridge.

Trap replacement depends on the quality of the incoming gas. Use the double connector and install an indicating cartridge after a trap to indicate when the trap should be replaced.



Filter Type	Gas Quality at Outlet	Maximum Pressure	Maximum Flow (L/min.)	Use For	H ₂ O (g)	Capacity O ₂ (mL)	Hydrocarbons (g)	Estimated Lifetime (years)
Moisture cat.#22467	>99.9999	11 bar 160psi	25	Inert carrier gas, helium, air, H ₂	21	NA	NA	>3
Oxygen cat.#22468	>99.9999	11 bar 160psi	25	Inert carrier gas	NA	3000	NA	>3
Hydrocarbon cat.#22466	>99.9999	11 bar 160psi	25	Inert carrier gas, helium, air, H ₂	NA	NA	36 ³	>3
Fuel Gas ¹ cat.#22465	>99.9999	11 bar 160psi	25	Inert carrier gas, helium, air, H ₂	10	NA	18 ³	>2
Triple ² cat.#22464	>99.9999	11 bar 160psi	25	Inert carrier gas	6	1000	12 ³	>2

¹Removes hydrocarbons, moisture.

²Removes hydrocarbons, moisture, oxygen.

³As *n*-butane.

NOTE: Super-Clean™ Gas Filters are recommended for purifying non corrosive gases with low concentrations of contaminants. The maximum concentration of oxygen in the incoming gas stream for oxygen purifiers is 0.5%.

Click-On Inline Super-Clean™ Traps and Connector Kits



Description	qty.	cat.#
Carrier Gas Purification Kit, 1/8" Stainless Steel		
Includes (2) 1/8" SS connectors and (1) oxygen/moisture/hydrocarbon triple trap	kit	22456
Carrier Gas Purification Kit, 1/8" Brass		
Includes (2) 1/8" brass connectors and (1) oxygen/moisture/hydrocarbon triple trap	kit	22457
Fuel Gas Purification Kit, 1/8" Stainless Steel		
Includes (2) 1/8" SS connectors and (1) oxygen/moisture/hydrocarbon triple trap	kit	22458
Carrier Gas Purification Kit, 1/4" Brass		
Includes (2) 1/4" brass connectors and (1) oxygen/moisture/hydrocarbon triple trap	kit	22459
Fuel Gas Purification Kit, 1/8" Stainless Steel		
Includes (4) 1/8" SS connectors and (2) hydrocarbon/moisture traps	kit	22460
Fuel Gas Purification Kit, 1/8" Brass		
Includes (4) 1/8" brass connectors and (2) hydrocarbon/moisture traps	kit	22461
Fuel Gas Purification Kit, 1/4" Stainless Steel		
Includes (4) 1/4" SS connectors and (2) hydrocarbon/moisture traps	kit	22462
Fuel Gas Purification Kit, 1/4" Brass		
Includes (4) 1/4" brass connectors and (2) hydrocarbon/moisture traps	kit	22463

Click-On Inline Super-Clean™ Replacement Traps

Description	qty.	cat.#
Click-On Super-Clean™ Replacement Triple Trap (removes oxygen, moisture and hydrocarbons)	ea.	22464
Click-On Super-Clean™ Replacement Fuel Gas Trap (removes moisture and hydrocarbons)	ea.	22465

**Click-On Inline Super-Clean™ Ultra-High Capacity Traps**

Description	qty.	cat.#
Ultra-High Capacity Hydrocarbon Trap	ea.	22466
Ultra-High Capacity Moisture Trap	ea.	22467
Ultra-High Capacity Oxygen Trap	ea.	22468

**Helium-Specific Click-On Inline Super-Clean™ Trap and Connector Kits**

Description	qty.	cat.#
Kits		
Helium-Specific Carrier Gas Cleaning Kit, 1/8" Stainless Steel Includes (2) 1/8" SS connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22469
Helium-Specific Carrier Gas Cleaning Kit, 1/8" Brass Includes (2) 1/8" brass connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22470
Helium-Specific Carrier Gas Cleaning Kit, 1/4" Stainless Steel Includes (2) 1/4" SS connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22471
Helium-Specific Carrier Gas Cleaning Kit, 1/4" Brass Includes (2) 1/4" brass connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22472
Replacement Trap		
Helium-Specific Replacement Triple Trap (removes oxygen, moisture and hydrocarbons)	ea.	22473

did you know?

Helium-Specific Click-On Inline Super-Clean™ Trap and Kits are designed specifically for purification of helium in GC/MS systems!

**Click-On Inline Super-Clean™ Indicator**

- Oxygen: Green to Grey
- Moisture: Beige to Clear

Description	qty.	cat.#
Click-On Inline Super-Clean™ Indicator (oxygen, moisture)	ea.	22474

tech tip

Install an indicator after the Click-On inline filter so there is no confusion about when to replace the traps.

**Click-On Inline Super-Clean™ Connectors**

- Click-On connectors allow you to change traps quickly, without introducing oxygen into your system.

Description	qty.	cat.#
1/4" Brass Click-On Inline Super-Clean™ Connectors	2-pk.	22475
1/8" Stainless Steel Click-On Inline Super-Clean™ Connectors	2-pk.	22476
1/4" Brass Click-On Inline Super-Clean™ Connectors	2-pk.	22477
1/4" Stainless Steel Click-On Inline Super-Clean™ Connectors	2-pk.	22478

**Click-On Inline Super-Clean™ Double Connector**

- Connects any Click-On trap to a Click-On indicator.

Description	qty.	cat.#
Click-On Inline Super-Clean™ Double Connector, stainless steel	ea.	22479

**Wall-Mounting Clamps for Click-On Inline Super-Clean™ Traps**

Description	qty.	cat.#
Wall-Mounting Clamps for Click-On Inline Super-Clean™ Traps	4-pk.	22480

**Replacement O-Rings for Click-On Inline Super-Clean™ Connectors**

- Pack includes 10 large O-rings and 10 Small O-rings.

Description	qty.	cat.#
Replacement O-Rings for Click-On Inline Super-Clean™ Connectors	20-pk.	22481



**Dual-Stage Ultra-High-Purity Brass Regulators**

- Oxidation-resistant, chrome-plated.
- Most stable outlet pressure control throughout the life of a high-pressure gas cylinder.
- Secondary pressure regulation not needed.
- Less internal volume than stainless steel regulators.

Outlet pressure: 0 to 100psig
 Outlet gauge: 30" – 0 to 200psig
 Inlet gauge: 0 to 4000psig
 Outlet assembly: diaphragm valve, 1/4" tube fitting

Fitting	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	21667
CGA 350 (H ₂ , P ₂)	ea.	21668
CGA 590 (Air)	ea.	21669

**Single-Stage Ultra-High-Purity Brass Regulators**

- Oxidation-resistant, chrome-plated.
- Use when there is secondary pressure regulation downstream.
- Identical gas purity protection as with our dual-stage regulators.

Outlet pressure: 0 to 100psig
 Outlet gauge: 30" – 0 to 200psig
 Inlet gauge: 0 to 4000psig
 Outlet assembly: diaphragm valve, 1/4" tube fitting

Fitting	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	20646
CGA 350 (H ₂ , P ₂)	ea.	20647
CGA 590 (Air)	ea.	20648

Model FID-1000 and FID-2500 Gas Stations

- Single unit produces UHP zero air from house compressed air and 99.9995% pure hydrogen from deionized water.
- Ideal for supplying up to 5 - 6 FIDs.
- Eliminates inconvenient and dangerous cylinders.
- Silent operation, minimal operator attention required.

Specifications

Hydrogen Purity:	99.9995%
Zero Air Purity:	FID-1000: < 0.1ppm total hydrocarbons as methane FID-2500: < 0.05ppm total hydrocarbons as methane
Max. Hydrogen Flow Rate:	FID-1000: 90cc/min. FID-2500: 250cc/min.
Max. Zero Air Flow Rate:	FID-1000: 1000cc/min. FID-2500: 2500cc/min.
Power:	120VAC/amp, 60Hz, 400 watts
Hydrogen Outlet Pressure:	60 psig
Zero Air Outlet Pressure:	40-125 psig*
Inlet Connection:	1/4" NPT (female)
Outlet:	1/8" compression
Dimensions:	16.5"h x 10.5"w x 17"d (42cm x 27cm x 43cm)
Weight:	53 lbs. (24kg)

Parker Balston's Gas Stations provide both UHP grade hydrogen fuel gas and zero grade air for flame ionization detectors on gas chromatographs. The system is specifically designed to supply fuel gas to FIDs and to support flame thermionic and flame photometric detectors. The units produce zero air by purifying compressed air to a total hydrocarbon concentration of 0.1ppm or less (measured as methane).

The hydrogen generators produce hydrogen gas dissociation of water and hydrogen proton conduction through a proton exchange membrane cell.



Produce zero air and pure hydrogen from one unit!

ordering note

For **international orders**, please add the appropriate power cord suffix from the table below.

free literature

For more information, download a free copy of our *FID Gas Stations Fast Facts* from www.restek.com!

lit. cat.# 580051

Description	qty.	cat. #
Model FID-1000 Gas Station (ideal for 1 - 2 FIDs)	ea.	20177
Model FID-2500 Gas Station (ideal for 5 - 6 FIDs)	ea.	24913
Replacement Components for FID Gas Stations		
Resin Bed Cartridge for Hydrogen Generators in FID-1000 and FID-2500 Gas Stations	ea.	24914
Replacement Desiccant Cartridge FID Gas Station Maintenance Kit	ea.	21671
Includes 1 desiccant cartridge, 1 resin bed cartridge, 1 filter cartridge. *Zero air inlet requires minimum of 10psig compressed air pressure.	ea.	24915

International Power Cord Sets

Just add the proper suffix to the catalog number for the gas generator you are ordering.

Location	qty.	cat.# suffix
United Kingdom (230VAC, 50/50Hz)	ea.	-550
European (230VAC, 50/60Hz)	ea.	-551
IEC Connector Only (230VAC, 50/60Hz)	ea.	-552
Japanese (200VAC, 50/60Hz)	ea.	-556
Japanese for Zero Air (100VAC, 50/60Hz)	ea.	-553
Japanese for Hydrogen (100VAC, 50/60Hz)	ea.	-554
Japanese for Nitrogen (100VAC, 50/60Hz)	ea.	-555

Instrument-Grade Welded and Drawn 304 Grade Stainless Steel Tubing

Clean tubing is critical to the delivery of pure gas to your instrument. Restek's Stainless Steel Tubing is specially cleaned for inertness by using the procedure for processing our Silcosteel® and Siltek®-treated products, because scrupulously clean parts are a prerequisite for a quality coating.

Tubing Dimensions		Length (per-foot pricing on 26 feet or more)		
		25 Feet	26–100 Feet	> 100 Feet*
ID (in.)	OD (in.)	cat.#	cat.#	cat.#
0.01" ID	1/16" OD	21500	21501	21502
0.02" ID	1/8" OD	21503	21504	21505
0.03" ID	1/8" OD	21506	21507	21508
0.04" ID	1/8" OD	21509	21510	21511
0.085" ID	1/4" OD	21512	21513	21514
0.21" ID	1/2" OD	21515	21516	21517

*The availability of long lengths (continuous lengths up to 500 feet) is subject to inventory constraints. Please inquire before ordering.



ordering note

Required length in meters
x 3.2808 = length in feet.

ordering note

An extra charge is applied for cutting and/or straightening stainless steel and/or copper tubing, calculated from the total number of pieces produced for each line item

Cleaned Copper Tubing

- Adheres to ASTM B-280.
- Chromatographically free of background contamination.
- Use for plumbing GC systems.

ID	OD	Wall	qty.	cat.#
0.065"	1/8"	0.030"	50 ft.	21590
0.190"	1/4"	0.030"	50 ft.	21592

cleaned

All tubing is cleaned and ready to use.

GC Installation Kit

This kit contains the tubing and fittings needed to add an additional GC to your lab bench. Also included are four 1/8-inch tees, so carrier, fuel, and other GC gases can be routed to the new inlet or detector from existing gas lines. Order additional parts, such as purifiers or regulators, separately to customize the GC installation to your specifications. Kit includes: one tubing cutter, one 1/8-inch x 1/4-inch reamer, one 7/16-inch wrench, one 1/2-inch wrench, four 1/8-inch brass tees, ten 1/8-inch brass nuts, ten brass front and back ferrules, and 50 feet (15.2 meters) of our instrument-grade cleaned 1/8-inch copper tubing.

Description	qty.	cat.#
GC Installation Kit	kit	21325



tech tip

Plumbing a GC

It is essential to use clean chromatographic-grade tubing to plumb a GC. Standard-grade tubing contains residual hydrocarbon contaminants from the drawing process. These contaminants migrate into the gas stream, elevating background noise and causing down time.

For the *ultimate*
in inertness, use

SILTEK®
tubing.

See our catalog or
website.



1/16-Inch Tubing Cutter

- Produces square, smooth cuts in 1/16-inch tubing.
- Eliminates tubing distortion.
- Replaceable cutting wheel.

Description	qty.	cat.#
1/16" Tubing Cutter	ea.	20192
Replacement Cutting Wheels	3-pk.	20185



Ridgid™ Tubing Cutter

- Excellent for cutting 1/8- or 1/4-inch metal tubing.
- Compact size is ideal for tight spaces.
- Replaceable cutting wheel.

Description	qty.	cat.#
Ridgid™ Tubing Cutter for 1/8" or 1/4" metal tubing	ea.	23011
Replacement Cutting Wheels	2-pk.	23012



Tubing Reamer

- Removes burrs from stainless steel tubing.
- For 1/4- or 1/8-inch tubing.
- Non-slip safety design.

Description	qty.	cat.#
Tubing Reamer	ea.	20134



CE

8" x 6 1/4" x 4 1/4"
(20.3 x 15.9 x 10.8 cm)
Weight: 11 lbs. (5.0 kg)

SSI TC-20 Tube Cutting Machine

- Cuts 1/16", 1/8", or 1/4" tubing with inside diameter as small as 0.008".
- Electrically operated bench-top model.
- Handy dressing tool on the swing arm removes burrs and reams tubing.
- Voltage selectable 110–120/220–240 volts, 50–60Hz.*

Description	qty.	cat.#
SSI Tubing Cutter Machine	ea.	23029
SSI Replacement Cutting Wheels	3-pk.	23030

*Unit shipped set for 110–120 operating voltage. Switch to 220–240 volts by using alternate fuse and power cord (included).

Tubing Dressing Tool

- Same tool as included with the SSI tube cutting machine.



Description	qty.	cat.#
1/16" Tubing Dressing Tool	ea.	20188
Replacement Insert for 1/16" Tubing Dressing Tool	ea.	20189
1/8" Tubing Dressing Tool	ea.	20190
Replacement Insert for 1/8" Tubing Dressing Tool	ea.	20191

Tubing Bender

- Bends 1/8-inch, 3/16-inch, or 1/4-inch tubing.
- Accurate left-hand, right-hand, or offset bends.



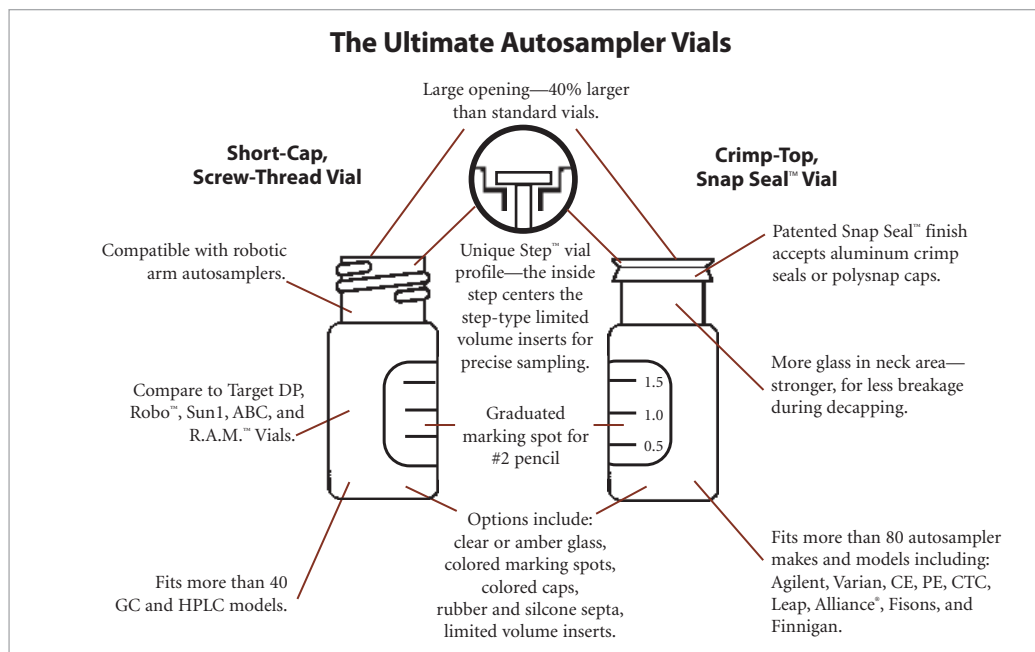
Description	qty.	cat.#
Tubing Bender	ea.	23009



1/16-Inch Tubing Cutting Pliers

- Ideal for cutting 1/16-inch tubing.
- Cuts quickly, reducing distortion.
- Cuts clean, eliminating need for deburring.

Description	qty.	cat.#
1/16" Tubing Cutting Pliers	ea.	20193



Snap Seal™ Vials: The Versatile Crimp Top Vial

- Purchase only one vial type, but use any crimp capping system.
- Seal securely with a standard aluminum crimp seal, a Poly Crimp™ Seal, or a variety of Snap-Top Cap™ designs.
- Crimp tightly—the neck finish provides a tighter seal when using the new Poly Crimp™ Seal, Snap-Top Cap™ or aluminum crimp seal.
- Seal tightly—the unique design seals securely using septum of proper thickness.
- 40% larger opening than standard crimp-top vials.
- Autosampler compatible—the unique Step™ vial design precisely centers a limited-volume insert in the vial neck. This ensures dependable, reliable use with autosamplers—even autosamplers with robotic arms.
- Less breakage—more glass in the neck area minimizes breakage during decapping.
- Bags of mixed color caps aid in coding special samples, controls, or standards.



Catalog Number Cross-Reference: Vials for Agilent Autosamplers

Similar to Agilent Part #	Restek Cat. #	Description	Page
5181-1210	21174	Aluminum Crimp Seals, PTFE/Rubber, 100-pk.	46
5181-1270	24513	50µL Polypropylene Spring Inserts, 100-pk.	46
5181-3376	24385	2mL Amber Crimp-Top Vials, 100-pk.	46
5181-3377	24517	350µL Glass Flat Bottom Inserts, 1000-pk.	46
5182-0543	24383	2mL Clear Crimp-Top Vials, 100-pk.	46
5182-0549	24518	250µL Polypropylene Bottom Spring Inserts, 100-pk.	46
5182-0552	24359	Aluminum Crimp Seals, PTFE/Silicone, 100-pk.	46
5182-0714	21154	2mL Clear Screw-Top Vials - No Marking Spot, 100-Pk.	47
5182-0715	21140	2mL Clear Screw-Top Vials, 100-pk.	47
5182-0716	21142	2mL Amber Screw-Top Vials, 100-pk.	47
5182-0717	24473	9mm Screw-Top Closures, PTFE/Rubber, 100-pk.	47
5182-0720	24485	9mm Screw-Top Closures, PTFE/Silicone, 100-pk.	47
5182-0723	24497	9mm Screw-Top Closures, PTFE/Silicone/PTFE, 100-pk.	47
5183-2068	21141	2mL Clear Screw-Top Vials, 1000-pk.	47
5183-2069	21143	2mL Amber Screw-Top Vials, 1000-pk.	47
5183-4492	24384	2mL Clear Crimp-Top Vials, 1000-pk.	46
5183-4493	24386	2mL Amber Crimp-Top Vials, 1000-pk.	46
5183-4498	21175	Aluminum Crimp Seals, PTFE/Rubber, 1000-pk.	46
5183-4500	24360	Aluminum Crimp Seals, PTFE/Silicone, 1000-pk.	46
9301-0978	24651	100µL Polypropylene Limited Volume Vials, 100-pk.	46
9301-0977	24653	100µL Glass/Plastic Limited Volume Vials, 100-pk.	46

← cross-reference

11mm Vials



Crimp-Top Vials, 2.0mL, 12 x 32mm, 11mm Crimp Finish

Crimp-Top Vials, Snap Seal™ Style—12 x 32mm, 11mm Crimp

Description	100-pk.	1000-pk.
2.0mL Clear Glass Vial w/White Graduated Marking Spot	24383	24384
2.0mL Amber Glass Vial w/White Graduated Marking Spot	24385	24386
2.0mL Clear Glass Vial without Graduated Marking Spot	21152	21153



for **more** info

see **page 48** for crimpers and decappers.

11mm Aluminum Crimp Seals with Septa

Description	100-pk.	500-pk.	1000-pk.
Silver Seal, PTFE/Natural Rubber Septa	21174	—	21175
Blue Seal, PTFE/Red Rubber Septa	24351	—	24352
Green Seal, PTFE/Red Rubber Septa	24353	—	24354
Red Seal, PTFE/Red Rubber Septa	24355	—	24356
Yellow Seal, PTFE/Red Rubber Septa	24357	—	24358
Mixed Colors, PTFE/Rubber Septa	—	21724	—
Silver Seal, PTFE/Silicone Septa	24359	—	24360
Blue Seal, PTFE/Silicone Septa	24361	—	24362
Green Seal, PTFE/Silicone Septa	24363	—	24364
Red Seal, PTFE/Silicone Septa	24365	—	24366
Yellow Seal, PTFE/Silicone Septa	24367	—	24368
Mixed Colors, PTFE/Silicone Septa	—	21725	—
Silver Seal, PTFE/Silicone/PTFE Septa	24369	—	24370



Convenience Kits: Vials, Caps, & Septa

Vials packaged in a clear-lid tray. Caps with septa packaged in a plastic bag.

Description	100-pk.	1000-pk.
2.0mL Clear Vial, deactivated , PTFE/Natural Rubber Silver Seal	24671	24672
2.0mL Amber Vial, deactivated , PTFE/Natural Rubber Silver Seal	24673	24674
2.0mL Clear Vial, untreated, PTFE/Natural Rubber Silver Seal	21196	21197
2.0mL Amber Vial, untreated, PTFE/Natural Rubber Silver Seal	21198	21199
2.0mL Clear Vial, untreated, PTFE/Silicone Silver Seal	24646	24647
2.0mL Amber Vial, untreated, PTFE/Silicone Silver Seal	24648	24649



Limited Volume Inserts for 2mL Crimp-Top & Short-Cap, Screw-Thread Vials

Description	100-pk.	1000-pk.
50µL Glass, Big Mouth, Bottom Spring	24513	21782
250µL Glass, Big Mouth Insert w/ Bottom Spring	21776	21777
250µL Glass, Big Mouth Insert w/ Glass Flange (Step™ Design)*	24516	21779
350µL Glass, Flat Bottom Insert	21780	24517
350µL Glass, Flat Bottom Insert w/ ID Ring	24692	24693
250µL Polypropylene, Big Mouth, Bottom Spring	24518	—
250µL Polypropylene, Big Mouth, Top Flange	24519	—
250µL Polypropylene, Big Mouth, No Spring	24520	—

*Not to be used with 9mm screw-thread vials.



Limited Volume Vials, 11mm Crimp-Top

Description	100-pk.	1000-pk.
100µL Polypropylene	24651	24652
100µL Glass Insert/Clear Plastic Vial	24653	—

9mm Short-Cap, Screw-Thread Vials, 12 x 32mm, 9mm Opening**Fit all 2.0mL, 12 x 32mm, Crimp-Top Vial Based Autosamplers.**

- Shorter screw cap allows the robotic autosampler to function properly.
- Wider opening prevents syringe problems.
- Dimensions are effectively identical to the crimp-top vial.
- Variety of colors and liner material.

Are you tired of dealing with crimp-top vials, but worried about using screw-thread vials with your autosampler? If you want the performance of a crimp-top vial with the convenience of a screw-thread vial, these vials are the answer for you.

Agilent Compatible!

**9mm Short-Cap, Screw-Thread Vials, 12 x 32mm, 9mm Opening**

Description	100-pk.	1000-pk.
2.0mL Clear Vial, w/White Graduated Marking Spot	21140	21141
2.0mL Amber Vial, w/White Graduated Marking Spot	21142	21143
2.0mL Clear Vial, without Graduated Marking Spot	21154	21155

9mm Thread Pre-Assembled Short-Cap, Screw-Vial Closures

Description	100-pk.	500-pk.	1000-pk.
Blue Cap, PTFE/Red Rubber Liner	24473	—	24474
Mixed Colors, PTFE/Red Rubber Liner	—	24668	—
Blue Cap, PTFE/Silicone Liner	24485	—	24486
Mixed Colors, PTFE/Silicone Liner	—	24669	—
Blue Cap, PTFE/Silicone/PTFE Liner	24497	—	24498
Mixed Colors, PTFE/Silicone/PTFE Liner Cap	—	24670	—

Ideal for Agilent 7673 & other autosamplers that process 12 x 32mm crimp-top vials.

**Headspace Vials****Headspace Autosampler Vials**

Description	100-pk.	1000-pk.
6mL Clear Vial	21166	21167
10mL Clear Vial, Flat Bottom	24683	24684
10mL Clear Vial, Rounded Bottom	21164	21165
20mL Clear Vial, Flat Bottom	24685	24686
20mL Clear Vial, Rounded Bottom	21162	21163
27mL Clear Vial	21160	21161

**20mm Aluminum Seals w/Septa, Assembled**

Description	100-pk.	1000-pk.
Silver Seal w/ PTFE/Gray Butyl Rubber	21761	21762
Silver Seal w/ PTFE/Silicone	21763	21764
Pressure Release Silver Seal w/ PTFE/Gray Butyl Rubber Septum	21765	21766
Pressure Release Silver Seal w/ PTFE/Silicone Septum	21767	21768
20mm Magnetic Crimp Cap w/Teflon®/Silicone Septum (tan/white) with 8mm Hole	22831	22832
20mm Magnetic Crimp Cap w/Teflon®/Silicone Septum (tan/white) with 5mm Hole	22833	22834
20mm Magnetic Crimp Cap w/PTFE/Butyl Septum with 8mm Hole	22835	22836
20mm Magnetic Crimp Cap w/PTFE/Butyl Septum with 5mm Hole	22837	22838

5mm hole is compatible with the following systems: Carlo Erba HS500/HS800, CTC 500, Fisons HS500/HS800 and Varian/Chrompack 9020/25. 8mm hole is compatible with the Combi Pal.



new!

Safer than removing caps with pliers, knife or screwdriver blades!



Aluminum Seal Crimpers and Decappers

The crimper is adjustable for optimized sealing performance and is comfortable enough for prolonged use. If you need to save, transfer, or dispose of your samples, our decapper allows you to remove a crimp-top cap safely and easily. Far safer than removing caps with pliers, knife or screwdriver blades, etc. If you aren't currently using a seal decapper, we recommend you order one today!



Description	qty.	cat.#
8mm Crimper	ea.	21735
8mm Decapper	ea.	21736
11mm Crimper	ea.	21170
11mm Decapper	ea.	21171
13mm Crimper	ea.	21739
13mm Decapper	ea.	21740
20mm Crimper	ea.	21737
20mm Decapper	ea.	21738

Hand-held Rechargeable Crimpers and Rechargeable Decappers

- Easy to use; comfortable grip.
- Hundreds of operations from one charge.
- Adjustable crimping force.
- All kits include battery charger.

Powered by a standard Black and Decker Versapak® battery, these electronic tools for 11mm or 20mm caps will cycle hundreds of times on a single charge. The cycle is controlled precisely, through an internal counter, and is adjusted with two buttons on the side of the case. The tools fit comfortably in the hand and weigh approximately 600 grams. The jaws can be positioned easily around closely-spaced vials in standard autosampler trays. Each kit includes the tool, a Versapak® Gold rechargeable battery, which uses environmentally friendly NiMH technology, and a charger. Recharging generally takes 6-9 hours.



The Electronic Crimper fits around vials in standard autosampler trays. The adjustable setting provides a precision crimp, vial after vial.

Decapping has never been easier!

one...



two...



three!



Description	qty.	cat.#
11mm Electronic Crimper (110 volt battery charger)	kit	22853
11mm Electronic Crimper (220 volt European battery charger)	kit	22853-EUR
11mm Electronic Crimper (220 volt UK battery charger)	kit	22853-UK
11mm Electronic Decapper (110 volt battery charger)	kit	22854
11mm Electronic Decapper (220 volt European battery charger)	kit	22854-EUR
11mm Electronic Decapper (220 volt UK battery charger)	kit	22854-UK
20mm Electronic Crimper (110 volt battery charger)	kit	22851
20mm Electronic Crimper (220 volt European battery charger)	kit	22851-EUR
20mm Electronic Crimper (220 volt UK battery charger)	kit	22851-UK
20mm Electronic Decapper (110 volt battery charger)	kit	22852
20mm Electronic Decapper (220 volt European battery charger)	kit	22852-EUR
20mm Electronic Decapper (220 volt UK battery charger)	kit	22852-UK

Standard MICROLITER™ Syringes for Agilent 7673, 7683, and 6850 Autosamplers

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance.
- Needle point styles are designed to withstand multiple, rapid injections through a septum.

for **more** info

See **page 52** for Needle Gauge Chart and Needle Point Style drawings.



Hamilton 10µL, Autosampler Cemented Needle for
Agilent 7673, 7683, 6850 Autosamplers

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton			Restek
					Model	cat.#	qty.	cat.#
0.5µL	ASRN	23s	1.71"	Agilent	7000.5	86276	ea.	24895
0.5µL	ASRN	26s	1.71"	Agilent	7000.5	86274	ea.	21221
5µL	ASRN	23s	1.71"	Agilent	75	87957	ea.	20172
5µL	ASN	23s	1.71"	Agilent	75	87987	ea.	20168
5µL	ASN	23s	1.71"	Agilent	75	87990	6-pk.	20170
5µL	ASN	26s	1.71"	Agilent	75	87988	ea.	24592
5µL	ASN	26s	1.71"	Agilent	75	87989	6-pk.	21230
5µL	ASRN	23s-26s	1.71"	Agilent	75	87959	ea.	21223
5µL	ASN	23s-26s	1.71"	Agilent	75	87993	ea.	24593
5µL	ASN	23s-26s	1.71"	Agilent	75	87994	6-pk.	24594
10µL	ASRN	23s	1.71"	Agilent	701	80357	ea.	20171
10µL	ASN	23s	1.71"	Agilent	701	80387	ea.	20167
10µL	ASN	23s	1.71"	Agilent	701	80390	6-pk.	20169
10µL	ASRN	26s	1.71"	Agilent	701	80358	ea.	24597
10µL	ASN	26s	1.71"	Agilent	701	80388	ea.	24595
10µL	ASN	26s	1.71"	Agilent	701	80389	6-pk.	24599
10µL	ASRN	23s-26s	1.71"	Agilent	701	80359	ea.	24598
10µL	ASN	23s-26s	1.71"	Agilent	701	80393	ea.	24596
10µL	ASN	23s-26s	1.71"	Agilent	701	80391	6-pk.	24600



SGE Removable Needle for Agilent 7673, 7683,
6850 Autosamplers

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE			Restek
					Model	cat.#	qty.	cat.#
0.5µL	R	23	42mm	Cone	0.5BR-HP-0.63	000410	ea.	24791
0.5µL	R	26	42mm	Cone	0.5BR-HP-0.47	000400	ea.	24790
5µL	R	23	42mm	Cone	5R-HP-0.63	001815	ea.	24793
5µL	F	23	42mm	Cone	5F-HP-0.63	001810	ea.	24781
5µL	F	23	42mm	Cone	SK-5F-HP-0.63	001814	6-pk.	24783
5µL	R	26	42mm	Cone	5R-HP-0.47	001805	ea.	24792
5µL	F	26	42mm	Cone	5F-HP-0.47	001800	ea.	24780
5µL	F	26	42mm	Cone	SK-5F-HP-0.47	001804	6-pk.	24782
5µL	R	23-26s	42mm	Cone	5R-HP-0.63/0.47	001825	ea.	21211
5µL	F	23-26s	42mm	Cone	5F-HP-0.63/0.47	001821	ea.	21210
5µL	F	23-26s	42mm	Cone	SK-5F-HP-0.63/0.47	001822	6-pk.	21214
10µL	R	23	42mm	Cone	10R-HP-0.63	002815	ea.	24795
10µL	F	23	42mm	Cone	10F-HP-0.63	002810	ea.	24785
10µL	F	23	42mm	Cone	SK-10F-HP-0.63	002814	6-pk.	24787
10µL	R	26	42mm	Cone	10R-HP-0.47	002805	ea.	24794
10µL	F	26	42mm	Cone	10F-HP-0.47	002800	ea.	24784
10µL	F	26	42mm	Cone	SK-10F-HP-0.47	002804	6-pk.	24786
10µL	R	23-26s	42mm	Cone	10R-HP-0.63/0.47	002825	ea.	21213
10µL	F	23-26s	42mm	Cone	10F-HP-0.63/0.47	002821	ea.	21212
10µL	F	23-26s	42mm	Cone	SK-10F-HP-0.63/0.47	002822	6-pk.	21215

Guide to Needle Termination Codes**Hamilton:**

(N) Cemented Needle
(RN) Removable Needle
(ASN) Autosampler Cemented Needle
(ASRN) Autosampler Removable Needle
(TLL) Teflon® Luer Lock
(KH) Knurled Hub
(LT) Luer Tip
(LTN) Luer Tip Cemented Needle

SGE:

(F) Fixed Needle
(R) Removable Needle
(LL) Luer Lock
(LT) Luer Tip

GASTIGHT® Teflon®-Tipped Syringes for Agilent 7673, 7683, and 6850 Autosamplers



Hamilton 10µL Gas-Tight Syringe

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	qty.	Restek cat.#
5µL	ASN	23s	1.71"	Agilent	175	80074	ea.	24893
10µL	ASN	23s	1.71"	Agilent	1701	80080	ea.	24894
10µL	ASRN	23s	1.71"	Agilent	1701	80087	ea.	21224
10µL	ASRN	26s	1.71"	Agilent	1701	80088	ea.	21228
10µL	ASRN	23s–26s	1.71"	Agilent	1701	80089	ea.	21229

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#
10µL	F	23	42mm	Cone	10F-HP-GT-0.63	002812	ea.	24789
10µL	R	23	42mm	Cone	10R-HP-GT-0.63	002818	ea.	24797
10µL	R	23–26	42mm	Cone	10R-HP-GT-0.63/0.47	002829	ea.	21220

Guide to Needle Termination Codes

Hamilton:

(N) Cemented Needle
 (RN) Removable Needle
 (ASN) Autosampler Cemented Needle
 (ASRN) Autosampler Removable Needle
 (TLL) Teflon® Luer Lock
 (KH) Knurled Hub
 (LT) Luer Tip
 (LTN) Luer Tip Cemented Needle

SGE:

(F) Fixed Needle
 (R) Removable Needle
 (LL) Luer Lock
 (LT) Luer Tip

Large Volume Syringes for Agilent 7673, 7683, and 6850 Autosamplers

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#
25µL	R	23	42mm	Cone	25R-HP-0.63	003665	ea.	24798
50µL	R	23	42mm	Cone	50R-HP-0.63	004665	ea.	24799
100µL	R	23	42mm	Cone	100R-HP-0.63	005665	ea.	24800
250µL	R	23	42mm	Cone	250R-HP-0.63	006665	ea.	24801

Replacement Needles for Agilent 7673, 7683, and 6850 Autosampler Syringes



Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	qty.	Restek cat.#
5–10µL	23s	1.71"	Agilent	7786-01	6-pk.	20164
5–10µL	26s	1.71"	Agilent	7786-02	6-pk.	20165
5–10µL	23s–26s	1.71"	Agilent	7785-01	6-pk.	20166

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	qty.	Restek cat.#
0.5µL	23	42mm	Cone	033715	ea.	24821
5µL	23	42mm	Cone	036720	2-pk.	24823
5µL	26	42mm	Cone	036710	2-pk.	24822
10µL	23	42mm	Cone	037717	2-pk.	24825
10µL	26	42mm	Cone	037715	2-pk.	24824
25–250µL	23	42mm	Cone	038717	2-pk.	24826

Teflon® Tip, Gas-Tight Syringes

- Suitable for gases or liquids for maximum inertness.
- High accuracy of dispensed volumes.
- Interchangeable barrels, plungers, and tips extend performance and increase cost-effectiveness.

for **more** info

See **page 52** for Needle Gauge Chart and Needle Point Style drawings.



Hamilton 1700/1000 Series Gas-Tight Syringe

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		qty.	Restek cat.#
					Model	cat.#		
10µL	N	26s	2"/51mm	2	1701	80000	ea.	24557
10µL	RN	26s	2"/51mm	2	1701	80030	ea.	24558
25µL	N	22s	2"/51mm	2	1702	80200	ea.	24559
25µL	RN	22s	2"/51mm	2	1702	80230	ea.	24560
50µL	N	22s	2"/51mm	2	1705	80900	ea.	24561
50µL	RN	22s	2"/51mm	2	1705	80930	ea.	24562
100µL	N	22s	2"/51mm	2	1710	81000	ea.	24563
100µL	RN	22s	2"/51mm	2	1710	81030	ea.	24564
250µL	N	22s	2"/51mm	2	1725	81100	ea.	24567
250µL	RN	22s	2"/51mm	2	1725	81130	ea.	24568
500µL	LTN	22	2"/51mm	2	1750	81217	ea.	24571
500µL	RN	22	2"/51mm	2	1750	81230	ea.	24572
1mL	LTN	22	2"/51mm	2	1001	81317	ea.	24575
1mL	RN	22	2"/51mm	2	1001	81330	ea.	24576
1mL	TLL	*	—	w/out slots	1001	81320	ea.	24578
2.5mL	TLL	*	—	w/out slots	1002	81420	ea.	24584
2.5mL	RN	22	2"/51mm	2	1002	81430	ea.	24582
2.5mL	N	22	2"/51mm	2	1002	81417	ea.	24581
5mL	TLL	*	—	w/out slots	1005	81520	ea.	20178
10mL	TLL	*	—	w/out slots	1010	81620	ea.	20179
25mL	TLL	*	—	w/out slots	1025	82520	ea.	24591
50mL	TLL	*	—	w/out slots	1050	85020	ea.	24717



SGE Gas-Tight Syringe

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		qty.	Restek cat.#
					Model	cat.#		
10µL	F	26	50mm	2	10F-GT	002200	ea.	24725
10µL	R	26	50mm	2	10R-GT	002250	ea.	24726
25µL	F	25	50mm	2	25F-GT	003200	ea.	24727
25µL	R	25	50mm	2	25R-GT	003250	ea.	24728
50µL	F	25	50mm	2	50F-GT	004200	ea.	24729
50µL	R	25	50mm	2	50R-GT	004250	ea.	24730
100µL	F	25	50mm	2	100F-GT	005200	ea.	24734
100µL	R	25	50mm	2	100R-GT	005250	ea.	24735
100µL	LL	*	—	—	100F-LL-GT	005230	ea.	24737
250µL	F	25	50mm	2	250F-GT	006200	ea.	24738
250µL	R	25	50mm	2	250R-GT	006250	ea.	24739
250µL	LL	*	—	—	250F-LL-GT	006230	ea.	24741
500µL	F	25	50mm	2	500F-GT	007200	ea.	24742
500µL	R	25	50mm	2	500R-GT	007250	ea.	24743
1mL	R	23	50mm	2	1MR-GT	008100	ea.	24750
1mL	LL	*	—	—	1MDF-LL-GT	008025	ea.	24752
2.5mL	LL	*	—	—	2.5MDF-LL-GT	008425	ea.	24755
5mL	LL	*	—	—	5MDR-LL-GT	008760	ea.	24757
10mL	LL	*	—	—	10MDR-LL-GT	008960	ea.	24759
25mL	LL	*	—	—	25MDR-LL-GT	009462	ea.	24760
50mL	LL	*	—	—	50MR-LL-GT	009660	ea.	24761
100mL	LL	*	—	—	100MR-LL-GT	009760	ea.	24762

*Needles sold separately. See page 52.

Gas-Tight Syringes

Teflon® Tip, Gas-Tight Syringe Replacement Needles for Removable Needle Syringes

Materials: stainless steel needle, nickel plated brass hub



Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	qty.	Restek cat.#
5–100µL	26s	2"	2	7758-02	6-pk.	24939
5–100µL	22s	2"	2	7758-03	6-pk.	24940
250µL–10mL	22	2"	2	7779-01	6-pk.	24942
250µL–10mL	26s	2"	2	7779-02	6-pk.	24943
250µL–10mL	22s	2"	2	7779-03	6-pk.	24944



Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	qty.	Restek cat.#
5µL	26	50mm	2	036110	5-pk.	24802
10µL	23	50mm	2	037111	5-pk.	24804
10µL	26	50mm	2	037110	5-pk.	24803
25–500µL	23	50mm	2	038111	5-pk.	24806
25–500µL	25	50mm	2	038110	5-pk.	24805
1–2.5mL	23	50mm	2	039110	5-pk.	24807

did you know?

Syringes and needles manufactured by Hamilton Company and SGE are intended for scientific research and laboratory use only and are not intended for human *in vivo* use.

Needle Gauge Chart

Gauge	Nominal OD		Nominal ID	
26s	0.019 in.	0.47mm	0.0050 in.	0.13mm
26	0.018 in.	0.46mm	0.0102 in.	0.26mm
25	0.021 in.	0.51mm	0.0102 in.	0.26mm
23s	0.025 in.	0.64mm	0.0060 in.	0.15mm
23	0.025 in.	0.64mm	0.0132 in.	0.34mm
22s	0.028 in.	0.72mm	0.0060 in.	0.15mm
22	0.028 in.	0.72mm	0.0162 in.	0.41mm

Needle Point Style



Point Style 2, BV: Beveled needle tip. Recommended for optimum septum penetration and prevention of septum coring.



Point Style Agilent/Cone: Special conical style needle point used exclusively on syringes for autosamplers.

Part Number Cross Reference

Similar to Agilent Part #	Restek Part #	Page	Product Name	Similar to Agilent Part #	Restek Part #	Page	Product Name
G1099-20030	21894	22	Capillary Installation Gauge	500-2114	20250	31	Compact Ferrules
G1530-60600	22694	29	Replacement Cable	5020-8292	21311, 21312	11	Finger-Tight Capillary Column Nuts
G1530-60930	20929	29	Replacement Cable	5020-8293	21311, 21312	11	Finger-Tight Capillary Column Nuts
G1530-60960	24323	15	EPC Test Kit	5020-8294	21883	27	Detector Plug Nut
G1530-61030	23039	15	Oven Temp Sensor	5061-5869	21710	13	Replacement Inlet Seal Washers (15-pk.)
G1530-80650	22076	19	Air Diverter	5062-3506	20212	31	Capillary Ferrules
G1531-20550	23043	24	FID Collector Mount	5062-3508	20211	31	Capillary Ferrules
G1531-20550	23045	24	FID Collector Housing Kit	5062-3538	20213	31	Capillary Ferrules
G1531-20690	21139	25	FID Collector	5062-3580	20241	18, 32	Replacement Ferrules
G1531-20700	21139	25	FID Collector	5062-3581	20242	18, 32	Replacement Ferrules
G1531-20740	23044	24	FID Collector Housing	5062-3587	22405	6	Gooseneck Splitless Liner (4mm) w/ Wool
G1531-60690	21699	25	FID Collector Assembly	5080-8732	20964, 20965	17	DI Uniliner Liners for Packed Column GC
G1531-80560	21620, 21621, 21682, 21683	26	FID Jets (.011")		20966, 20967		
G1531-80580	23052	24	FID Base Weldment, Pack Column FID	5080-8773	20252	31	Compact Ferrules
G1531-80630	23053	24	FID Base Weldment, Capillary Column FID	5080-8898	21685	16	Viton Replacement O-rings (10-pk.)
G1532-80540	20269	27	TCO Adaptor Fitting	5180-4165	23064	24	Replacement Silicone Washers for FID Collector Housing
G1544-20590	23042	15	Heater Block Retaining Nut	5180-4168	20296, 20297	9	Graphite O-rings for split liners
G1544-20620	22800	15	Split Vent Line for Agilent GCs (32-inch)	5180-4173	20298, 20299	9	Graphite O-rings for splitless liners
G1544-60575	22672, 22674	14	Weldment with EPC	5180-4181	22064	14, 15	O-rings for Agilent Trap Fittings (25-pk.)
G1544-60585	22670, 22686	14	Optional Split/Splitless Weldment	5180-4182	20377	9	Viton O-Rings for Agilent GCs (25-pk.)
G1544-60610	23031	14, 15	Optional Split Vent Trap Assembly	5181-1210	21174	46	Aluminum Seals, Silver Seal, PTFE/Natural Rubber Septa
G1544-80530	23032	14, 15	Replacement Traps and O-rings	5181-1267	21212, 24596	49	10µL Standard Microliter Syringes
G1544-80550	22820	15	Replacement Chemical Trap	5181-1270	24513	46	50µL Glass, Big Mouth, Bottom Spring Vial Inserts
G1544-80570	22671, 22673	14	Shell Weldment	5181-1273	21210, 24593	49	5µL Standard Microliter Syringes
G1544-80700	20954, 20989	8	Double Gooseneck Drilled Unliners	5181-3311	21136	25	FID Collector Nut and Washer
G1544-80730	20756, 20771	8	Drilled Unliners	5181-3315	20784	6	Double Gooseneck Splitless Liner (4mm)
G2613-20500	21172	28	Injector Mounting Post	5181-3316	20798	6	Gooseneck Splitless Liner (4mm)
G2630-60710	20926	19	Air Diverter	5181-3319	20166	50	Needles for 5-10µL Syringes (6-pk.)
03394-60540	20655, 20656	29	Replacement Cable	5181-3321	21213, 24598	49	10µL Standard Microliter Syringes
03394-60560	20654	29	Replacement Cable	5181-3360	21215, 24600	49	10µL Standard Microliter Syringes (6-pk.)
05890-60800	20652, 20653	29	Replacement Cable	5181-3376	24385	46	2.0mL Amber Glass Vial
05890-61030	23040	15	Oven Temp Sensor	5181-3377	24517	46	350µL Glass, Flat Bottom Vial Insert
05890-61080	20657	29	Replacement Cable	5181-3382	20964, 20965	17	DI Uniliner Liners for Packed Column GC
05890-61140	22068	15, 24	Injector/FID Heater + Injector/FID PRT Sensor		20966, 20967		
05890-61260	21610	15	Replacement Chemical Trap	5181-3395	20400	33	Press-Tight Connector
05921-21170	20883, 21879	11	Capillary Column Nuts (2-pk.)	5181-3396	20429	33	Deactivated Press-Tight Connector
05971-20305	24699	22	Gold Tip Transfer Line	5181-3397	20405	33	"Y" Press-Tight Connector
05971-20307	22660	23	Replacement Interface Guide Tube	5181-3398	20405-261	33	Deactivated "Y" Press-Tight Connector
05971-60302	22659	23	Replacement Interface with Bellows	5181-8809	24789, 24894	50	10µL Gas-Tight Syringes
05971-60540	22662	23	Replacement Diffusion Pump Fan Assembly	5181-8811	20164	50	Needles for 5-10µL Syringes
05972-60540	22663	23	Replacement Diffusion Pump Fan Assembly		24825		
05988-20066	20643	22	(Detector) MSD Source Nut (2-pk.)	5181-8813	21224, 24797	50	10µL Gas-Tight Syringes
07673-21140	21237	28	Injector Mounting Post	5181-8818	20712	6	2mm Splitless Liner
07673-60810	22337	28	Injector Turret Motor	5181-8830	21878, 21884	11	Capillary Column Nuts (2-pk.)
07673-60890	22693	28	Carriage Motor	5182-0543	24383	46	2.0mL Clear Glass Vials
07673-61275	22695	28	Autosampler Plunger Carrier Belt	5182-0549	24518	46	250µL Polypropylene Vial Inserts
1500-0676	22692	28	Carriage Motor Belt	5182-0552	24359	46	Silver Seal, PTFE/Silicone Septa Vials
1500-0803	22332	28	Z-Belt	5182-0714	21154	47	2.0mL Clear Vial
18597-60805	21236	28	Injector Mounting Post	5182-0715	21140	47	2.0mL Clear Vial
18710-20119	21694, 21695, 21696, 21697	26	FID Jets (.018")	5182-0716	21142	47	2.0mL Amber Vial
				5182-0717	24473	47	9mm Screw-Top Caps, Blue Cap, PTFE/Natural Rubber Liner
				5182-0720	24485	47	9mm Screw-Top Caps, Blue Cap, PTFE/Silicone Liner
18740-20800	22078	18	Reducing Nut	5182-0723	24497	47	9mm Screw-Top Caps, Blue Cap, PTFE/Silicone/PTFE Liner
18740-20880	21315, 21316	13	Replacement Inlet Seal (0.8mm hole)	5182-0830	24821	50	Needles for 0.5µL Syringes
18740-20885	21317, 21318	13	Replacement Inlet Seal (0.8mm hole)	5182-0834	20172, 24793	49	5µL Microliter Syringes
18740-20940	20409	15	Heat Sink	5182-0835	21211, 21223	49	5µL Microliter Syringes
18740-60835	20631, 21309	10	Septum Nuts	5182-0875	20170, 24783	49	5µL Microliter Syringes (6-pk.)
18740-80190	20709	7	Cup Splitter Liner	5182-9652	20476, 20477	13	Replacement Inlet Seals (0.8mm ID)
18740-80200	20972	7	1mm Split Liner	5182-9749	22684	9	Liner Seals for C15 and PTV (5-pk.)
18740-80220	20914	6	2mm Splitless Liner (quartz)	5182-9763	21409	13	Silver PTV Seals (5-pk.)
18789-80070	21686, 21687, 21688, 21689	26	FID Jets (.030")	5183-2036	21157	7	Straight Glass Liner (10-pk.)
				5183-2037	21704	7	Baffled Glass Liner (10-pk.)
19231-00130	22329	24	Spanner Wrench for FID Collector Assembly	5183-2038	21156	7	Glass Liner w/ Wool (10-pk.)
19231-20910	21137	25	FID Ignitor Castle	5183-2068	21141	47	2.0mL Clear Vial
19231-20920	23037	24	FID Collector Housing Kit	5183-2069	21143	47	2.0mL Amber Vial
19231-20930	23036	24	FID Collector Mount	5183-4492	24384	46	2.0mL Clear Glass Vial
19231-20940	21136	25	FID Collector Nut and Washer	5183-4493	24386	46	2.0mL Amber Glass Vial
19231-20950	21138	25	FID Collector	5183-4498	21175	46	11mm Aluminum Seals, Silver Seal, PTFE/Natural Rubber Septa
19231-20960	21138	25	FID Collector				
19231-20970	21138	25	FID Collector	5183-4500	24360	46	11mm Crimp Seals, Silver Seal, PTFE/Silicone Septa
19231-60620	22069	15, 24	Injector/FID Heater	5183-4647	21032	7	Low Pressure Drop Liner w/ Wool
19231-60660	23035	15, 24	Injector/FID PRT Sensor	5183-4691	22401, 20782	6, 7	4mm Split and Splitless Liners w/ Wool (5-pk.)
19231-60680	21001	25	FID Ignitor	5183-4692	22402, 20783	6, 7	4mm Split and Splitless Liners w/ Wool (25-pk.)
19231-60690	23010	25	FID Collector Assembly	5183-4693	22406	6	Gooseneck Splitless Liner (4mm) w/ Wool (5-pk.)
19231-80580	23041	24	FID Base Weldment	5183-4694	22407	6	Gooseneck Splitless Liner (4mm) w/ Wool (25-pk.)
19243-80570	21691	16	Septum Packed Purge Port Weldment	5183-4695	20799	6	Gooseneck Splitless Liner (4mm) (5-pk.)
19244-80540	21303	17	DI Liner Adaptor for Packed Column GC	5183-4696	20800	6	Gooseneck Splitless Liner (4mm) (25-pk.)
19244-80560	20670, 20671, 20672, 20673	26	FID Jets	5183-4699	20710	7	Cup Splitter Liner (5-pk.)
				5183-4701	21033	7	Low Pressure Drop Liner w/ Wool (5-pk.)
19244-80610	22077	27	FID/NPD Capillary Adaptor Fitting	5183-4703	20713	6	2mm Splitless Liner (5-pk.)
19246-60630	20634	15	Backpressure Regulator Kit	5183-4704	20714	6	2mm Splitless Liner (25-pk.)
19247-60510	22076	19	Air Diverter	5183-4705	20785	6	Double Gooseneck Splitless Liner (4mm) (5-pk.)
19251-00100	22065	10, 20	Injector Wrench	5183-4706	20786	6	Double Gooseneck Splitless Liner (4mm) (25-pk.)
19251-20620	22080	15	Heater Block Retaining Nut	5183-4707	20915	6	2mm Splitless Liner (quartz) (5-pk.)
19251-60540	22400, 20781	6, 7	4mm Split and Splitless Liners w/ Wool	5183-4709	20973	7	1mm Split Liner (5-pk.)
19251-60575	20265, 20267	14	Weldment	5183-4711	20994	7	Low Pressure Drop Liner w/ Wool
19251-80525	22800	15	Split Vent Line for Agilent GCs (32-inch)	5183-4712	20995	7	Low Pressure Drop Liner w/ Wool (5-pk.)
19251-80570	20266, 20268	14	Shell Weldment	5183-4713	20996	7	Low Pressure Drop Liner w/ Wool (25-pk.)
19301-60660	21000	25	FID Flow Measuring Adaptor	5183-4732	21882	11	Capillary Column Nut (2-pk.)
19302-80020	20269	27	TCO Adaptor Fitting	6040-0834	22687	23	Rough Pump Oil for MSD Pumps
19362-60500	21158	15	Replacement Chemical Trap	8660-0791	22685	23	Ion Source Cleaning Powder
210-3003	20772	6	4mm Splitless Liner	9301-0713	20167, 24785	49	10µL Standard Microliter Syringes
210-3003-5	20773	6	4mm Splitless Liner (5-pk.)	9301-0714	24595, 24784	49	10µL Standard Microliter Syringes
210-4004-5	21023	7	4mm Split Precision Liner w/ Wool (5-pk.)	9301-0725	20169, 24787	49	10µL Standard Microliter Syringes (6-pk.)
3103-0145	22661	23	Replacement Cold Sensor for MS Diffusion Pump	9301-0891	24592, 24780	49	5µL Standard Microliter Syringes
35900-60610	20650, 20651	29	Replacement Cables	9301-0892	20168, 24781	49	5µL Standard Microliter Syringes
35900-60630	20658, 20659	29	Replacement Cables	9301-0977	24653	46	100µL Glass Insert/Clear Plastic Vial
35900-60700	20660, 20661	29	Replacement Cables	9301-0978	24651	46	100µL Polypropylene Vial
500-1210	20445	33	Polyimide Resin				

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