

The background features a collage of white line-art illustrations of various chromatography components, including syringes, vials, tubes, and a large circular detector or manifold, set against a blue background with diagonal stripes.

RESTEK®

Pure Chromatography

30
YEARS
1985–2015

GC Accessories

Inlet Liners

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True Blue Performance

- **Increase accuracy and precision** by preventing loss of sensitive analytes—even when using wool.
- **Achieve lower detection limits** for a wide range of active compounds.
- **Ensure liner-to-liner reproducibility** through consistent manufacturing and extensive testing.
- **100% customer satisfaction**—if a liner doesn't perform to expectations, we will replace it or credit your account.*

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

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

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



Sky® liners give you the inertness you need for more accurate trace-level results.

* For details on our 100% satisfaction guarantee, see page 196.

Simple Solutions:

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

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

Some deactivations, such as base deactivation, are effective only for particular target compound chemistries. In contrast, the balanced deactivation of Sky® liners prevents interactions with many chemical classes. With Sky® inlet liners, you will see improved sensitivity, accuracy, robustness, and reproducibility from liner to liner, which allows you to quantify challenging compounds at trace levels with confidence.

Prevent the Loss of Sensitive Analytes—Even When Using Wool

Sensitive analytes like carbaryl and methiocarb readily react with active sites in your inlet, especially when using a liner with wool. That reactivity makes these compounds difficult to analyze, but excellent for demonstrating inertness (i.e., the reduction of unwanted reactions between a liner and active compounds). Sky® liners with quartz wool offer superb results for these and other inertness probes even at low concentrations, whereas other leading deactivations using borosilicate wool show reduced response—or no response at all. When you are concerned about losing sensitive analytes, feel confident in choosing Sky® liners with wool.

Table I: Relative Response Factors for Sensitive Analytes Using Trace-Level (100 pg on column) Splitless Injection

	Carbaryl	Methiocarb	Captan	Folpet
Sky® Liner w/Wool	0.718	0.720	0.380	0.403
Siltek® Liner w/Wool	ND	ND	0.087	0.150
Non-Sky® Liner w/Wool	ND	ND	0.237	0.290

See Figures 1 and 2 for more details.

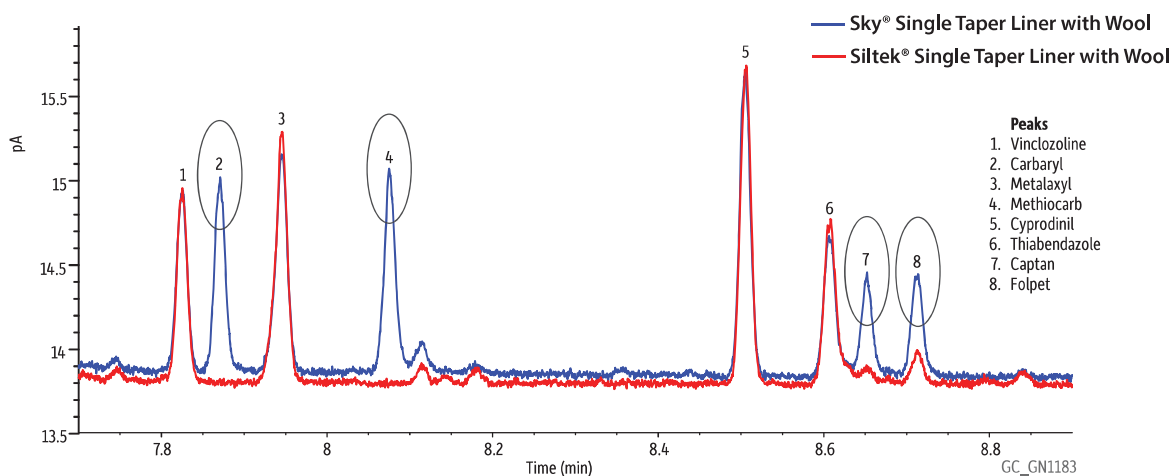
The Story Behind Sky® Liners

For over 25 years, Restek has been a leader in the development and manufacturing of GC and LC products. With Sky® liners, we created a novel, state-of-the-art deactivation process that provides better performance, lower detection limits, and unbeatable accuracy and precision—even when using wool. We also took full control of our production stream to ensure unparalleled reliability and reproducibility. And to prove that every Sky® liner offers True Blue Performance, each one is backed by a 100% satisfaction guarantee.*

But, why are they blue? Restek has always been associated with the color blue because it signifies strength, innovation, and excellence. We made Sky® liners blue because it represents the technological advancements and unmatched quality that define Restek® products and service. Choose blue—the best choice for dependable results.

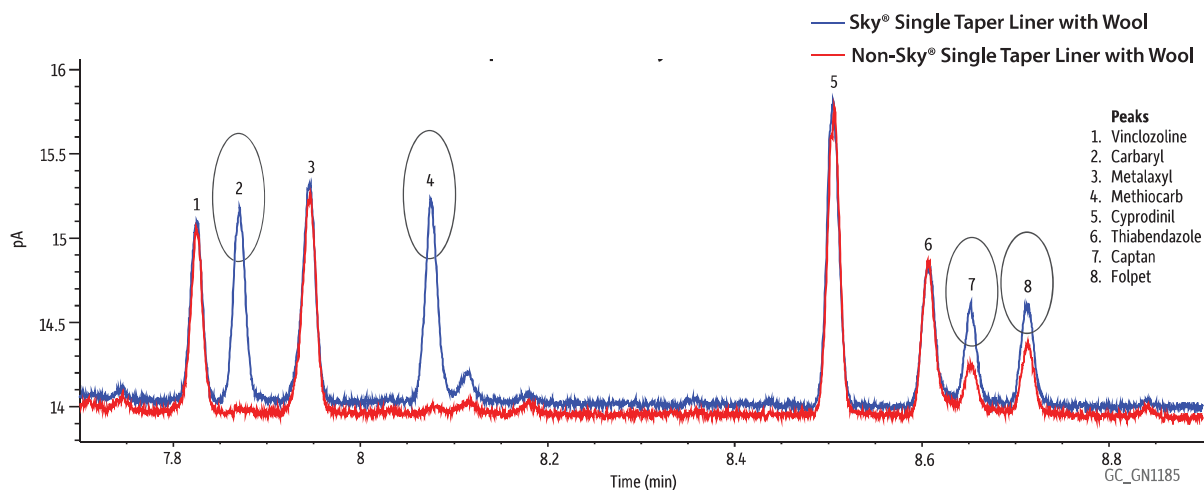
* For details on our 100% satisfaction guarantee, see page 196.

Figure 1: Especially for active compounds like pesticides, Sky® liners with quartz wool offer superior trace-level response over Siltek®-deactivated liners with borosilicate wool.



For a full list of conditions, search for chromatogram# GC_GN1183 at www.restek.com

Figure 2: Sky® liners with quartz wool also offer markedly better trace-level response for sensitive analytes compared to non-Sky® liners with borosilicate wool, as shown here with pesticides.



For a full list of conditions, search for chromatogram# GC_GN1185 at www.restek.com

Ensure Consistent Data From Liner to Liner and Injection to Injection

It's not good enough to have one quality liner. You have to be confident that *every liner you use* will give you the same high level of performance *every time you use it*. We test Sky® liners extensively to ensure they are exceptionally inert and will provide optimal results with every lot, liner, and injection.

Figure 3: Sky® inlet liners offer outstanding lot-to-lot inertness and reproducibility—exhibited here through consistently low endrin and DDT breakdown test results.

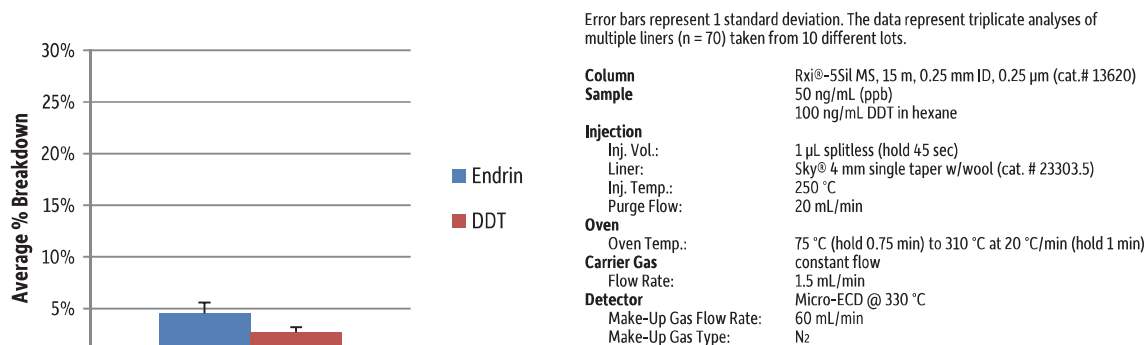
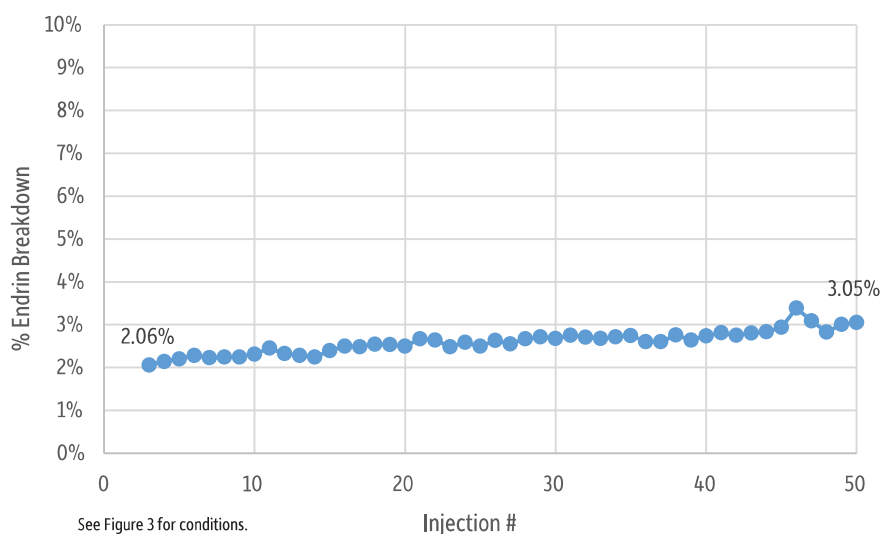


Figure 4: Even after 50 injections, highly robust Sky® liners show minimal increase in compound degradation.




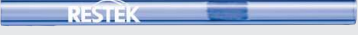



Choose Blue, the Best Choice for Dependable Results




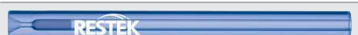


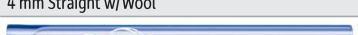



Sky® liners provide exceptional inertness across a wide range of active analytes. The consistent, comprehensive deactivation process results in the accuracy and precision you need for reliable trace-level analyses. Simplify your liner selection—and improve your results—with Sky® liners from Restek. www.restek.com/sky






* 100% SATISFACTION GUARANTEE: If your Sky® inlet liner does not perform to your expectations for any reason, simply contact Restek® Technical Service or your local Restek® representative and provide a sample chromatogram showing the problem. If our GC experts are not able to quickly and completely resolve the issue to your satisfaction, you will be given an account credit or replacement product (same cat.#) along with instructions for returning any unopened product. (Do not return product prior to receiving authorization.) For additional details about Restek's return policy, visit www.restek.com/warranty

Sky® Inlet Liners for Agilent GCs

Split Liners for Agilent GCs	ID OD x Length	Similar to Agilent Part #	ea. cat. #	5-pk. cat. #	25-pk. cat. #
 1 mm Split	1.0 mm 6.3 mm x 78.5 mm	18740-80200 (ea.)	23333.1	23333.5	23333.25
 4 mm Straight w/Wool	4.0 mm 6.3 mm x 78.5 mm	19251-60540, 5190-2294 (ea.) 5183-4691, 5190-3164 (5-pk.) 5183-4692 (25-pk.)	23300.1	23300.5	23300.25
 2 mm Precision Liner w/Wool	2.0 mm 6.3 mm x 78.5 mm		23468.1	23468.5	NEW!
 4 mm Precision Liner w/Wool	4.0 mm 6.3 mm x 78.5 mm	210-4004-5 (5-pk.)	23305.1	23305.5	23305.25
 4 mm Cyclo	4.0 mm 6.3 mm x 78.5 mm		23312.1	23312.5	23312.25

Splitless Liners for Agilent GCs	ID OD x Length	Similar to Agilent Part #	ea. cat. #	5-pk. cat. #	25-pk. cat. #
 2 mm Splitless	2.0 mm 6.5 mm x 78.5 mm	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	23313.1	23313.5	23313.25
 2 mm Splitless w/Wool	2.0 mm 6.5 mm x 78.5 mm		23314.1	23314.5	23314.25
 2 mm Single Taper	2.0 mm 6.5 mm x 78.5 mm		23315.1	23315.5	23315.25
 2 mm Single Taper w/Wool	2.0 mm 6.5 mm x 78.5 mm		23316.1	23316.5	23316.25
 4 mm Straight	4.0 mm 6.3 mm x 78.5 mm	210-3003 (ea.) 210-3003-05 (5-pk.)	23301.1	23301.5	23301.25
 4 mm Straight w/Wool	4.0 mm 6.3 mm x 78.5 mm	19251-60540, 5190-2294 (ea.) 5183-4691, 5190-3164 (5-pk.) 5183-4692 (25-pk.)	23300.1	23300.5	23300.25
 4 mm Single Taper	4.0 mm 6.5 mm x 78.5 mm	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	23302.1	23302.5	23302.25
 4 mm Single Taper w/Wool	4.0 mm 6.5 mm x 78.5 mm	5062-3587, 5190-2293 (ea.) 5183-4693, 5190-3163 (5-pk.) 5183-4694 (25-pk.)	23303.1	23303.5	23303.25
 4 mm Double Taper	4.0 mm 6.5 mm x 78.5 mm	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	23308.1	23308.5	23308.25
 4 mm Cyclo Double Taper	4.0 mm 6.5 mm x 78.5 mm		23310.1	23310.5	23310.25





Split/Splitless Liners for Agilent GCs	ID OD x Length	Similar to Agilent Part #	ea. cat. #	5-pk. cat. #	25-pk. cat. #
 4 mm Straight w/Wool	4.0 mm 6.3 mm x 78.5 mm	19251-60540, 5190-2294 (ea.) 5183-4691, 5190-3164 (5-pk.) 5183-4692 (25-pk.)	23300.1	23300.5	23300.25
 Low Pressure Drop Precision Liner w/Wool	4.0 mm 6.3 mm x 78.5 mm		23309.1	23309.5	
 Low Pressure Drop Liner w/Wool	4.0 mm 6.3 mm x 78.5 mm	5183-4647, 5183-4711 (ea.) 5183-4701, 5183-4712 (5-pk.) 5183-4713 (25-pk.)	23467.1	23467.5	23467.25 NEW!

Patent pending


Sky® Inlet Liners for Agilent GCs

Sky® Inlet Liners for Agilent GCs

CIS4 and PTV Liners
for Agilent GCs

	ID OD x L	Similar to Agilent Part #	ea. cat.#	5-pk. cat.#	10-pk. cat.#
	1.7 mm		23430.1	23430.5	
On Column PTV	3.0 mm x 71 mm				
	2.0 mm	5183-2036 (10-pk.)			23431.10
Single Baffle PTV	3.0 mm 71 mm				
	2.0 mm	5183-2038 (10-pk.)			23432.10
Single Baffle PTV w/Wool	3.0 mm 71 mm				
	1.5 mm	5183-2037 (10-pk.)			23433.10
Baffled PTV	3.0 mm 71 mm				




Analytical Controls TPI Inlet Liners
for Agilent GCs

	ID OD x L				10-pk. cat.#
	2.4 mm				23429.10
TPI for 0.53 mm ID columns	4.0 mm x 71 mm				
	2.4 mm				23428.10
TPI for 0.25/0.32 mm ID columns	4.0 mm x 71 mm				

SPME Liners
for Agilent GCs

	ID OD x Length		ea. cat.#	5-pk. cat.#	
	0.75 mm		23434.1	23434.5	
SPME Liner	6.35 mm x 78.5 mm				

Direct Injection Liners for Agilent GCs
(for 0.25/0.32/0.53mm ID Columns)

	ID OD x Length	Similar to Agilent Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
	4.0 mm	G1544-80730 (ea.)	23306.1	23306.5	23306.25
Drilled Uniliner (hole near bottom)	6.3 mm x 78.5 mm				
	4.0 mm		23307.1	23307.5	
Drilled Uniliner (hole near bottom) w/Wool	6.3 mm x 78.5 mm				
	4.0 mm		23311.1	23311.5	23311.25
Drilled Uniliner (hole near top)	6.3 mm x 78.5 mm				

Patent pending








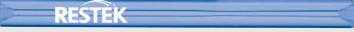
The Latest in Chromatography News and Solutions Sent Right to You




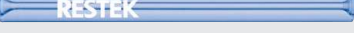
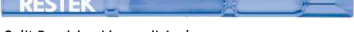
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Sky® Inlet Liners for Bruker/Varian Injection Ports

Liners for Bruker/Varian 1177 S/SL Injection Ports	ID OD x Length	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#
 RESTEK 4 mm Split Liner w/Glass Frit	4.0 mm 6.3 mm x 78.5 mm		23330.1	23330.5
 RESTEK 4 mm Precision Liner w/Wool	4.0 mm 6.3 mm x 78.5 mm		23328.1	23328.5
 RESTEK 4 mm Single Taper	4.0 mm 6.5 mm x 78.5 mm	392611927	23331.1	23331.5
 RESTEK 4 mm Single Taper w/Wool	4.0 mm 6.5 mm x 78.5 mm	392611936	23332.1	23332.5

SPI Liners for Bruker/Varian S/SL Injection Ports	ID OD x L	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 RESTEK SPI Liner	0.53 mm 4.6 mm x 54 mm	190010906	23460.1	23460.5	
 RESTEK SPI Liner	0.8 mm 4.6 mm x 54 mm	190010907	23461.1	23461.5	23461.25

Liners for Bruker/Varian 1078/1079 Injection Ports	ID OD x Length	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 RESTEK 3.4 mm Split-No Frit	3.4 mm 5.0 mm x 54 mm	392611945	23329.1	23329.5	23329.25
 RESTEK Split w/Glass Frit	3.4 mm 5.0 mm X 54 mm	392611946	23462.1	23462.5	
 RESTEK Splitless	2.0 mm 5.0 mm X 54 mm	392611947	23463.1	23463.5	
 RESTEK SPME Liner	0.75 mm 5.0 mm X 54 mm	392611948	23465.1	23465.5	
 RESTEK Split Precision Liner w/Wool	3.4 mm 5.0 mm X 54 mm		23466.1	23466.5	

Patent pending










tech tip

Correct installation of Sky® inlet liner is quick and easy. Simply orient the liner so the column installs toward the “R” on the Restek logo.



Sky® Inlet Liners for PerkinElmer GCs

Sky® Inlet Liners for PerkinElmer GCs






Split Liners for PerkinElmer GCs	ID OD x L	Similar to PE Part #	ea. cat.#	5-pk. cat.#	
 Splitter w/Wool	4.0 mm 6.2 mm x 92.1 mm	N6502009	23449.1	23449.5	
 Split Precision Liner w/Wool	4.0 mm 6.2 mm x 92.1 mm	N6121020	23450.1	23450.5	
Splitless Liners for PerkinElmer GCs	ID OD x L	Similar to PE Part #	ea. cat.#	5-pk. cat.#	
 Splitless w/Wool	2.0 mm 6.2 mm x 92.1 mm	N6121021	23451.1	23451.5	
PSS Liners for PerkinElmer GCs	ID OD x Length	Similar to PE Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Auto SYS XL PSS Split/Splitless w/Wool	2.0 mm 4.0 mm x 86.2 mm	N6121004	23317.1	23317.5	23317.25
DI Liners for PerkinElmer GCs	ID OD x L	Similar to PE Part #	ea. cat.#	5-pk. cat.#	
 Open-Top Uniliner w/Wool	4.0 mm 6.2 mm x 92.1 mm	N6502016	23452.1	23452.5	
 Drilled Uniliner (hole near top)	4.0 mm 6.2 mm x 92.1 mm	N6121022	23453.1	23453.5	
 Drilled Uniliner (hole near bottom)	4.0 mm 6.2 mm x 92.1 mm	N6502013	23454.1	23454.5	

Patent pending




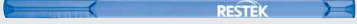


Sky® Inlet Liners for Shimadzu GCs


Split Liners for Shimadzu 17A, 2010, and 2014 GCs

	ID OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 3.5 mm Split	3.5 mm 5.0 mm x 95 mm	221-41444-01	23318.1	23318.5	23318.25
 3.5 mm Split w/Wool	3.5 mm 5.0 mm x 95 mm		23319.1	23319.5	23319.25
 3.5 mm Precision Liner w/Wool	3.5 mm 5.0 mm x 95 mm		23320.1	23320.5	
 Single Taper Precision Liner w/Wool	3.5 mm 5.0 mm x 95 mm		23455.1	23455.5	
 Cyclo	3.5 mm 5.0 mm x 95 mm		23456.1	23456.5	


Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs

	ID OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 3.5 mm Single Taper	3.5 mm 5.0 mm x 95 mm	221-48335-01	23321.1	23321.5	23321.25
 3.5 mm Single Taper w/Wool	3.5 mm 5.0 mm x 95 mm		23336.1	23336.5	
 3.5 mm Single Taper w/Wool	3.5 mm 5.0 mm x 95 mm		23322.1	23322.5	
 Double Taper	3.5 mm 5.0 mm x 95 mm		23457.1	23457.5	


Split/Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs

	ID OD x L	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Split/Splitless w/Wool	3.5 mm 5.0 mm x 95 mm	221-41444-00	23458.1	23458.5	23458.25


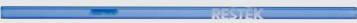
Liners for Shimadzu 17A PTV GCs

	ID OD x L	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 PTV w/Wool	1.6 mm 4.0 mm x 95 mm	225-09212-01	23435.1	23435.5	23435.25

DI Liners for Shimadzu 17A, 2010, and 2014 GCs

	ID OD x L	ea. cat.#	5-pk. cat.#
 Uniliner w/Wool	3.5 mm 5.0 mm x 95 mm	23459.1	23459.5

Liners for Shimadzu 2010 PTV GCs

	ID OD x L	ea. cat.#	10-pk. cat.#
 PTV 2010	1.5 mm 3.5 mm x 95 mm	23471.1	23471.10
 PTV 2010 w/Wool	1.5 mm 3.5 mm x 95 mm	23472.1	23472.10

Patent pending.




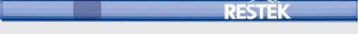




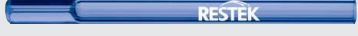



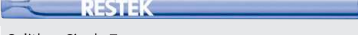



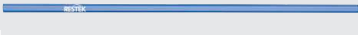



NEW!

NEW!

NEW!

Sky® Inlet Liners for Thermo Scientific GCs

Split Liners for Thermo TRACE GC Ultra and Focus SSL	ID OD x Length	Similar to TS Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Split Straight	3.0 mm 8.0 mm x 105 mm	453 20031	23439.1	23439.5	23439.25
 Split Straight w/Wool	3.0 mm 8.0 mm x 105 mm		23440.1	23440.5	23440.25
 5 mm Straight	5.0 mm 8.0 mm x 105 mm	453 20030	23323.1	23323.5	23323.25
 5 mm Straight w/Wool	5.0 mm 8.0 mm x 105 mm		23324.1	23324.5	23324.25
 5 mm Precision Liner w/Wool	5.0 mm 8.0 mm x 105 mm		23327.1	23327.5	
Splitless Liners for Thermo TRACE GC Ultra and Focus SSL	ID OD x Length	Similar to TS Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Splitless	3.0 mm 8.0 mm x 105 mm	453 20032	23441.1	23441.5	23441.25
 Splitless w/Wool	3.0 mm 8.0 mm x 105 mm		23442.1	23442.5	23442.25
 Splitless Precision Liner w/Wool	5.0 mm 8.0 mm x 105 mm		23443.1	23443.5	
 5 mm Splitless	5.0 mm 8.0 mm x 105 mm	453 20033	23325.1	23325.5	23325.25
 5 mm Splitless w/Wool	5.0 mm 8.0 mm x 105 mm		23326.1	23326.5	23326.25
Split Liners for Thermo TRACE 1300 Series GCs	ID OD x L		ea. cat.#	5-pk. cat.#	
 Split	1.0 mm 6.3 mm x 78.5 mm		23448.1	23448.5	
Splitless Liners for Thermo TRACE 1300 Series GCs	ID OD x L		ea. cat.#	5-pk. cat.#	
 Splitless Straight	4.0 mm 6.3 mm x 78.5 mm		23445.1	23445.5	
 Splitless Single Taper	4.0 mm 6.5 mm x 78.5 mm		23446.1	23446.5	
 Splitless Single Taper w/Wool	4.0 mm 6.5 mm x 78.5 mm		23447.1	23447.5	
Split/Splitless Liners for Thermo TRACE 1300 Series GCs	ID OD x L		ea. cat.#	5-pk. cat.#	
 Split/Splitless Straight w/Wool	4.0 mm 6.3 mm x 78.5 mm		23444.1	23444.5	
Split Liners for Thermo Scientific TRACE PTV	ID OD x L	Similar to TS Part #	ea. cat.#	5-pk. cat.#	
 Split PTV	1.0 mm 2.75 mm x 120 mm	453 22054	23436.1	23436.5	
 Split PTV	2.0 mm 2.75 mm x 120 mm	453 22045	23437.1	23437.5	
 Baffled PTV	2.0 mm 2.75 mm x 120 mm		23438.1	23438.5	

Patent pending



Other 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 clear Restek® liner is IP deactivated unless otherwise requested.

Siltek®-Deactivation*

For Siltek®-deactivated inlet liners, add the corresponding suffix number to the liner catalog number. (Cannot be used with Sky® liners.)

qty.	Siltek Liner	Siltek Liner w/Wool	Siltek Liner w/CarboFrit
5-pk.	-214.5	-213.5	-216.5
25-pk.	-214.25	-213.25	-216.25

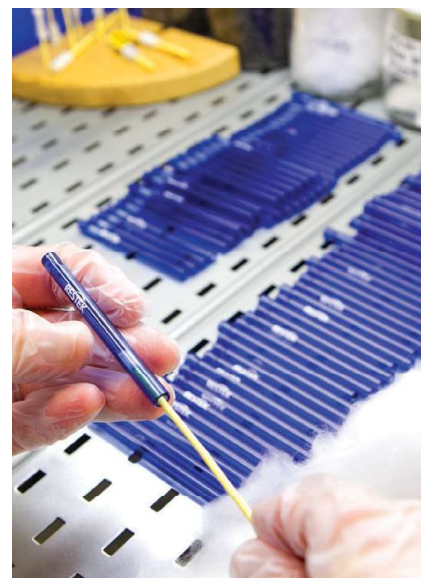
*There is an additional cost for these deactivations. Contact your Restek representative for pricing.

Base-Deactivation*

For base-deactivated inlet liners, add the corresponding suffix number to the liner catalog number. (Cannot be used with Sky® liners.)

qty.	Base-Deactivated Liner	Base-Deactivated Liner w/ Base-Deactivated Wool	Base-Deactivated Liner w/CarboFrit
5-pk.	-210.5	-211.5	-229.5
25-pk.	-210.25	-211.25	-229.25

*There is an additional cost for these deactivations. Contact your Restek representative for pricing.



Sky® inlet liners feature Restek's premier deactivation.

Don't Forget Routine Maintenance

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

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

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

Sky®

Inlet Liners

100%

Satisfaction
Guaranteed

Looking for the Best Solution?




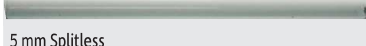

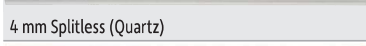
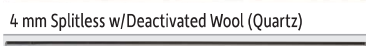
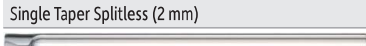
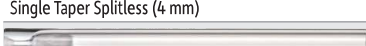
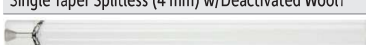



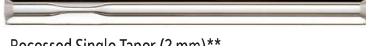
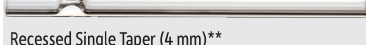
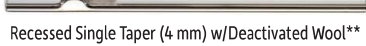
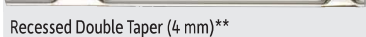
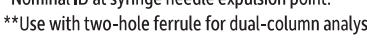
Sky® inlet liners, featuring a state-of-the-art deactivation, give you the inertness you need for accurate, reproducible trace-level results.

[See pages 193–202 for details.](#)

GC ACCESSORIES | INLET LINERS

Inlet Liners for Agilent GCs

Liners for Agilent GCs









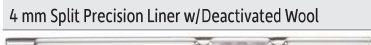



Splitless Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
		2.0 mm	5181-8818 (ea.)			
2 mm Splitless	trace samples <2 µL	6.5 mm x 78.5 mm	5183-4703 (5-pk.) 5183-4704 (25-pk.)	20712	20713	20714
		4.0 mm	210-3003 (ea.)			
4 mm Splitless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

*Nominal ID at syringe needle expulsion point.

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

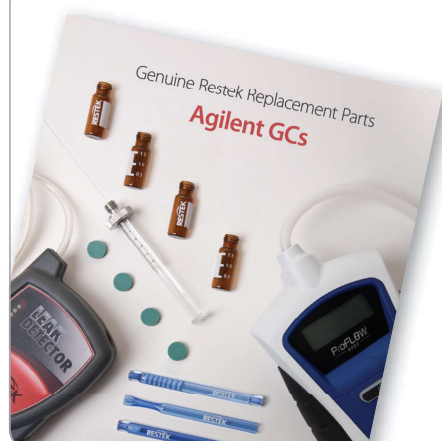
Liners for Agilent GCs, *cont.*

COLUMN INSTALLS THIS END

Split Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent Part#	ea. cat.#	5-pk. cat.#	25-pk. cat.#
	for purge & trap inlet splitting or sample <1 µL	1.0 mm 6.3 mm x 78.5 mm	18740-80200 (ea.) 5183-4709 (5-pk.)	20972	20973	
1 mm Split**						
	universal, use with Agilent 7673 autosampler	4.0 mm 6.3 mm x 78.5 mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	20781	20782	20783
4 mm Split w/Deactivated Wool						
	high MW compounds	4.0 mm 6.3 mm x 78.5 mm		20801	20802	
Laminar Cup Splitter						
	high MW compounds	4.0 mm 6.3 mm x 78.5 mm		20990	20991	
mini-Lam Split						
	high & low MW compounds	4.0 mm 6.3 mm x 78.5 mm	18740-80190 (ea.) 5183-4699 (5-pk.)	20709	20710	
Cup Splitter						
	dirty samples, many injections before cleaning required	4.0 mm 6.3 mm x 78.5 mm		20706	20707	20708
Cyclo						
	dirty samples, trace samples	2.0 mm 6.3 mm x 78.5 mm		20823	20824	
2 mm Split Precision Liner w/Deactivated Wool						
	dirty samples, trace samples	4.0 mm 6.3 mm x 78.5 mm	210-4004-5 (5-pk.)	21022	21023	20979
4 mm Split Precision Liner w/Deactivated Wool						
	dirty samples, trace samples	4.0 mm 6.3 mm x 78.5 mm	210-4022-5, 5183-4712 (5-pk.)	22983	22984	22985
4 mm Single Taper Precision Liner w/Deactivated Wool						
Split/Splitless Liners for Agilent GCs	Benefits/Uses	ID* OD x Length	Similar to Agilent Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
	universal	4.0 mm 6.3 mm x 78.5 mm		21032	21033	
Low Pressure Drop Precision Liner w/Deactivated Wool						
	universal	4.0 mm 6.3 mm x 78.5 mm	5183-4647, 5183-4711 (ea.) 5183-4701, 5183-4712 (5-pk.) 5183-4713 (25-pk.)	20994	20995	20996
Low Pressure Drop Liner w/Deactivated Wool						
SPME Liners for Agilent GCs	Benefits/Uses	ID* OD x Length		ea. cat.#	5-pk. cat.#	
	ideal for low-volume SPME applications	0.75 mm 6.35 mm x 78.5 mm		21110	21111	
SPME Liner						

*Nominal ID at syringe needle expulsion point.

**Use this liner for increased sensitivity.












Genuine Restek Replacement Parts for Agilent GCs



Download *Genuine Restek Replacement Parts Catalog for Agilent GCs* today!www.restek.com/GRRP

GC ACCESSORIES | INLET LINERS

Inlet Liners for Agilent GCs

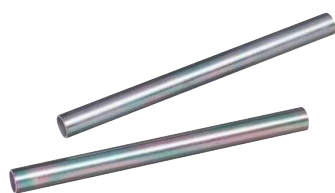
Liners for Agilent GCs, *cont.*

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

CIS4 and PTV Liners for Agilent GCs		Benefits/Uses	ID* OD x Length	Similar to Agilent Part#		10-pk. cat. #
	Straight Glass	general use	2.0 mm	5183-2036		21157
			3.0 mm x 71 mm			
		active compounds, drugs, pesticides	1.5 mm 3.0 mm x 71 mm	5183-2037		21704
	Baffled Glass					
		large volume injections	2.0 mm 3.0 mm x 71 mm	5183-2038		21156
	Glass w/Deactivated Wool					

*Nominal ID at syringe needle expulsion point.

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


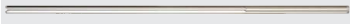



Siltek® Metal Inlet Liners for Agilent GCs

Won't crack, chip, or break like glass liners.


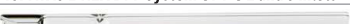
Liner Type (5.2 mm ID x 6.3 mm OD x 78.5 mm)	5-pk. cat. #	25-pk. cat. #
Cyclo Single Taper	20974	20975
Single Taper	21702	21703
Cyclo	20726	
Split/Splitless w/Deactivated Wool	21700	21701

Liners for APEX ProSep 800 & ProSep 800 Plus GCs

APEX Liners for ProSep 800 & ProSep 800 Plus GCs	Benefits/Uses:	ID* OD x Length	Similar to APEX Part #	ea. cat.#
 Mega IV (4.0 mm ID)	injections ≤125 µL	4.0 mm 6.0 mm x 243 mm	L-00410	21075
 Micro I (1.0 mm ID)	injections ≤5 µL	1.0 mm 6.0 mm x 243 mm	L-00110	21073
 MIDI II (2.0 mm ID)	injections ≤25 µL	2.0 mm 6.0 mm x 243 mm	L-00210	21074

*Nominal ID at syringe needle expulsion point.

Liners for ATAS Injectors

Liners for ATAS Injectors	Benefits/Uses:	ID* OD x Length	Similar to ATAS Part #	ea. cat.#	5-pk. cat.#
 ATAS Fritted Single Taper	dirty samples	3.0 mm 5.0 mm x 80 mm	A100126	22419	22420
Liners for ATAS LINEX DMI System OPTIC 2 and 3 inlets		ID* OD x Length			5-pk. cat.#
 ATAS LINEX DMI Liner		3.3 mm 5.0 mm x 81 mm			22353

*Nominal ID at syringe needle expulsion point.

Reference Standards Documentation Search

Search by cat.# or lot #!







- MSDSs
- Certificates
- Datapacks



www.restek.com/documents





Inlet Liners for Bruker/Varian GCs

Liners for Bruker/Varian 1075/1077 S/SL Injection Ports

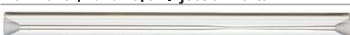


Split Liners for Bruker/Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#
 1 mm Split	purge & trap inlet splitting or samples <1 µL	1.0 mm 6.3 mm x 72 mm		20970	20971
 Splitter w/Deactivated Wool	universal, use with rapid autosamplers	4.0 mm 6.3 mm x 72 mm	190010901	20792	20793
 Cup Splitter	high & low MW compounds	4.0 mm 6.3 mm x 72 mm		20724	20725
 Cyclo	dirty samples, many injections before cleaning required	4.0 mm 6.3 mm x 72 mm		20727	20728
 Frit Splitter	dirty samples, non-active compounds	4.0 mm 6.3 mm x 72 mm	190010903	20715	20716
 Split Precision Liner w/Deactivated Wool	dirty samples, active samples	4.0 mm 6.3 mm x 72 mm		21030	21031

Splitless Liners for Bruker/Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 2 mm Splitless	trace samples <2 µL	2.0 mm 6.3 mm x 74 mm	190010905	20721	20722	20723
 4 mm Splitless	trace samples >2 µL	4.0 mm 6.3 mm x 74 mm		20904	20905	20906

DI Liners for Bruker/Varian 1075/1077 S/SL Injection Ports (0.25/0.32/0.53 mm ID)	Benefits/Uses:	ID* OD x Length	ea. cat.#	5-pk. cat.#
 Uniliner	trace, active samples, high recovery & linearity	4.0 mm 6.3 mm x 72 mm	20345	20346

SPME Liners for Bruker/Varian 1075/1077 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	ea. cat.#	5-pk. cat.#
 SPME Liner	ideal for low-volume SPME applications	0.75 mm 6.3 mm x 74 mm	21112	21113



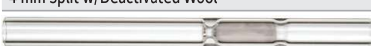

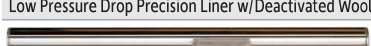
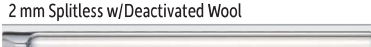
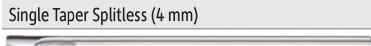
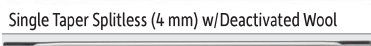
Liners for Bruker/Varian S/SL Injection Ports

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



*Nominal ID at syringe needle expulsion point.

COLUMN INSTALLS THIS END

Liners for Bruker/Varian 1177 S/SL Injection Ports





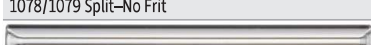

Liners for Bruker/Varian 1177 S/SL Injection Ports	Benefits/Uses:	ID* OD x Length	Similar to Bruker/Varian Part #	ea. cat.#	5-pk. cat.#
 4 mm Split w/Glass Frit	universal	4.0 mm 6.3 mm x 78.5 mm		21045	21046
 4 mm Split w/Deactivated Wool	universal, use with Agilent 7673 autosampler	4.0 mm 6.3 mm x 78.5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

DI Liners for Bruker/Varian 1177 S/SL Injection Ports (For 0.25/0.32/0.53 mm ID Columns)


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

*Nominal ID at syringe needle expulsion point.

Liners for Bruker/Varian 1078/1079 Injection Ports

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

DI Liners for Bruker/Varian 1078/1079 Injection Ports (For 0.25/0.32/0.53 mm ID Columns)













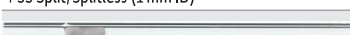
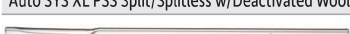
Liners for Bruker/Varian 1078/1079 Injection Ports (For 0.25/0.32/0.53 mm ID Columns)	Benefits/Uses	ID* OD x Length	ea. cat.#	5-pk. cat.#
 Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5 mm 5.0 mm x 54 mm	24974	24975

*Nominal ID at syringe needle expulsion point.

COLUMN INSTALLS THIS END







Inlet Liners for PerkinElmer GCs

Liners for PerkinElmer GCs

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

*Nominal ID at syringe needle expulsion point.

Liners for PerkinElmer GCs, *cont.*

Zero Dilution Liners for PerkinElmer Auto SYS and Clarus GCs		Benefits/Uses:	ID* OD x Length	Similar to PE Part #	ea. cat.#	5-pk. cat.#
	Zero Dilution Inner Liner	headspace analysis	1.0 mm 2.0 mm x 73 mm	N1011446	22990	22991
	Zero Dilution Outer Liner	headspace analysis	2.5 mm 6.2 mm x 90 mm	N1011445	22992	22993
Zero Dilution Liners for PerkinElmer GCs with PSS Inlets		Benefits/Uses:	ID* OD x Length	Similar to PE Part #	ea. cat.#	5-pk. cat.#
	Zero Dilution Inner Liner	headspace analysis	1.0 mm 2.0 mm x 73 mm	N1011446	22990	22991
	Zero Dilution Outer Liner	headspace analysis	2.5 mm 4.2 mm x 83 mm	N1011447		24979
DI Liners for PerkinElmer GCs (For 0.25/0.32/0.53mm ID Columns)		Benefits/Uses	ID* OD x Length	Similar to PE Part #	ea. cat.#	5-pk. cat.#
	Auto SYS Open-Top Uniliner w/Deactivated Wool	trace, dirty, active samples, high recovery & linearity	4.0 mm 6.2 mm x 92.1 mm	N6502016	20837	20838
	Auto SYS Cyclo-Uniliner	trace, dirty, high MW active samples, high linearity	4.0 mm 6.2 mm x 92.1 mm	N6502017	20839	20840
	Auto SYS Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0 mm 6.2 mm x 92.1 mm	N6121022	20819	20822
	Auto SYS Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	4.0 mm 6.2 mm x 92.1 mm	N6502013	21293	21294
	Auto SYS Single Taper Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	4.0 mm 6.2 mm x 92.1 mm	N6502014	21295	21296

*Nominal ID at syringe needle expulsion point.



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Inlet Liners for Shimadzu GCs

Liners for Shimadzu 14A GCs




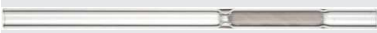


Split Liners for Shimadzu 14A GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Split	universal, for most common analyses	3.5 mm 5.0 mm x 99 mm	221-32544-01	20860	20861	20862
 Cyclo	dirty samples, many injections before cleaning required	3.5 mm 5.0 mm x 99 mm		20870	20871	
 Laminar Cup Splitter	high MW compounds	3.5 mm 5.0 mm x 99 mm		20868	20869	

Splitless Liners
for Shimadzu 14A GCs


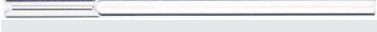

Splitless Liners for Shimadzu 14A GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 3.5 mm Splitless	trace samples	3.5 mm 5.0 mm x 99 mm	221-32544-00	20863	20864	

*Nominal ID at syringe needle expulsion point.


Liners for Shimadzu 17A, 2010, and 2014 GCs

Split Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 1 mm Split	purge & trap, fast GC	1.0 mm 5.0 mm x 95 mm		20976	20977	20978
 3.5 mm Split	universal, for most common analyses	3.5 mm 5.0 mm x 95 mm	221-41444-01	22283	22284	22285
 2 mm Split Precision Liner w/Deactivated Wool	dirty samples, trace samples	2.0 mm 5.0 mm x 95 mm		22171	22172	
 3.5 mm Split Precision Liner w/Deactivated Wool	dirty samples, trace samples	3.5 mm 5.0 mm x 95 mm		21020	21021	
 3.5 mm Single Taper Precision Liner w/Deactivated Wool	dirty samples, trace samples	3.5 mm 5.0 mm x 95 mm		22173	22174	
 Cyclo	dirty samples, many injections before cleaning required	3.5 mm 5.0 mm x 95 mm		22072	22073	

Splitless Liners
for Shimadzu 17A, 2010, and 2014 GCs

Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 2 mm Single Taper Splitless	universal, trace samples	2.0 mm 5.0 mm x 95 mm		22276	22277	
 3.5 mm Single Taper Splitless	universal, trace samples	3.5 mm 5.0 mm x 95 mm	221-48335-01	22286	22287	
 Double Taper Splitless	reduces backflash and catalytic decomposition	3.5 mm 5.0 mm x 95 mm		22274	22275	







Split/Splitless Liners
for Shimadzu 17A, 2010, and 2014 GCs

Split/Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses:	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 Split/Splitless w/Deactivated Wool	universal, for most common analyses	3.5 mm 5.0 mm x 95 mm	221-41444-00	20955	20956	20957

*Nominal ID at syringe needle expulsion point.


COLUMN INSTALLS THIS END

Liners for Shimadzu 17A, 2010, and 2014 GCs, *cont.*

SPME Liner for Shimadzu 17A, 2010, and 2014 GCs	Benefits/Uses	ID* OD x Length	ea. cat.#	5-pk. cat.#
 SPME Liner	ideal for low volume SPME applications	0.75 mm 5.0 mm x 95 mm	22278	22279
DI Liners for Shimadzu 17A, 2010, and 2014 GCs (0.25/0.32/0.53 mm ID)	Benefits/Uses	ID* OD x Length	ea. cat.#	5-pk. cat.#
 Uniliner w/Deactivated Wool	trace, dirty, high MW active samples, high recovery & linearity	3.5 mm 5.0 mm x 95 mm	21713	21719
 Open-Top Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5 mm 5.0 mm x 95 mm	21285	21286
 Open-Top Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	3.5 mm 5.0 mm x 95 mm	21287	21288
 Single Taper Drilled Uniliner (hole near top)	trace, active samples, high recovery & linearity	3.5 mm 5.0 mm x 95 mm	21289	21290
 Single Taper Drilled Uniliner (hole near bottom)	trace, active samples, high recovery & linearity	3.5 mm 5.0 mm x 95 mm	21291	21292

*Nominal ID at syringe needle expulsion point.

Liners for Shimadzu 17A PTV GCs

Liners for Shimadzu 17A PTV GCs	Benefits/Uses	ID* OD x Length	Similar to Shimadzu Part #	ea. cat.#	5-pk. cat.#	25-pk. cat.#
 17A PTV Liner w/Deactivated Wool	trace, dirty, high & low MW active samples	1.6 mm 4.0 mm x 95 mm	225-09212-01	21705	21706	21707

*Nominal ID at syringe needle expulsion point.

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Inlet Liners for Thermo Scientific GCs




Liners for Thermo Scientific 1300 Series GCs

Splitless Liners for Thermo Scientific 1300 Series GCs	Benefits/Uses:	ID* OD x Length	ea. cat. #	5-pk. cat. #	
		2.0 mm 6.5 mm x 78.5 mm	23250	23251	NEW!
2 mm Splitless	trace samples <2 µL				
		4.0 mm 6.5 mm x 78.5 mm	23252	23253	NEW!
4 mm Splitless	trace samples <2 µL				
		4.0 mm 6.5 mm x 78.5 mm	23254	23255	NEW!
4 mm Splitless, Base Deactivated	trace samples < 2 µL				
		4.0 mm 6.5 mm x 78.5 mm	23256	23257	NEW!
4 mm Splitless w/Base Deactivated Wool	trace samples < 2 µL				

Liners for Thermo Scientific TRACE GC Ultra & Focus SSL

Split Liners for Thermo Scientific TRACE GC Ultra & Focus SSL	Benefits/Uses:	ID* OD x Length	Similar to TS Part #	ea. cat. #	5-pk. cat. #	25-pk. cat. #
		1.0 mm 8.0 mm x 105 mm	453 20075	20916	20917	
1 mm Split	purge & trap, fast GC					
		3.0 mm 8.0 mm x 105 mm	453 20031	20936	20937	20938
3 mm Split	universal					
		5.0 mm 8.0 mm x 105 mm	453 20030	20939	20940	20941
5 mm Split	universal					
		4.0 mm 8.0 mm x 105 mm		20948	20949	
Laminar Cup Splitter	high MW compounds					
		4.0 mm 8.0 mm x 105 mm		20950	20951	
Cup Splitter	high & low MW compounds					
		5.0 mm 8.0 mm x 105 mm		22288	22289	
5 mm Split Precision Liner w/Deactivated Wool	dirty samples, trace samples					

Splitless Liners for Thermo Scientific TRACE GC Ultra & Focus SSL	Benefits/Uses:	ID* OD x Length	Similar to TS Part #	ea. cat. #	5-pk. cat. #	25-pk. cat. #
		2.0 mm 8.0 mm x 105 mm		22266	22267	NEW!
Splitless Liner	trace samples					
		3.0 mm 8.0 mm x 105 mm	453 20032	20942	20943	20944
Splitless (3 mm ID)	trace samples					
		5.0 mm 8.0 mm x 105 mm	453 20033	20945	20946	20947
Splitless (5 mm ID)	trace samples					
		4.0 mm 8.0 mm x 105 mm		20952	20953	
Double Taper	trace, active samples up to 4 µL					
		5.0 mm 8.0 mm x 105 mm		21028	21029	
5 mm Splitless Precision Liner w/Deactivated Wool	dirty samples, trace samples					

DI Liners for Thermo Scientific TRACE GC Ultra & Focus SSL (0.32 & 0.53mm ID columns)	Benefits/Uses:	ID* OD x Length	ea. cat. #	5-pk. cat. #
		5.0 mm 8.0 mm x 105 mm	21005	21006
Uniliner w/Deactivated Wool	trace, active samples, high recovery, & linearity			
		5.0 mm 8.0 mm x 105 mm	22411	22412
Drilled Uniliner (hole near top)	trace, active samples, high recovery, & linearity			
		5.0 mm 8.0 mm x 105 mm	22413	22414
Drilled Uniliner (hole near bottom)	trace, active samples, high recovery, & linearity			

*Nominal ID at syringe needle expulsion point.

Liners for Thermo Scientific TRACE PTV

COLUMN INSTALLS
THIS END

Split Liners for Thermo Scientific TRACE PTV	Benefits/Uses:	ID* OD x Length	Similar to TS Part #	ea. cat.#	5-pk. cat.#
1 mm ID Glass Liner	trace samples, high recovery & linearity	1.0 mm 2.75 mm x 120 mm	453 22054	21114	21115
2 mm ID Glass Liner	universal	2.0 mm 2.75 mm x 120 mm	453 22045	21116	21117
Baffle Liner	trace samples	2.0 mm 2.75 mm x 120 mm		22074	22075

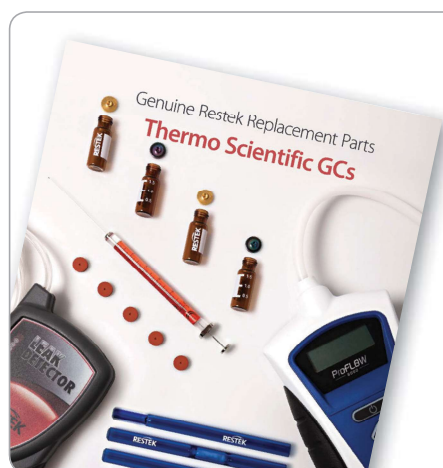
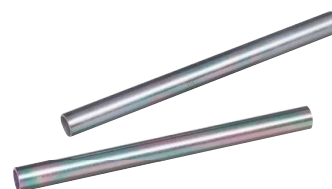
*Nominal ID at syringe needle expulsion point.

Siltek®-Treated Metal Inlet Liners for Thermo Scientific GCs

Won't crack, chip, or break like glass liners.

Liner Type (5.0 mm ID x 8.0 mm OD x 105 mm)	ea. cat.#	5-pk. cat.#
5 mm ID Split/Splitless w/Deactivated Wool	—	21004
Liner Type (2.75 mm OD x 120 mm)	ea. cat.#	5-pk. cat.#
1 mm ID Split/Splitless*	21080	21081
2 mm ID Split/Splitless*	21082	21083

*Works with PTV injectors.



Genuine Restek Replacement Parts for Thermo Scientific GCs

Download *Genuine Restek Replacement Parts Catalog for Thermo Scientific GCs* today!

www.restek.com/GRRP



24324

Deactivated Glass Wool

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

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



20999

Base-Deactivated Glass Wool

Ideal for amines and other basic compounds.

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

tech tip

Use of Packings With an Autosampler

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

Prepacked Inlet Liners

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

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

†CarboFrit® inserts require a neck greater than 2 mm.

CarboFrit® Inlet Liner Packing Material

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



Add the corresponding suffix number to the liner catalog number.

qty.	suffix	
ea.	-209.1	addl. cost
5-pk.	-209.5	addl. cost
25-pk.	-209.25	addl. cost

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

Replacement CarboFrit® Inserts

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

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



No more burned fingers!

Inlet Liner Removal Tool

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



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



Eliminates user variation!

Inlet Liner Packing Tool

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



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



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



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

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

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

**The Claw and The Claw Holder Kit**

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

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



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

tech tip

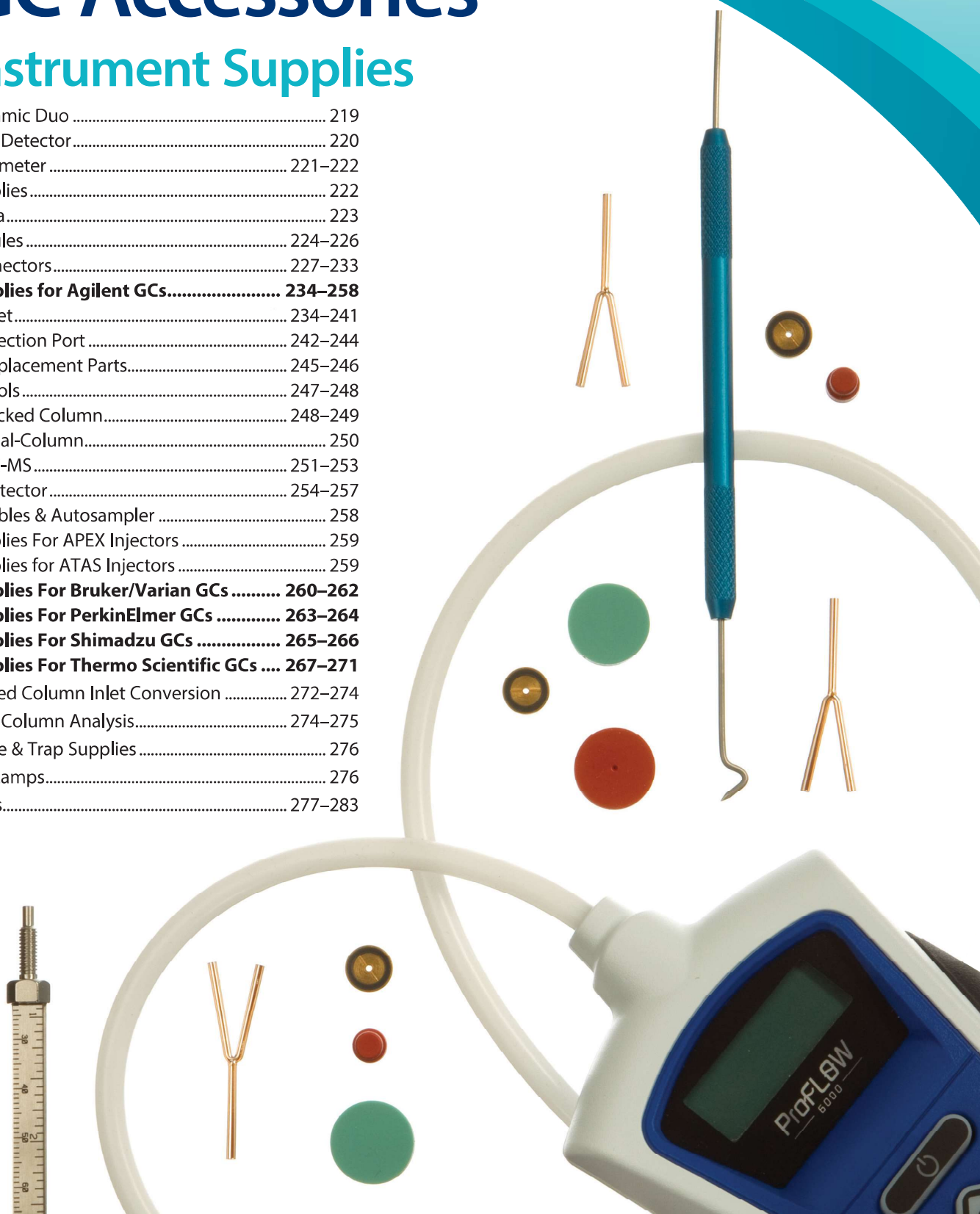
Injector Maintenance

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.

GC Accessories

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Dynamic Duo (Restek® Leak Detector and ProFLOW 6000 Flowmeter)

Protect your instrument and improve data quality with this powerful pair from Restek. Checking for leaks and verifying flows before you start helps you avoid costly problems later.

Restek’s New Leak Detector

Redesigned and better than ever, our new leak detector is an essential tool for troubleshooting and routine maintenance of your gas chromatograph. Don’t risk damaging your system or losing sensitivity; check for leaks often and protect your GC column and instrument with a Restek® leak detector!

Leak Detector Specifications

Detectable Gases:	Helium, nitrogen, argon, carbon dioxide, hydrogen
Battery:	Rechargeable lithium ion internal battery pack (12 hours normal operation)
Operating Temperature Range:	32–120 °F (0–48 °C)
Humidity Range:	0–97%
Warranty:	One year
Certifications:	CE, Ex, Japan
Compliance:	WEEE, RoHS

Limits of Detection

These gases can be detected with the Restek® electronic leak detector at the following leak rates:

Minimum Detectable Gas Limits and Indicating LED Color:

Helium, 1.0 x 10 ⁻⁵ , red LED
Hydrogen*, 1.0 x 10 ⁻⁵ , red LED
Nitrogen, 1.4 x 10 ⁻³ , yellow LED
Argon, 1.0 x 10 ⁻⁴ , yellow LED
Carbon dioxide, 1.0 x 10 ⁻⁴ , yellow LED
Gas detection limits measured in atm cc/sec.

*Caution: The Restek® electronic leak detector is designed to detect trace amounts of hydrogen in a noncombustible environment. It is NOT designed for determining leaks in a combustible environment. A combustible gas detector should be used for determining combustible gas leaks under any condition. When using it to detect hydrogen, the Restek® electronic leak detector may only be used for determining trace amounts in a GC environment.

ProFLOW 6000 Flowmeter

With its wide range of capabilities, the ProFLOW 6000 flowmeter simplifies gas flow measurement in the lab. Real-time measurements can be made for various types of flow paths, including continually changing gas types.

Flowmeter Specifications:

Type of Flowmeter:	Volumetric
Battery:	2-AA
Operating Temp. Range:	32–120 °F (0–48 °C)
Warranty:	One year
Certifications:	CE, Ex
Compliance:	WEEE, RoHS
Patented	

Description	qty.	cat.#
Dynamic Duo Combo Pack (Restek Leak Detector and ProFLOW 6000 Flowmeter)	kit	22654
Related Products and Accessories		
Leak Detector With Hard-Sided Carrying Case and Universal Charger Set (U.S., UK, European, Australian)	ea.	22655
Small Probe Adaptor for Leak Detector	ea.	22658
Restek ProFLOW 6000 Electronic Flowmeter With Hard-Sided Carrying Case	ea.	22656
Soft-Sided Storage Case for Leak Detector or ProFLOW 6000 Flowmeter	ea.	22657



22658



22657

Leak Detector



22655



Restek's electronic leak detector makes finding leaks a quick and easy task.



22658



22657

Restek® Electronic Leak Detector

Don't let a small leak turn into a costly repair—protect your analytical column by using a Restek® leak detector.

Features & benefits include:

- Audible tone indicates the severity of a leak.
- Redesigned circuitry offers 12 hours of operation between charges.
- Detects a broad range of gases; Ex rated for use with hydrogen and other explosive gases.*
- Ergonomic, handheld design.
- Rugged side grips for added durability.
- Handy probe storage for cleanliness and convenience.
- Long-lasting battery; up to 12 hours of continuous use.
- Automatic shutoff.
- A convenient carrying and storage case.
- Easy-to-clean probe assembly.
- A universal charger set (U.S., European, UK, and Australian plugs included).

Backed by a one-year warranty, the Restek® leak detector is the industry standard for performance and affordability in handheld leak detectors.

Leak Detector Specifications

Detectable Gases:	Helium, nitrogen, argon, carbon dioxide, hydrogen
Battery:	Rechargeable lithium ion internal battery pack (12 hours normal operation)
Operating Temperature Range:	32–120 °F (0–48 °C)
Humidity Range:	0–97%
Warranty:	One year
Certifications:	CE, Ex, Japan
Compliance:	WEEE, RoHS

Limits of Detection

These gases can be detected with the Restek® electronic leak detector at the following leak rates:

Minimum Detectable Gas Limits and Indicating LED Color:

Helium, 1.0×10^{-5} , red LED
Hydrogen*, 1.0×10^{-5} , red LED
Nitrogen, 1.4×10^{-3} , yellow LED
Argon, 1.0×10^{-4} , yellow LED
Carbon dioxide, 1.0×10^{-4} , yellow LED

Gas detection limits measured in atm cc/sec.

Description

Description	qty.	cat.#
Leak Detector With Hard-Sided Carrying Case and Universal Charger Set (U.S., UK, European, Australian)	ea.	22655
Small Probe Adaptor for Leak Detector	ea.	22658
Dynamic Duo Combo Pack (Restek Leak Detector and ProFLOW 6000 Flowmeter)	kit	22654
Soft-Sided Storage Case for Leak Detector or ProFLOW 6000 Flowmeter	ea.	22657
Car Charger/Adaptor	ea.	22652
Universal AC Power Adaptor	ea.	22653

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

*Caution: The Restek® electronic leak detector is designed to detect trace amounts of hydrogen in a noncombustible environment. It is NOT designed for determining leaks in a combustible environment. A combustible gas detector should be used for determining combustible gas leaks under any condition. When using it to detect hydrogen, the Restek® electronic leak detector may only be used for determining trace amounts in a GC environment.



22652



22653

Restek recommends

If you think that your Restek® electronic leak detector needs service or repair, please contact Restek® Customer Service before sending your unit in (cat.# 22655-R). Leak detector service/repair will include inspection and testing of the unit.

Restek ProFLOW 6000 Electronic Flowmeter

State-of-the-art features include:

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

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

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

Flowmeter Specifications:

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

Description

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

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



22656

Restek recommends

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

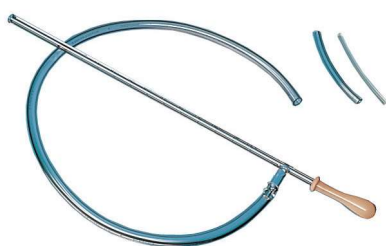


22657

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

RESTEK®
Pure Chromatography

Flowmeter, Supplies



20135

Soap Film Bubble Flowmeter

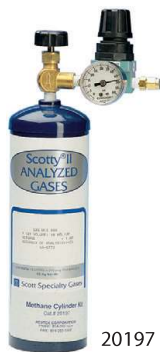
- 1 mL flowmeter for flows between 0.1 and 10 cc/min.
- 50 mL flowmeter for flows between 10 and 300 cc/min.
- Includes a reservoir bulb, twenty-four inches (60 cm) of 1/4-inch ID tubing, adaptor tubes for 1/8-inch tubing and 0.53 mm ID capillary columns, and Velcro® fasteners.

Description	Volume	qty.	cat.#
Bubble Flowmeter	1 mL	ea.	20135
Bubble Flowmeter	50 mL	ea.	20136

Methane Cylinder Kit

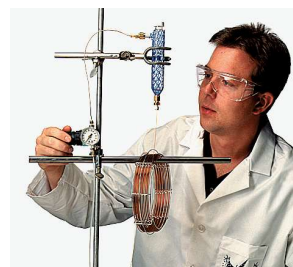
For optimizing linear velocity

Setting the column flow rate by injecting methane and optimizing linear velocity is a preferred method for establishing reproducible retention times (ASTM Method E1510-93). The kit includes a Scotty® 14 cylinder containing 1% methane in helium, a MINICYL regulator, a syringe adaptor, and a package of twenty-five septa for the adaptor.



20197

Description	qty.	cat.#
Methane Cylinder Kit	kit	20197
Replacement Septa for Syringe Adaptor	25-pk.	20198
Replacement Methane Cylinder	ea.	20199



20612

Capillary Column Rinsing Reservoir Kit

Restore the performance of bonded-phase capillary columns by dissolving and removing soluble, nonvolatile residue, using this reservoir kit. The 50 mL rinsing reservoir is equipped with 1/4-inch inlet and outlet connections and includes a built-in fritted disk to prevent particulate matter from contaminating the column. The kit includes reservoir, pressure regulator, fittings, ferrules, and tubing. Reservoir also available separately.

Description	qty.	cat.#
Rinsing Reservoir Complete Kit	kit	20612
Rinsing Reservoir only	ea.	20613

Column not included.



21000

FID Flow Measuring Adaptor

for Agilent 5890/6890/6850/7890 GCs

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

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

**3-IN-1 TECHNOLOGY**

Highest Inertness • Lowest Bleed • Exceptional Reproducibility

Learn more at www.restek.com/rxi

Restek® Thermolite® Septa

- Usable to 340 °C inlet temperature*.
- Precision molding assures consistent, accurate fit.
- Excellent puncturability.
- Preconditioned and ready to use.
- Packaged in ultra-clean blister packs**.
- A Restek exclusive!

**HANDY
septum size chart**

Instrument	Septum Diameter (mm)
Agilent (HP)	
5880A, 5890, 6850, 6890, 7890, PTV	11
5700, 5880	9.5/10
On-Column Injection	5
Brüker/Varian	
Injector type:	
Packed column	9.5/10
1078/1079	10/11
1177	9
1075/1077	11
Finnigan (TMQ)	
GC 9001	9.5
GCQ	9.5
QCQ	9.5
TRACE 2000	9.5
PerkinElmer	
Sigma series	11
900,990	11
8000 series	11
Auto SYS	11
Auto SYS XL	11
Shimadzu	
All models	Plug
SRI	
GCs with heated inlet	9.5
All other models	Plug
Thermo Scientific	
TRACE GC	17
GCQ w/TRACE, PTV	17
8000 series	17
1300 and 1310 GC	11
Tracor	
540	11.5
550,560	9.5

Septum Diameter	50-pk. cat.#	100-pk. cat.#
5 mm (3/16")	27121	27122
6 mm (1/4")	27124	27125
7 mm	27127	27128
8 mm	27130	27131
9 mm	27133	27134
9.5 mm (3/8")	27136	27137
10 mm	27139	27140
11 mm (7/16")	27142	27143
11.5 mm	27145	27146
12.7 mm (1/2")	27148	27149
17 mm	27151	27152
Shimadzu Plug	27154	27155

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo TRACE and Focus GCs.

*For 17 mm inlets, the maximum temperature is 330 °C.

**12.7 mm and 17 mm septa packaged in precleaned glass jars.

Premium Non-Stick BTO® Septa

- Usable to 400 °C inlet temperature*.
- New plasma coating eliminates sticking in the injection port.
- Precision molding ensures consistent, accurate fit.
- Partial predrilled CenterGuide design.
- Preconditioned and ready to use.
- Packaged in ultra-clean blister packs**.
- Each batch GC-FID tested.
- Bleed and temperature optimized; ideal for demanding GC and GC-MS applications.



Septum Diameter	50-pk. cat.#	100-pk. cat.#
5 mm CenterGuide	27082	27083
9 mm CenterGuide	27084	27085
9.5 mm (3/8")	27086	27087
10 mm	27088	27089
11 mm (7/16") CenterGuide	27090	27091
11.5 mm CenterGuide	27092	27093
12.7 mm (1/2") CenterGuide	27094	27095
17 mm CenterGuide	27096	27097
Shimadzu Plug	27098	27099

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo TRACE and Focus GCs.

*For 17 mm inlets, the maximum temperature is 330 °C. For all injectors, minimum recommended operating temperature for BTO® septa is 250 °C.

**12.7 mm and 17 mm septa packaged in precleaned glass jars.

Measure
your old
septum here
(size in mm)

5

7

9

9.5

10

11

11.5

12.7

17

i tech tip**Tips for Handling Septa**

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

tech tip

Choosing the Right Ferrule

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.



Graphite Ferrules



Vespel®/Graphite Ferrules



Encapsulated Graphite Ferrules

Vespel® Ferrules

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



Vespel® Ferrules

Graphite Ferrules

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

Vespel®/Graphite Ferrules

- VG2, 60% Vespel®/40% graphite blend offers the best combination of sealing and ease of workability.
- VG1, 85% Vespel®/15% graphite blend offers equivalent composition to Agilent Vespel®/graphite ferrules.
- Seal with minimal torque, reusable, and preferred for vacuum and high-pressure uses.
- Stable to 400 °C.
- Recommended for mass spec transfer lines.

Capillary Ferrules for 1/16-Inch Compression-Type Fittings

Available in Vespel®, graphite, or Vespel®/graphite material.

Ferrule ID	Fits Column ID	qty.	Vespel	Graphite	NEW!	
					VG1 (85/15)	VG2 (60/40)
0.3 mm		10-pk.	22213	20233	27061	20275
0.4 mm	0.10/0.15/0.18/ 0.25/0.28 mm	10-pk.	22214	20200	27062	20211
0.4 mm	0.10/0.15/0.18/ 0.25/0.28 mm	50-pk.	—	20227	27063	20229
0.5 mm	0.32 mm	10-pk.	22215	20201	27064	20212
0.5 mm	0.32 mm	50-pk.	—	20228	27065	20231
0.6 mm	0.28 mm**	10-pk.	—	—	27066	20232
0.8 mm	0.45/0.53 mm	10-pk.	22216	20202	27067	20213
0.8 mm	0.45/0.53 mm	50-pk.	—	20224	27068	20230
1.0 mm	0.75 mm*	10-pk.	22217	21058	27069	24912
1.2 mm	0.75 mm*	10-pk.	22218	—	—	—
1.6 mm	1.00 mm*	10-pk.	—	21060	—	—

*For micropacked columns.

**For 0.28 mm MXT columns.

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 out-gassing.

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

Compact Ferrules for Agilent 5890/6890/6850/7890 GCs

Available in graphite or Vespel®/graphite material.

NEW!

Ferrule ID	Fits Column ID	qty.	Graphite	VG1 (85/15)	VG2 (60/40)
0.4 mm	0.25/0.28 mm	10-pk.	20250	27070	20238
0.4 mm	0.25/0.28 mm	50-pk.	20251	27071	20239
0.5 mm	0.32 mm	10-pk.	21007	27072	20248
0.5 mm	0.32 mm	50-pk.	21008	27073	20249
0.8 mm	0.45/0.53 mm	10-pk.	20252	27074	20263
0.8 mm	0.45/0.53 mm	50-pk.	20253	27075	20264
1.0 mm	0.75 mm*	10-pk.	21059	—	—
1.6 mm	1.00 mm*	10-pk.	21061	—	—

*For micropacked columns.

**Standard Ferrules** for 1/16-, 1/8-, and 1/4-Inch Fittings

Available in Vespel®, graphite, or Vespel®/graphite material.

NEW!

Fitting Size	Ferrule ID	qty.	Vespel	Graphite	VG1 (85/15)	VG2 (60/40)
1/4"	3/16"	5-pk.	—	—	—	20258
1/16"	1/16"	10-pk.	22210	20207	27076	20218
1/8"	1/8"	10-pk.	22211	20208	27077	20219
1/8"	reduce to 1/16"	10-pk.	—	20209	—	20220
1/4"	1/4"	10-pk.	22212	20210	27078	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

- Use 1/16-inch, two-hole ferrules with the 1/16-inch capillary inlet adaptor fitting kit (cat.# 27185).
- Use 1/8-inch, two-hole ferrules with the 1/8-inch capillary inlet adaptor fitting kit (cat.# 20645).

Fitting Size	Ferrule ID	Fits Column ID	qty.	VG2 (60/40)
1/16"	0.4 mm	0.25/0.28 mm	5-pk.	24848
1/16"	0.5 mm	0.32 mm	5-pk.	24849
1/8"	0.8 mm	0.45/0.53 mm	5-pk.	20246

**Reducing Ferrules**

Available in graphite or Vespel®/graphite material.

NEW!

Fitting Size	Ferrule ID	Fits Column ID	qty.	Graphite	VG1 (85/15)	VG2 (60/40)
1/8"	0.4 mm	0.25 mm	5-pk.	20205	27079	20254
1/8"	0.5 mm	0.32 mm	5-pk.	20205	27080	20255
1/8"	0.8 mm	0.53 mm	5-pk.	20206	27081	20215
1/4"	0.4 mm	0.25 mm	5-pk.	20203	—	—
1/4"	0.5 mm	0.32 mm	5-pk.	20203	—	20257
1/4"	0.8 mm	0.45/0.53 mm	5-pk.	20204	—	20217

**Blank Ferrules** for 1/16-Inch Fittings

Fitting Size	Ferrule ID	qty.	VG2 (60/40)
1/16"	no hole	10-pk.	20240



Ferrules

**PTFE Ferrules**

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

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

Graphite Ferrules

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

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

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

**5 mm Ferrules** for Shimadzu 17A GCs

- For use with packed columns.
- Graphite construction.

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

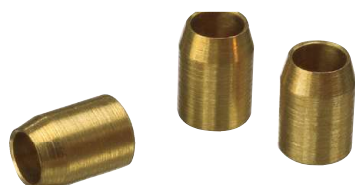
Graphite Ferrules for Shimadzu 17A, 2010, and 2014 GCs

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

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

**GRAPHPACK® 2M Ferrules** for Gerstel CIS 3 and CIS 4 PTV Inlets

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



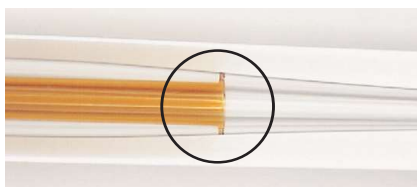
Restek Press-Tight® Connectors

Press-Tight® connectors are lightweight, quickly installed, and easy to use. They connect fused silica tubing having outside diameters ranging from 0.33 to 0.74 mm (Restek® 0.1 to 0.53 mm ID). Press-Tight® connectors do not cause solvent tailing, or adsorb active compounds.

Press-Tight® connectors most often are used to connect a guard column to an analytical column. They also are used to connect columns differing in polarity, for unique separations, or to repair a broken column.



Make a clean, square cut for optimum connector performance. The cut on the right will produce a poor seal.



A brown ring indicates a proper seal.

Obtaining a leak-tight seal:

To achieve optimum performance from these connectors, begin with a properly cut fused silica column or retention gap end. Even if you use polyimide resin (cat.# 20445, page 228) for extra insurance, a poorly cut capillary column will make an inadequate seal.

Press the cut ends into the connector, then establish a flow, and leak-check the seal with a Restek® electronic leak detector (cat.# 22655, page 220) before heating the system.

What is the maximum temperature for a Press-Tight® connector?

Press-Tight® connectors are effective at oven temperatures up to 325 °C, the temperature at which the polyimide coating on the column decomposes and the connection will begin to leak. We strongly recommend using a Vu2 Union® (page 229) or SeCure® “Y” (page 230) connector if oven temperatures will exceed 325 °C for prolonged periods of time.

Can Press-Tight® connectors be used with MXT® columns?

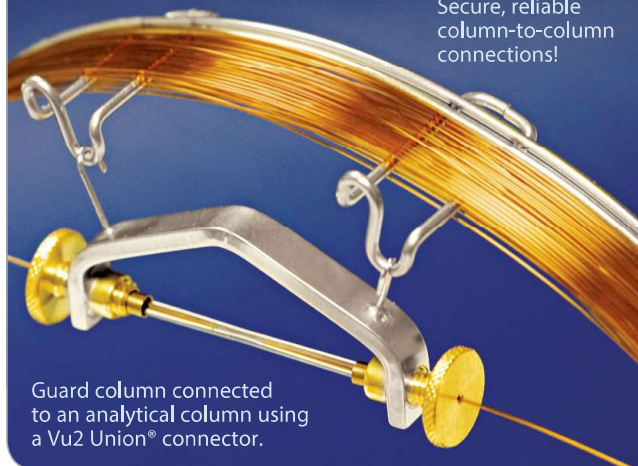
No. To achieve a leak-tight fused silica to stainless steel connection, we recommend an MXT® connector (see page 231).



Our attention to detail is why Restek® products are known for quality and reliability.

Let Restek Make the Connection!

Secure, reliable column-to-column connections!



Guard column connected to an analytical column using a Vu2 Union® connector.

Restek will connect a guard column/transfer line to any analytical column, using a Vu2 Union® connector. We will leak-check the connection and confirm analytical integrity by analyzing a test mixture. To order a preconnected guard column/transfer line, add the three-digit suffix from the chart below to any analytical column catalog number. Example: A 5 m, 0.32 mm ID guard column connected to a 30 m, 0.32 mm ID, 1.0 µm Rtx®-5 column is cat.# 10254-163.

5m Guard Column ID	cat.# suffix	Additional Cost*
0.15 mm	-160	
0.18 mm	-161	
0.25 mm	-162	
0.32 mm	-163	
0.53 mm	-164	

10m Guard Column ID	cat.# suffix	Additional Cost*
0.25 mm	-165	
0.32 mm	-166	
0.53 mm	-167	

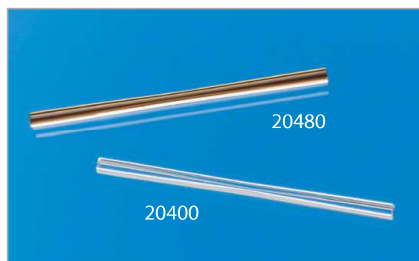
*Additional cost will be added to the price of the column.

Guard columns listed are intermediate polarity (IP) deactivated.

For more information about guard columns, see pages 18–19.

Press-Tight® Connectors

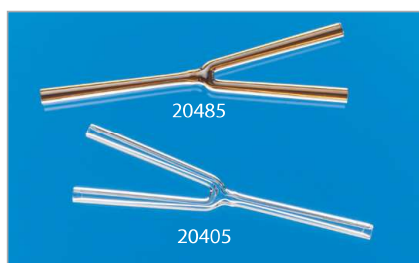
- Deactivated Press-Tight® connectors maintain complete inertness along the GC flow path.
- Siltek®-deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit 0.33–0.74 mm OD columns (Restek® 0.1–0.53 mm ID).



Universal Press-Tight® Connectors

- Connect a guard column to an analytical column.
- Repair a broken column.
- Connect a column outlet to a transfer line.

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

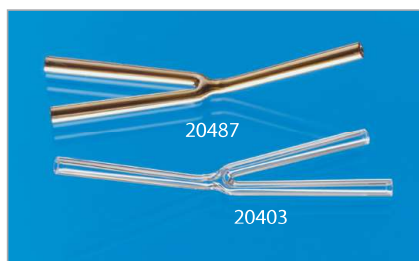


Universal “Y” Press-Tight® Connectors

An alternative method of performing dual-column confirmational analyses!

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

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



Universal Angled “Y” Press-Tight® Connectors

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

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



Polyimide Resin

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

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

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.
- Fit both Restek® cage designs.

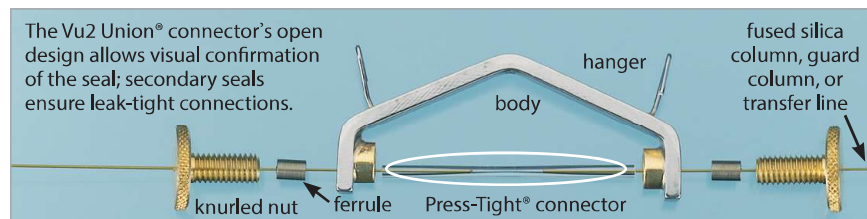
Restek's Vu2 Union® connector combines the simplicity of a Press-Tight® union with the strength of a metal union.

How does a Vu2 Union® connector work?

A Press-Tight® union in the Vu2 Union® connector joins the fused silica tubing 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 leak-tight seals with the column ends. 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.



Kits include: Vu2 Union® body, two knurled nuts, two Press-Tight® unions, and four ferrules

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

Universal Press-Tight® Connectors

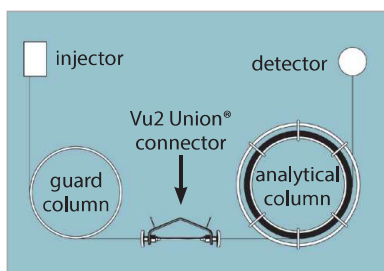
Description	5-pk.	25-pk.	100-pk.
Universal Press-Tight Connectors	20400	20401	20402
Universal Press-Tight Connectors, Deactivated	20429	20430	—
Universal Press-Tight Connectors, Siltek Deactivated	20480	20449	—

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.
0.3 mm	0.10–0.15 mm	22221	22222
0.4 mm	0.18–0.28 mm	20280	20281
0.5 mm	0.32 mm	20282	20283
0.8 mm	0.45–0.53 mm	20284	20285

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

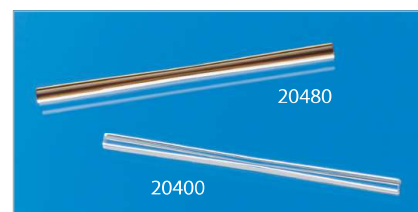


Fit both Restek® cage designs.



Secure, reliable
column-to-column
connections!

NOTE: This product is not recommended for GC column-to-MS connections.





Fit both Restek® cage designs.



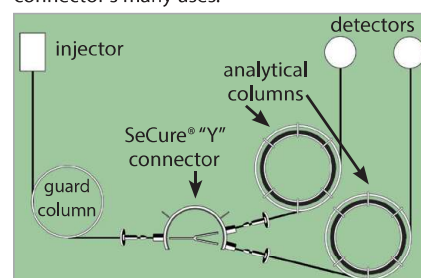
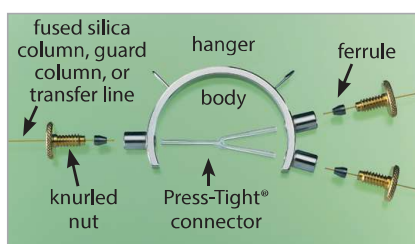
SeCure® “Y” Connector Kits

- 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.
- Fit both Restek® cage designs.

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.

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



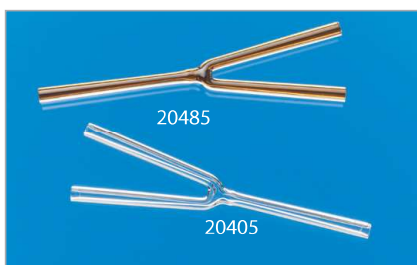
Kits include: SeCure® “Y” connector body, three knurled nuts, universal “Y” Press-Tight® union, three ferrules.

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

Universal “Y” Press-Tight® Connectors

An alternative method of performing dual-column confirmational analyses!

- Split sample flow onto two columns—perform confirmation analysis with a single injection.
- Split a single column flow to two detectors.
- Deactivated Press-Tight® connectors maintain complete inertness along the GC flow path.
- Siltek®-deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit 0.33–0.74 mm OD columns (Restek® 0.1–0.53 mm ID).



Description	ea.	3-pk.
Universal “Y” Press-Tight Connector	20405	20406
Universal “Y” Press-Tight Connector, Deactivated	20405-261	20406-261
Universal “Y” Press-Tight Connector, Siltek Deactivated	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.
0.4 mm	0.10/0.15/0.18/0.25/0.28 mm	20200	20227
0.5 mm	0.32 mm	20201	20228
0.8 mm	0.45/0.53 mm	20202	20224

MXT®-Union Connector Kits for Connecting Metal and/or Fused Silica GC 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.
- Can also be used for connecting fused silica to metal.

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 Connecting Metal and/or Fused Silica GC Columns

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

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



MXT® “Y”-Union Connector Kits

for Connecting Metal and/or Fused Silica GC Columns

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

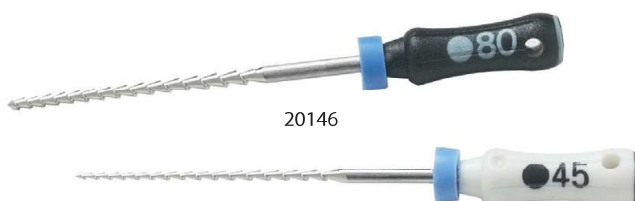
Description	qty.	cat.#
For 0.25 mm ID Columns	kit	21389
For 0.32 mm ID Columns	kit	21388
For 0.53 mm ID Columns	kit	21387



1/32-Inch Valco® Adaptor Ferrules (Valcon Polyimide)

Fused silica adaptor ferrules are made from Valcon polyimide, a unique, graphite-reinforced composite specially prepared to maximize mechanical stability at temperatures up to 350 °C. The determining factor for selecting adaptor ferrule size is the fused silica tubing OD.

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



Ferrule Removal Kit

The tapered tools in this kit have teeth designed to grip and remove fused silica adaptor ferrules that have become stuck in the fitting detail. Each kit has two tools: one for removing 1/32-inch adaptor ferrules and one for removing 1/16-inch adaptor ferrules.

Description	Valco #	qty.	cat.#
Ferrule Removal Kit	FRK1	kit	20146



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 page 232); for fused silica tubing, use Valcon polyimide adaptor ferrules (see above).

Connectors

MXT® Low Dead Volume Connector Kits For Metal Columns

These low dead volume connectors are Siltek® treated to make them inert to active compounds, just like our MXT® columns. They can be used at temperatures up to 430 °C without degrading the deactivated layer. Purchase the appropriate ferrules for connecting 0.28, 0.32, or 0.53 mm ID tubing.

**MXT® Low Dead Volume Connector Kits for Metal Columns**

- Connect a guard column/transfer line to an MXT® stainless steel column.
- Low thermal mass tracks rapid oven temperature programming.
- Stainless steel ferrules and nuts.
- Available in “Y” and union configurations.
- Siltek® treatment ensures ultimate inertness.

Each kit contains the MXT® union, two 1/32-inch ferrules and nuts.

Description	qty.	cat.#
For 0.28 mm ID MXT Columns	kit	20397
For 0.32 mm ID MXT Columns	kit	20536
For 0.53 mm ID MXT Columns	kit	20394

**MXT® Low Dead Volume “Y” Connector Kits for Metal Columns**

Connect two MXT® columns to one inlet or one MXT® column to two detectors.

Each kit contains the MXT® union, three 1/32-inch ferrules and nuts.

Description	qty.	cat.#
For 0.28 mm ID MXT Columns	kit	20396
For 0.32 mm ID MXT Columns	kit	20537
For 0.53 mm ID MXT Columns	kit	20395

Replacement Ferrules

(1/32-Inch Stainless Steel) for MXT® Connectors



Ferrule ID	Fits Column ID	qty.	cat.#
0.59 mm	0.28 mm	10-pk.	20398
0.53 mm	0.32 mm	10-pk.	20535
0.79 mm	0.53 mm	10-pk.	20399

**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

MXT® Capillary Columns

Ideal for High Temperature GC Analysis

- Metal tubing won't become brittle at high temperatures (430 °C).
- Exclusive Siltek® layer makes the internal surface as inert as deactivated fused silica.
- Can be tightly coiled well under 4.5" without breaking, even under stress.
- Column efficiency (Trennzahl valve) is similar to that of fused silica.

See pages 104–115.

www.restek.com/mxt



20147

Zero Dead Volume Valco® Internal Union

Ends of tubing seat squarely at bottoms of fitting details. Made of 300-series stainless steel. For use with 1/16" OD tubing. Stainless steel ferrules included.

Description	Union Bore	Valco #	qty.	cat. #
Internal Union	0.15 mm	ZU1XC	ea.	20147
Internal Union	0.25 mm	ZU1C	ea.	20148
Internal Union	0.75 mm	ZU1	ea.	20149
Internal Union	1/16"	ZU1T	ea.	20150



20159



20158

Male Pipe to Valco® Internal Adapter (Stainless Steel)

Makes a minimum volume connection from a female pipe fitting on a pressure gauge or regulator to a Valco® zero-dead-volume fitting. Made of 300 series stainless steel; stainless steel ferrules included.

Description	Fitting Size	Bore	Valco #	qty.	cat. #
Male Pipe to Valco Internal Adapter	1/8" NPT Male to 1/16" ZDV	1.0 mm	PZA21	ea.	20158
Male Pipe to Valco Internal Adapter	1/4" NPT Male to 1/16" ZDV	1.0 mm	PZA41	ea.	20159



20286



20287

Nuts & Ferrules

(1/16-Inch Stainless Steel) for Valco® Connectors

Description	Valco #	qty.	cat. #
Ferrules, 1/16" Stainless Steel	ZF1-10	10-pk.	20286
Nuts, 1/16" Stainless Steel	ZN1-10	10-pk.	20287



21015

1/16-Inch Valco® Adaptor Ferrules

Fused silica adaptor ferrules are made from Valcon polyimide, a unique, graphite-reinforced composite specially prepared to maximize mechanical stability at temperatures up to 350 °C. The determining factor for selecting adaptor ferrule size is the fused silica tubing OD.

Tubing OD	Valcon Polyimide			Virgin Polyimide		
	Valco #	qty.	cat. #	Valco #	qty.	cat. #
0.30±0.40 mm	FS1.4-5	5-pk.	20142	FS1.4V1-5	2-pk.	21015
0.40±0.50 mm	FS1.5-5	5-pk.	20143	FS1.5V1-5	2-pk.	21016
0.50±0.80 mm	FS1.8-5	5-pk.	20144	—	—	—
0.80±0.90 mm	FS1.9-5	5-pk.	20145	—	—	—

**WORLD-CLASS SERVICE & LOCAL CONNECTIONS****UNITED STATES:**

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GC ACCESSORIES | INSTRUMENT SUPPLIES

Supplies for Agilent GCs: Inlet



22241

Viton® O-Rings for Agilent GCs

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

Description	Max Temp	Similar to Agilent Part #	10-pk. cat.#	50-pk. cat.#
Viton O-Rings for Agilent GCs	300 °C	5188-5365	22241	22242



20296

Graphite O-Rings for Agilent and Bruker/Varian 1177 Injectors

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

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



22336

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

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



21409

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



22684

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



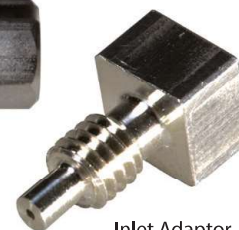
22352



22349



21409



Inlet Adaptor

PTV Inlet Adaptor Kit for Gerstel CIS 3 and CIS 4 PTV Inlets

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

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



22223

GRAPHPACK® 2M Ferrules for Gerstel CIS 3 and CIS 4 PTV Inlets

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

Merlin Microseal Septa for Agilent GCs

- Allow operation from 3 to 100 psi (general-purpose Microseal septa) or 1 to 45 psi (low-pressure Microseal septa).
- 400 °C max injection port temperature.

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

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

Description	Merlin #	Similar to Agilent Part #	qty.	cat.#
General Purpose Kit for Agilent GCs (3 to 100 psi)				
Nut & 2 General Purpose (#410) Microseals	404	5181-8833	kit	22810
Nut & 1 General Purpose (#410) Microseal	405	5182-3442	kit	22811
Low Pressure Kit for Agilent GCs (1 to 45 psi)				
Nut & 2 Low Pressure (#310) Microseals	304		kit	22813
Nut & 1 Low Pressure (#310) Microseal	305	5181-8816	kit	22814
Replacement Microseals				
General-Purpose Microseal (most applications, 3 to 100 psi)	410	5182-3444	ea.	22812
Low-Pressure Microseal (1 to 45 psi)	310	5181-8815	ea.	22815
Microseal for SPME Applications (3 to 100 psi)	21-01W		ea.	22782
Replacement Microseal Nut	403	5182-3445	ea.	22809

Note: Merlin Microseal septa require a 23-gauge (0.63 mm, 0.025") needle or probe with a blunt, truncated conical tip. Compatible syringes and replacement needles are available at www.restek.com.

**Merlin MicroShot™ Injector**

- NIST traceability assures accurate injections.
- Fixed volume reduces sampling error.
- Saves time—no need to transfer to autosampler vials.
- Prevents bent syringe plungers.
- Five injection volumes available.*

Increase the accuracy and reproducibility of manual injections with the Merlin MicroShot™ injector. This new injector is calibrated to NIST reference standards to assure accurate and traceable displacement. Precise repeated injections of the preset volume can be made using a standard autosampler syringe with less variation than when injecting by hand. The trigger mechanism provides rapid sample delivery, which reduces needle residence time in the injection port and minimizes potential sample discrimination.

The Merlin MicroShot™ injector allows convenient sampling from a wide variety of containers, so you can save time by eliminating the need to transfer aliquots into autosampler vials. The design of this unit also includes a plunger support, which protects the syringe plunger and prevents it from bending.

Fits Agilent-style (ball-end plunger) autosampler syringes with either fixed or removable, 23- or 26-gauge needles.

Description	Merlin cat.#	qty.	cat.#
0.1 µL injection volume	701-01	ea.	22226
0.2 µL injection volume	701-02	ea.	22227
0.5 µL injection volume	701-05	ea.	22228
1.0 µL injection volume	701-10	ea.	22229
2.0 µL injection volume	701-20	ea.	22230

*Syringe not included. Requires Agilent-style (ball-end plunger) autosampler syringe.





Thermolite®
Septa



Premium Non-Stick
BTO® Septa

Septa for Agilent GCs

- Preconditioned and ready to use.
- Packaged in ultra-clean blister packs.

Septum Diameter	50-pk. cat.#	100-pk. cat.#
Thermolite Septa (usable to 340 °C inlet temp.)		
5 mm (3/16")	27121	27122
9.5 mm (3/8")	27136	27137
10 mm	27139	27140
11 mm (7/16")	27142	27143
Premium Non-Stick BTO Septa (usable to 400 °C inlet temp.*)		
5 mm CenterGuide	27082	27083
9.5 mm (3/8")	27086	27087
10 mm	27088	27089
11 mm (7/16") CenterGuide	27090	27091

*Minimum recommended operating temperature for premium non-stick BTO septa is 250 °C.

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer.

HANDY septum size chart

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

Septum Puller

- Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or debris.
- Keep several on hand in your laboratory for other uses, too.



Dislodge a stuck ferrule quickly and easily—without scoring the fitting.



Remove a septum without damaging an expensive weldment.



20117

Description	qty.	cat.#
Septum Puller	ea.	20117



21309

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

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

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

Septum Nut Removal Tool

for Agilent 5890/6850/6890/7890 GCs

- Easily remove the septum nut without touching the heated nut—no more burned fingers!
- Unique, ergonomic handle—easy to grip.
- Nut remains in tool for quick reattachment.



24918



Slip tool over septum nut...



loosen nut...



and remove, avoiding hot metal surfaces.



Septum nut remains in tool until reinstalled.

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



22065

Inlet Wrench for Agilent 5890/6850/6890 GCs

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

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

Rethreading Tool for Agilent Split/Splitless Injection Ports

Worn and damaged threads can allow oxygen into the system—compromising analytical results and destroying columns. The built-in guide helps prevent cross-threading.



23018



Repair damaged injection port threads!

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	ea.	23018



injection port
bore cleaner

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



21393

Injection Port Repair Tool

for Agilent Split/Splitless Injection Ports

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

Description	qty.	cat.#
Injection Port Repair Tool for Agilent Split/Splitless Injection Ports (includes: a handle and brush adaptor, 5 medium sanding disks, 5 fine sanding disks, a 6.5 mm bore brush, & a 7 mm bore brush)	ea.	21393
Replacement Sanding Disks (5 fine & 5 medium)	10-pk.	22689
Replacement Bore Brushes (one 6.5 mm & one 7 mm)	2-pk.	21353



22181

Inlet Maintenance Kit for Agilent GCs

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

Inlet kit includes:

- 0.4, 0.5, and 0.8 mm ID graphite ferrules
- Viton® O-rings
- Capillary nuts
- Inlet seals
- Reducing nut
- Scoring wafer
- 11 mm Thermolite® septa
- 4.0 mm single taper liner
- 4.0 mm split liner with wool
- Capillary column caps
- 1/4" x 3/16" wrench
- Septum puller
- Installation gauge
- Wire cleaning brush
- Jet reamers/ferrule removers
- Inlet liner removal tool
- Septa nut removal tool

Description	qty.	cat.#
Inlet Maintenance Kit	kit	22181

GC ACCESSORIES | INSTRUMENT SUPPLIES

Supplies for Agilent GCs: Inlet



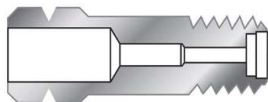
Stainless Steel



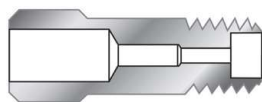
Brass

Capillary Column Nuts for Agilent 5890/6850/6890/7890 GCs

Available in brass or stainless steel.



Choose for use with "compact" Agilent-style ferrules...



or for use with standard ferrules.



Reducing Nut



Extended Capillary Column Nuts

for Agilent 5890/6850/6890/7890 GCs

- Visible below inlet insulating cup for easy, breakage-free column installation without removing cup.
- Finger-tight design to allow wrench-free use.
- Available for standard ($1/16$ ") and compact (Agilent-style) ferrules.
- Made from high-quality stainless steel.
- Meets or exceeds original manufacturer's performance.

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

free literature

GC Column Installation Made Easier
with Extended Reducing Nuts for
the Agilent® Split/Splitless Inlet

Download your free copy from

www.restek.com

lit. cat.# GNAR2056-UNV



Description	qty.	cat.#
Extended Capillary Column Nut Kit for standard $1/16$ " ferrules Includes: extended reducing nut and extended capillary column nut for standard $1/16$ " ferrules	kit	22633
Extended Capillary Column Nut Kit for compact ferrules Includes: extended reducing nut and extended capillary column nut for compact ferrules	kit	22634
Extended Reducing Nut	ea.	22635
Extended Capillary Column Nut for standard $1/16$ " ferrules	ea.	22636
Extended Capillary Column Nut for compact ferrules	ea.	22637

100%
Satisfaction
Guaranteed



Sky
Inlet Liners

True Blue Performance

Exceptionally inert Sky® inlet liners with state-of-the-art deactivation improve trace-level analysis—and now come with a 100% satisfaction guarantee!*

See pages 193-202 or visit www.restek.com/sky

* For details on our 100% satisfaction guarantee, visit www.restek.com/sky

Hot Swap Capillary Column Nuts

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

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

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

NOTE: For proper operation, oven fan must be kept operational during change out or risk of burn may occur.



22347

Injector/Detector Plug Nuts

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



21883

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



21034



21399

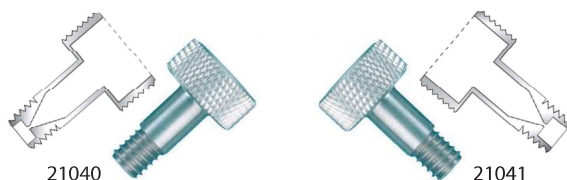
Easily seat ferrules for consistent installations!

Capillary Installation Gauge for Agilent GCs

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

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

*For use with graphite ferrules only.



21040

21041

Finger-Tight Capillary Column Nuts

- Allow wrench-free column installations.
- Available for standard (1/16") and compact (Agilent-style) ferrules.
- Made from high-quality stainless steel.

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

RESTEK
Pure Chromatography

Restek
Recommends!



Dual Vespel® Ring Inlet Seals Washerless, Leak-Tight Seals for Agilent GCs

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



Extend column lifetime!

0.8 mm ID Dual Vespel Ring Inlet Seal	2-pk. cat.#	10-pk. cat.#	50-pk. cat.#
Gold-Plated	21240	21241	23418
Siltek-Treated	21242	21243	23419
Stainless Steel	21238	21239	23420

1.2 mm ID Dual Vespel Ring Inlet Seal	2-pk. cat.#	10-pk. cat.#
Gold-Plated	21246	21247
Siltek-Treated	21248	21249
Stainless Steel	21244	21245



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

- Ideal for high-flow split applications >500 mL/min.
- Washerless, leak-tight seals.

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

Restek innovation!



1/16" Adaptor Fitting

Flip Seal® Dual Vespel® Ring Inlet Seals

- Reversible, two-sided design allows significantly more analyses than other seals, at the same price—simply use, flip, then use again!
- Vespel® ring embedded in top and bottom surface eliminates need for a washer.
- Highly inert gold or Siltek®-deactivated seals reduce breakdown and adsorption of active compounds, maximizing component transfer to GC column.
- Very little torque required to make seal—reduces operator variability.

Flip Seal Dual Vespel Ring Inlet Seal	2-pk. cat.#	10-pk. cat.#
Gold-Plated	23411	23413
Siltek-Deactivated	23412	23414

Flip Seal Dual Vespel Ring Inlet Seal Kit	qty.	cat.#
Includes: gold-plated inlet seal, reducing nut adaptor, 1/16" SS nut	kit	23406

Note: The Flip Seal® inlet seal requires a special reducing nut adaptor fitting, which is included in the kit. The Flip Seal® Adaptor can be used with standard 1/16" ferrules.

Replacement Inlet Seals With Washers

- Siltek® treatment provides enhanced inertness versus stainless steel.
- All seals include washers.

Replacement Inlet Seals for Agilent GCs

The inlet seal at the base of the Agilent 5890/6890/7890 GC injection port contacts the sample and must be changed frequently to prevent adsorption of active compounds. In addition, septum fragments and sample residue accumulate on the disk surface, requiring disk replacement.

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

Single-Column 0.8 mm ID (Opening)	Similar to Agilent Part #	2-pk. cat.#	10-pk. cat.#	50-pk. cat.#
Gold-Plated	5188-5367	21317	21318	23415
Siltek-Treated		21319	21320	23416
Stainless Steel	18740-20880	21315	21316	23417
0.25/0.32 mm ID Dual-Column 1.2 mm ID (Opening)		2-pk. cat.#	10-pk. cat.#	
Gold-Plated		21305	21306	
Siltek-Treated		21307	21308	
Stainless Steel		20390	20391	
0.53 mm ID Dual-Column 1/16-inch ID (Opening)		2-pk. cat.#	10-pk. cat.#	
Stainless Steel		20392	20393	



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

All seals include washers.

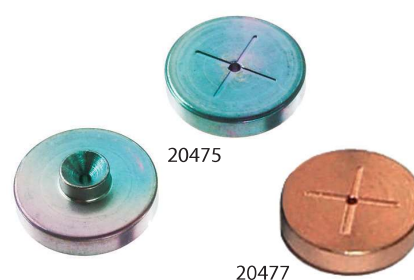
Replacement Inlet Seal Washers

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

Cross-Disk Inlet Seals for Agilent GCs

- Ideal for high-flow split applications >500 mL/min on Agilent 5890 GCs.
- Siltek® treatment provides enhanced inertness versus stainless steel.
- All seals include washers.

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

**Silver PTV Seals** for Agilent 6890 GCs

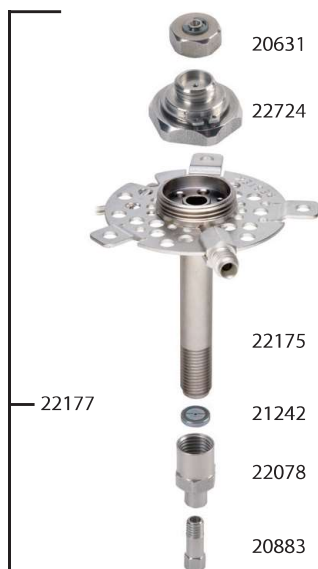
Description	Similar to Agilent Part #	qty.	cat.#
Silver PTV Seals for Agilent 6890 GCs	5182-9763	5-pk.	21409



Restek innovation!



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



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

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

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

	Restek EZ Twist Top	Agilent Flip Top
Get the EZ Twist Top Advantage		
Eliminate damaged gas lines	x	
Siltek deactivation for enhanced inertness & durability	x	
Avoid touching hot metal surfaces—weldment tool included	x	



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

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

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



Which EZ Twist Top® injection port should you buy?

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

Simply remove the top and rear panel on the GC and see if you have the small (pencil type) split vent filter (cat.# 22820) or the large canister type filter (cat.# 23031) attached to the split vent gas line. If you have the small (pencil type) split vent filter, you need the EZ Twist Top® injection port for Agilent 6890/6850 GCs (cat.# 22721 or 22722). If you have the large canister filter, you'll need the EZ Twist Top® with optional split vent for Agilent 6890/6850 GCs, for use with large canister type filters (cat.# 22735 or 22736).

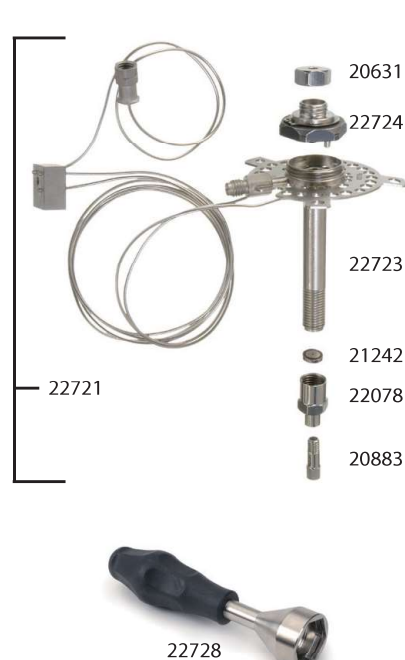
EZ Twist Top® Split/Splitless Injection Port for Agilent 6850/6890 GCs With Large Canister-Type Filter

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



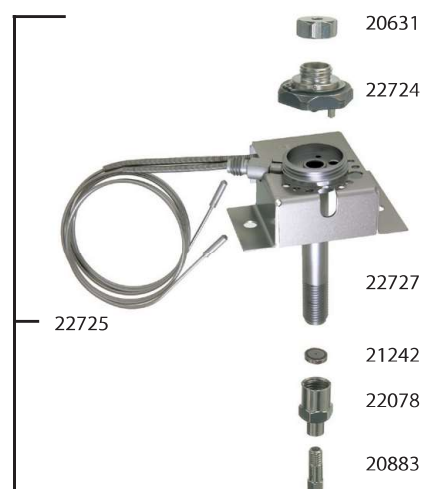
EZ Twist Top® Split/Splitless Injection Port for Agilent 6850/6890 GCs with Pencil Traps

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



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

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



Supplies for Agilent GCs: Injection Port

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.



20265



20266

Split/Splitless Injection Port

(Direct Replacement or Siltek® Treated) for Agilent 5890 GCs

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

*Cat.# 20265 and 20267 are for use with manual flow or EPC on Agilent 5890 GCs. For use with manual flow only on Agilent 6890/6850 GCs.



22674



22686



20265



22673

Split/Splitless Injection Port

(Direct Replacement or Siltek® Treated) for Agilent 6890/6850 GCs

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

*Cat.# 20265 and 20267 are for use with manual flow or EPC on Agilent 5890 GCs. For use with manual flow only on Agilent 6890/6850 GCs.

Injection Port Weldments for Agilent GCs for Use With Purge and Trap Systems

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



22664

**Injection Port Weldments**

for Agilent GCs with Tekmar Purge and Trap Systems

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



22665

Injection Port Weldments

for Agilent GCs with OI Purge and Trap Systems

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



1/16-Inch Capillary Inlet Adaptor Fitting Kit

Split/Splitless Fitting for Capillary Columns

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

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

Direct Replacement Reducing Nut

for Agilent 5890/6850/6890/7890 GCs

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



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

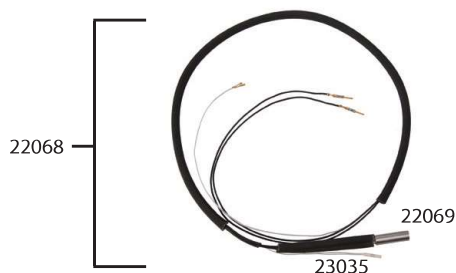


EPC Test Kit for Agilent 6890 GCs

Kit includes three O-rings, two plugs, one mounting screw, and one test block.

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

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



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

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

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

Heat Sink

for Agilent 5890 GC Split/Splitless Injector

Meets or exceeds original manufacturer's performance.



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

Heater Block

for Agilent 6850/6890/7890 GC

Split/Splitless Injector

Meets or exceeds original manufacturer's performance.



Description	Similar to Agilent Part #	qty.	cat.#
Heater Block	G3452-20500, G1544-20570	ea.	27199

Supplies for Agilent GCs: Replacement Parts

**Heater/Sensor Assembly** for Agilent 6850/6890/7890 GCs

- Use with FID, TCD, NPD, and split/splitless inlets.
- Meets or exceeds original manufacturer's performance.

Description	Similar to Agilent Part #	qty.	cat.#
Heater/Sensor Assembly	G1530-61950	ea.	27200

Heater Block Retaining Nuts
for Agilent GC Split/Splitless
Injectors

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



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

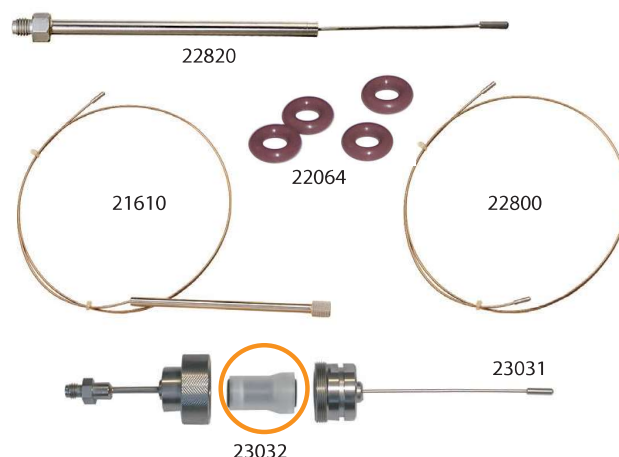
**Oven Temperature Sensor Assembly** for Agilent GCs

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

**60 psig Backpressure Regulator Kit** for Agilent GCs

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

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

**Replacement Chemical Traps and Parts** for Agilent GCs

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

Description	Similar to Agilent Part #	qty.	cat.#
Replacement Split Vent Trap for Agilent 6850/6890 GCs	G1544-80550	ea.	22820
Replacement Chemical Trap for Agilent 5890 GCs	05890-61260	ea.	21610
Split Vent Line (32-inch) for Agilent GCs Includes: all installation hardware		2-pk.	22800
O-Rings for Agilent Trap Fittings	5180-4181	25-pk.	22064
Optional Split Vent Trap Assembly for Agilent 6850/6890 GCs	G1544-60610, G1544-80530	kit	23031
Replacement Traps (2) and O-Rings (4)	G1544-80530, 5188-6495	kit	23032

**Air Diverter** for Agilent GCs

- Divert GC exhaust heat up and away from the lab bench.
- Meets or exceeds original manufacturer's performance.
- Easy to install—no tools required.
- Compatible with 4" flexible metal dryer hose.

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

Inlet Wrench for Agilent 5890/6850/6890 GCs

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



22065

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

Rethreading Tool

for Agilent Split/Splitless Injection Ports

Worn and damaged threads can allow oxygen into the system—compromising analytical results and destroying columns. The built-in guide helps prevent cross-threading.



23018



Repair damaged injection port threads!

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	ea.	23018

Inlet Liner Removal Tool

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



20181

No more burned fingers!



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



26262

The Claw and The Claw Holder Kit

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

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



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

Everything you
need in one
complete kit!



22186

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

Includes:

- Capillary installation gauge for Agilent GCs
- Injector wrench for Agilent GCs
- Septum nut removal tool
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench
- Rubber-tipped slide-lock tweezers
- Scoring wafers
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insert tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High-temperature string (1 meter)
- Pipe cleaner (12-inch)
- Cotton tip swabs (pk. of 25)

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

Column Hanger

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

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



22128

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



DI Glass Inserts for Agilent 5890 Packed Column GC

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

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



DI Uniliner® Liners for Agilent 5890 Packed Column GC

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

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

DI Liner Adaptor

for Agilent 5890 Packed Column GC

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



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



Siltek® Septum Packed Purge Port Weldment for Agilent 5890 GCs

Siltek® treatment makes weldment inert and eliminates adsorption of sensitive compounds (e.g., DDT and endrin). Order Viton® O-rings (cat.# 21685, below) and appropriate septa (page 236) separately.

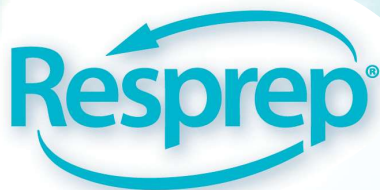
Description	Similar to Agilent part #	qty.	cat.#
Siltek Septum Packed Purge Port Weldment for Agilent 5890 GCs	19243-80570	ea.	21691
Viton Replacement O-rings	5080-8898	10-pk.	21685

Micropacked Inlet Conversion Kits

- Convert a capillary GC split/splitless inlet for use with 1/16" OD micropacked columns.
- For use with Agilent 5890, 6890, and 7890 GCs.
- Sample pathways deactivated for ultimate inertness.

Description	qty.	cat.#
Micropacked Column Adaptor Kit for Split/Splitless Injection* <i>Complete kit with FID and injection port adaptors</i> Kit includes: dual Vespel ring inlet seal, large bore; reducing nut, large bore; FID adaptor, large bore; 1/4" ferrule, Vespel/graphite; 1/4" nut, stainless steel; 1/16" ferrules, Vespel/graphite (2); 4 mm splitless liner, intermediate polarity deactivated; 1/16" nuts, stainless steel (2)	kit	22424
Micropacked Column Adaptor Kit for On-Column Injection* <i>Complete kit with FID and injection port adaptors</i> Kit includes: dual Vespel ring inlet seal, large bore; reducing nut, large bore; FID adaptor, large bore; 1/4" ferrule, Vespel/graphite; 1/4" nut, stainless steel; 1/16" ferrules, Vespel/graphite (2); Siltek treated metal liner installation guide; 1/16" nuts, stainless steel (2)	kit	22425
Micropacked Column Adaptor Kit for Split/Splitless Injection <i>Injection Port Adaptor Kit</i> Kit includes: dual Vespel ring inlet seal, large bore; reducing nut, large bore; 1/16" ferrule, Vespel/graphite; 1/16" nut, stainless steel; 4 mm splitless liner, intermediate polarity deactivated	kit	22426
Micropacked Column Adaptor Kit for On-Column Injection <i>Injection Port Adaptor Kit</i> Kit includes: dual Vespel ring inlet seal, large bore; reducing nut, large bore; 1/16" ferrule, Vespel/graphite; Siltek treated metal liner installation guide; 1/16" nut, stainless steel	kit	22427
Micropacked Column Adaptor Kit for FID* <i>FID Adaptor Kit</i> Kit includes: FID adaptor, large bore; 1/4" ferrule, Vespel/graphite; 1/4" nut, stainless steel; 1/16" nut, stainless steel; 1/16" ferrule, Vespel/graphite	kit	22428
Replacement Inlet Seals for Micropacked Column Adaptor Dual Vespel Ring Inlet Seals, large bore (2)	2-pk.	22429
Replacement Metal Liner Installation Guide for On-Column Injection, Siltek Treated	ea.	22430
Replacement 4 mm Splitless Liner	ea.	20772

*For use with packed column FIDs only.



Solid Phase Extraction Cartridges from Restek

Proven Quality • Superior Cleanliness • Method-Specific Performance

See pages 396–399 or visit

www.restek.com/resprep





Inlet Adaptor Kit for Dual Column Installation

for Agilent Capillary Injectors (Split/Splitless Fitting for Capillary Columns)

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

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



For use with 0.53 mm ID columns.

1/8-Inch Capillary Inlet Adaptor Fitting Kit

(Split/Splitless Fitting for 0.53 mm ID Capillary Columns)

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

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



Two-Hole Ferrules

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

- Use 1/16-inch, two-hole ferrules with the 1/16-inch capillary inlet adaptor fitting kit (cat.# 27185).
- Use 1/8-inch, two-hole ferrules with the 1/8-inch capillary inlet adaptor fitting kit (cat.# 20645).

Fitting Size	Ferrule ID	Fits Column ID	qty.	VG2 (60/40)
1/16"	0.4 mm	0.25/0.28 mm	5-pk.	24848
1/16"	0.5 mm	0.32 mm	5-pk.	24849
1/8"	0.8 mm	0.45/0.53 mm	5-pk.	20246



100%
Satisfaction
Guaranteed

Sky

Inlet Liners

Looking for the Best Solution?

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

See pages 193–202 for details.

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

- Change GC-MS columns in minutes without venting—100 μ m transfer line maintains vacuum and eliminates the need to vent.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- High-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.

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

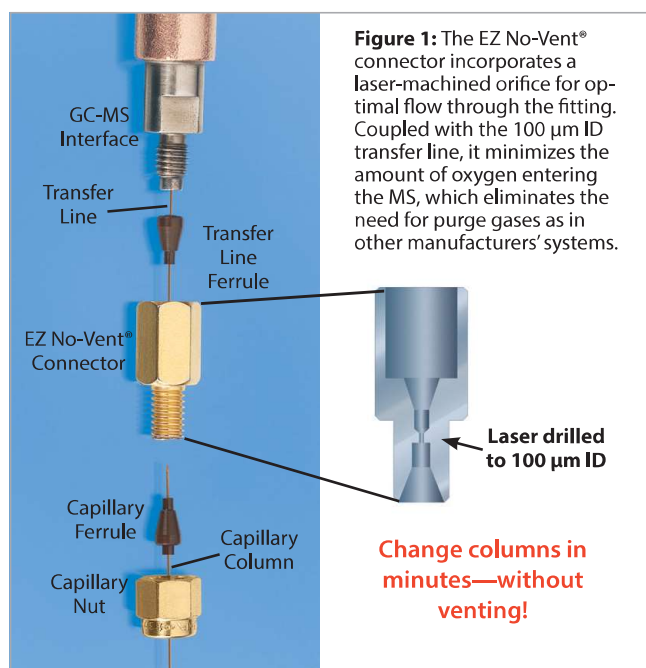


Figure 1: The EZ No-Vent® connector incorporates a laser-machined orifice for optimal flow through the fitting. Coupled with the 100 μ m ID transfer line, it minimizes the amount of oxygen entering the MS, which eliminates the need for purge gases as in other manufacturers' systems.

Change columns in minutes—without venting!

Restek innovation!

Kit installs easily, without special tools or plumbing.

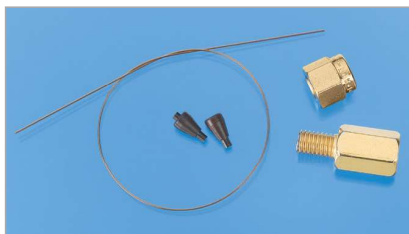
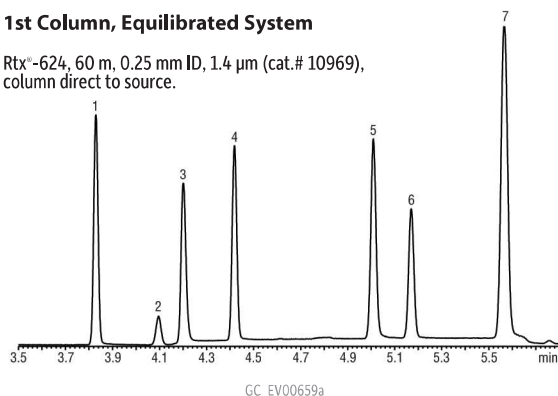


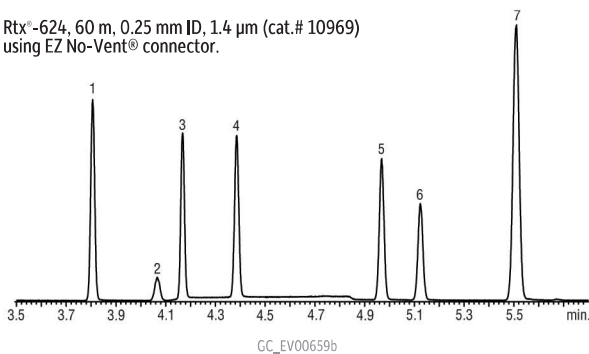
Figure 2: Sharp, symmetric peaks for gases show the EZ No-Vent® connector does not add dead volume and allows rapid column changes.

1st Column, Equilibrated System

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

**Acquired 76 Minutes After Installing 2nd Column**

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

**Peaks**

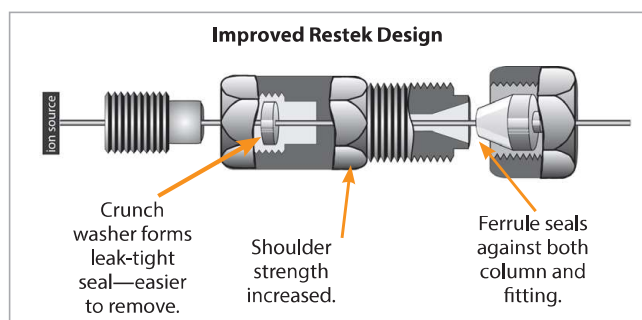
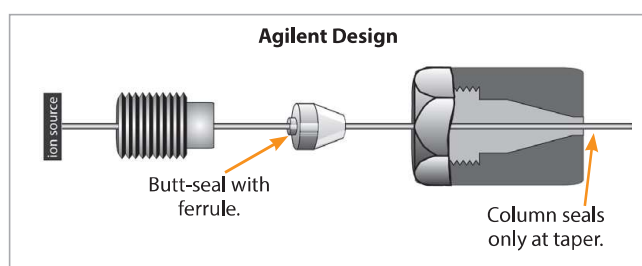
1. Dichlorodifluoromethane
2. 1,2-dichlorotetrafluoroethene (Freon® 114)
3. Chloromethane
4. Vinyl chloride
5. Bromomethane
6. Chloroethane
7. Trichlorofluoromethane

Column	Rtx®-624, 60 m, 0.25 mm ID, 1.4 μ m (cat.# 10969)	Detector	Agilent 5973 GC-MS
Sample	502.2 Calibration mix #1 (gases) (cat.# 30042)	Transfer Line Temp.:	280 °C
Injection	purge and trap split	Analyzer Type:	Quadrupole
Inj. Temp.:	300 °C	Tune Type:	BFB
Oven		Ionization Mode:	EI
Oven Temp.:	60 °C	Scan Range:	35-550 amu
Carrier Gas	He, constant flow	Instrument	Agilent/HP6890 GC
Flow Rate:	1.0 mL/min		

Description	qty.	cat.#
EZ No-Vent Connector Kit Includes: EZ No-Vent Connector, two 0.4 mm ID adaptor ferrules for capillary column, two 0.4 mm ID ferrules for transfer line, 100 μ m deactivated transfer line (3 ft.), column plug, column nut	kit	21323
Replacement ferrules for connecting capillary column to EZ No-Vent Connector:		
0.30 \leq 0.40 mm Tubing OD (Virgin Polyimide)	2-pk.	21015
0.40 \leq 0.50 mm Tubing OD (Virgin Polyimide)	2-pk.	21016
Replacement Ferrules (polyimide) for connecting transfer line to EZ No-Vent connector: 0.4 mm ID	2-pk.	21043
Replacement 100 μm Deactivated Transfer Line	3 ft.	21018
Replacement EZ No-Vent Column Nut	20-pk.	23100
Replacement EZ No-Vent Plug	5-pk.	23112
Open-End Wrenches, 1/4" x 5/16"	2-pk.	20110

MSD Conversion Fitting

- A flat, soft aluminum sealing ring deforms and butt-seals against the MSD interface.
- A standard Vespe® 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 Vespe® or Vespe®/graphite 1/16-inch ferrule.
- Includes a 1/16-inch stainless steel nut and two replacement sealing rings. Order ferrules separately.
- Improved design reduces chance of leaks.



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

MSD Source Nut

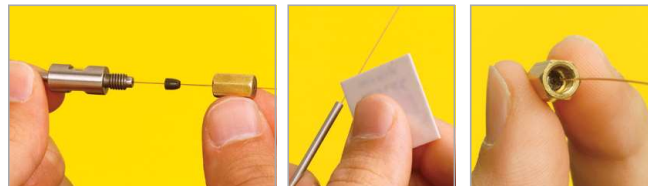
- 1.2 mm nut bore permits easy removal of ferrules with a standard tapered-needle file (cat.# 20106).
- Made of brass to prevent thread-stripping on the transfer line.
- Design enhances ease of threading onto the transfer line and improves overall lifetime.



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

Restek innovation!**Capillary Installation Gauge for Agilent 5973/5975 MS**

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



Install the nut and ferrule onto the column, then insert the column through the installation tool, exposing several centimeters at the exit end. Tighten the nut (not depicted).

Score and remove the exposed end of the column. Loosen the nut.

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 original manufacturer's performance.



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

Ion Source Cleaning Powder

Use this aluminum 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

Inland 45 Pump Oil

Recommended for most mass spectrometers.

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



24819

Description	Similar to Agilent Part #	qty.	cat.#
Inland 45 Pump Oil	6040-0834, 6040-0798	1 liter	24819

Rough Pump Oil #19 for MSD Pumps, Oil Vacuum Pump

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



22687

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



27194

GC-MS Cleaning Kit

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

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

- Lint-free nylon gloves (small, 2 pair)
- Lint-free nylon gloves (large, 2 pair)
- Lint-free cotton cloth, 9 x 9 (10-pk.)
- Micro mesh 4 x 6 sheet (4-pk.)
- Aluminum oxide (1-kg jar)
- Cotton tip applicators
- Tweezers, large
- Tweezers, small
- Septum puller
- Dremel® tool, battery-operated (optional, 27194)
- Tool kit bag

Reorder Kit (cat.# 27196) Includes:

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

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

ETP Electron Multipliers

for Mass Spectrometry

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



23074

The electron multipliers manufactured by ETP use a proprietary dynode material. This material has a number of properties that make it very suitable for use in an electron multiplier. It has very high secondary electron emission, which allows exceptional gain to be achieved from each dynode. This material is also very stable in air. In fact, an ETP multiplier can be stored for years before being used. As a direct result of the high stability of the active materials used in ETP multipliers, they come with a 2-year shelf life warranty (stored in original sealed package). Many testing laboratories take advantage of this long shelf life by keeping a replacement ETP multiplier on hand, ready for immediate installation. This keeps instrument downtime to a minimum.

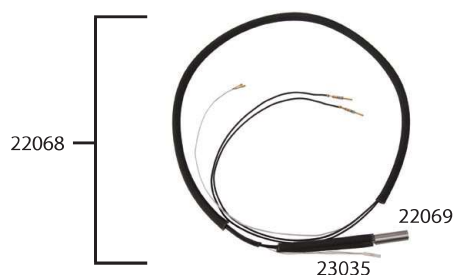
did you know?

For a typical ETP electron multiplier for GC-MS, the total active dynode surface area is ~1,000 mm². This can be compared to a standard continuous dynode multiplier that has a total channel surface area of only around 160 mm² (for a channel with 1 mm diameter and 50 mm length). This increased surface area spreads out the workload of the electron multiplication process over a larger area, effectively slowing the aging process and improving operating life and gain stability.

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

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

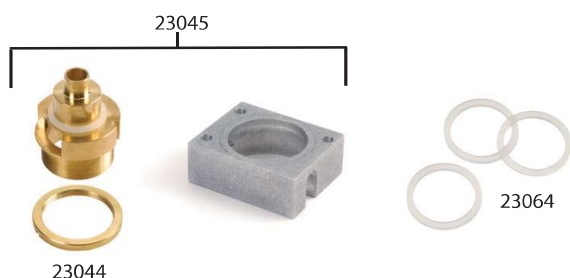
†This unit is designed for use in the 5975, 5973 GC, and the LC-MSD (not for 5975C Triple Axis Detector).



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

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

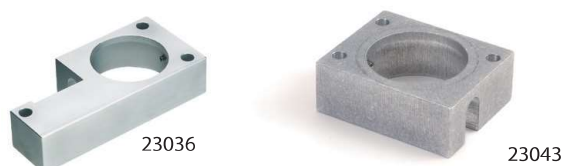
Description	Similar to Agilent Part #	qty.	cat.#
Injector/FID Heater and Injector/FID PRT Sensor	05890-61140	kit	22068
Injector/FID Heater	19231-60620	ea.	22069
Injector/FID PRT Sensor	19231-60660	ea.	23035



FID Collector Housing Kits for Agilent GCs

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

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



FID Collector Mount for Agilent GCs

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

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



FID Base Weldment for Agilent GCs

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

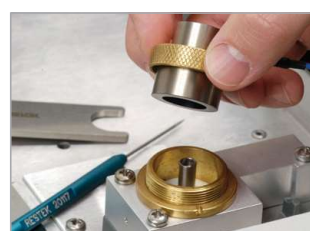
Description	Similar to Agilent Part #	qty.	cat.#
FID Base Weldment for Agilent 5890 GCs	19231-80580	ea.	23041
FID Base Weldment, Pack Column FID for Agilent 6850/6890 GCs	G1531-80580	ea.	23052
FID Base Weldment, Capillary Column FID for Agilent 6850/6890 GCs	G1531-80630	ea.	23053

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

Spanner Wrench

for Agilent 6890/6850/6890/7890 FID Collector Assemblies

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



Remove FID ignitor castle.



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

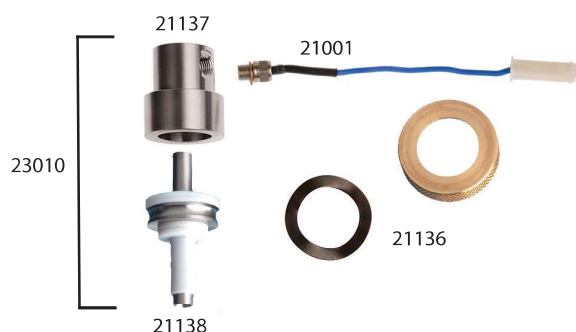


then turn counterclockwise...



and remove.

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



FID Collector Assembly Kit for Agilent 5890 GCs

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

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

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



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

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

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

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



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

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

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

FID Gauge Pack for Agilent 5890 GCs

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



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

FID Maintenance Kits for Agilent GCs

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

FID kits include:

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

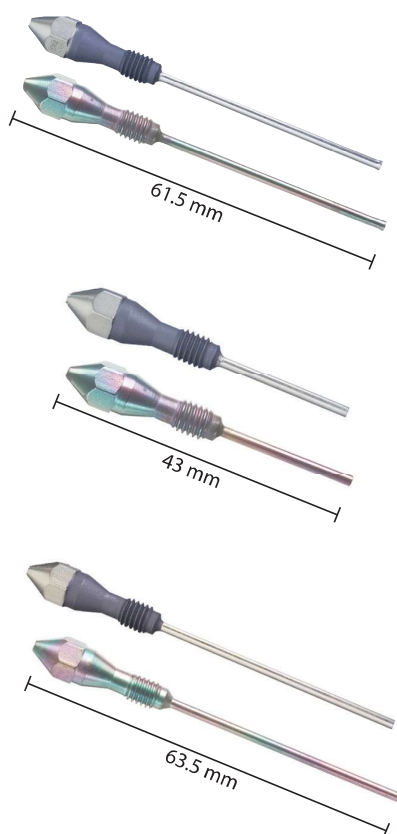


Description	qty.	cat.#
FID Maintenance Kit for Agilent 5890 GCs	kit	22180
FID Maintenance Kit for Agilent 6850/6890/7890 GCs	kit	22179

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 6890/7890 GC that is designed only for use with capillary columns.



FID Replacement Jets

Standard Version

- Threads specially coated for easy installation and removal.
- Special processing ensures the highest degree of cleanliness.
- Meets or exceeds original manufacturer's performance.

High-Performance Version—Siltek® Treated

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

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

Engineered with a fluted tip to guide the capillary column into the jet.

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

Capillary Dedicated FID Replacement Jet for Agilent 5890/6890/6850/7890 GCs

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

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

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

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

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

FID Jet Removal Tool for Agilent 5890/6850/6890/7890 FIDs

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



Slip tool over FID jet...

loosen jet...

and remove.

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



23034

Torx® Screwdriver Set

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

Description	qty.	cat.#
Torx Screwdriver Set	set	23034

Torx® is a registered trademark of Textron Inc.



20120



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.

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

Injector/Detector Plug Nuts

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



21883

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



20884

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 0.4 mm ID graphite ferrules.

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



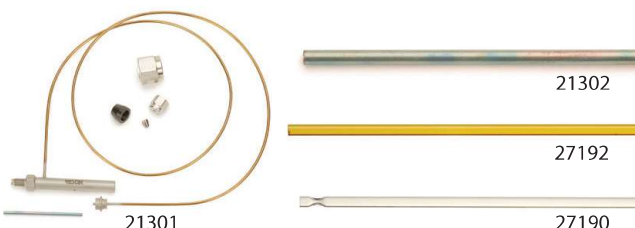
22077

FID/NPD Capillary Adaptor Fitting

for Agilent 5890/6890/6850 GCs

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

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



21301

21302

27192

27190

ECD/FID Dual-Purpose Make-Up Gas Kit

for Agilent 5890 GCs

Kit includes: replacement fitting, $1/4$ " nut, Vespel®/graphite ferrule, $1/16$ " nut, 0.4 mm ID graphite ferrule, Siltek®-treated guide.

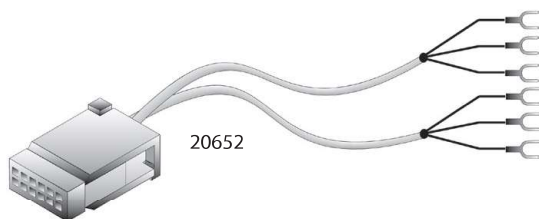
Description	Similar to Agilent Part #	qty.	cat.#
ECD/FID Replacement Fitting Kit with Flow Manifold Connection		kit	21301
Replacement ECD Siltek Metal Guide		2-pk.	21302
Replacement ECD Fused Silica Liner	19233-20625	ea.	27192
		5-pk.	27193
Replacement Micro ECD Liner	G2397-20540	ea.	27190
		5-pk.	27191

Supplies for Agilent GCs: Cables & Autosampler

Replacement Cables

for Agilent GCs, Integrators, & Autosamplers

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



20652

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



20657

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



21237

21172

22343

Injector Mounting Posts and Parking Post

for Agilent 7673 & 7683 Autosamplers

Performance equivalent to original manufacturer's parts.

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

Turret Tray Assembly

for Agilent 7673 Autosamplers

Holds sample, waste, and solvent vials.



22855

Description	Similar to Agilent Part #	qty.	cat.#
Turret Tray Assembly for Agilent 7673 Autosamplers	07673-60605	ea.	22855

Autosampler Plunger Carrier Belt

for Agilent 7673A & 7673B Autosamplers

All parts meet or exceed original manufacturer's performance.



22695

Description	For Agilent Model #	qty.	cat.#
Autosampler Plunger Carrier Belt	7673A, 7673B	ea.	22695

Carriage Motor Beltfor Agilent 7673A, 7673B,
and 7673C AutosamplersMeets original manufacturer's
performance.

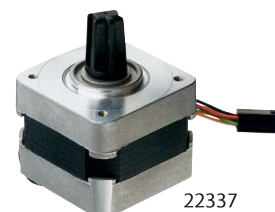
22692

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

**Z-Belt for Agilent 7673B
& 7683 Autosamplers**Meets original
manufacturer's performance.

22363

Description	Similar to Agilent Part #	qty.	cat.#
Z-Belt for Agilent 7673B & 7683 Autosamplers	1500-0803	ea.	22363

**Injector Turret Motor for
Agilent 7673A & 7673B Injectors**Meets original manufacturer's
performance.

22337

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



22067

Viton® O-Rings for Apex Liners

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



22354



22355

Accessories for ATAS LINEX DMI System

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



Sky®
Inlet Liners

True Blue Performance

Exceptionally inert Sky® inlet liners with state-of-the-art deactivation improve trace-level analysis—and now come with a 100% satisfaction guarantee!*



See **pages 193-202** or visit www.restek.com/sky

* For details on our 100% satisfaction guarantee, visit www.restek.com/sky

Inlet Liner Seals

for Bruker/Varian 1177 Injectors

Meets or exceeds original manufacturer's performance.



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



22779



22780

Merlin Microseal Septa for Bruker/Varian GCs

400 °C max injection port temperature.

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

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

Liner Seals

for Bruker/Varian 1078/1079 GCs



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

Premium Non-Stick
BTO® SeptaThermolite®
Septa**Septa** for Bruker/Varian GCs

Septum Diameter	50-pk. cat.#	100-pk. cat.#
Thermolite Septa (usable to 340 °C inlet temp.)		
9 mm	27133	27134
9.5 mm (3/8")	27136	27137
10 mm	27139	27140
11 mm (7/16")	27142	27143

Premium Non-stick BTO Septa (usable to 400 °C inlet temp.*)

9 mm CenterGuide	27084	27085
9.5 mm (3/8")	27086	27087
10 mm	27088	27089
11 mm (7/16") CenterGuide	27090	27091

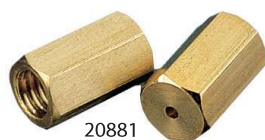
*Minimum recommended operating temperature for premium non-stick BTO septa is 250 °C.

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer.

Description	Merlin#	cat.#
General Purpose Kit for Bruker/Varian 1078/1079 GCs Includes: Nut, Adapter, O-Ring, & 1 General-Purpose (#410) Microseal	21-11W	22779
General Purpose Kit for Bruker/Varian 1177 GCs Includes Nut, Adapter, O-Ring, & 1 General-Purpose (#410) Microseal	22-11W	22780
Replacement Microseals		
General-Purpose Microseal (most applications, 3 to 100 psi)	410	22812
Low-Pressure Microseal (1 to 45 psi)	310	22815
Microseal for SPME Applications (3 to 100 psi)	21-01W	22782

**HANDY
septum size
chart**

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



20881

Capillary Nuts for Bruker/Varian GCs

Choose brass or stainless steel construction.

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

Siltek® Treated Inlet Support Springs

for Bruker/Varian
1075/1077 Split Injectors

Siltek® treated to eliminate sample adsorption.



21690

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



22335

Capillary Installation Gauge for Bruker/Varian GCs

for use with 1/16" ferrules

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

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

*For use with graphite ferrules only.



22184

Make Life Easier (MLE) Capillary Tool Kit

for Bruker/Varian GCs

Includes:

- Capillary installation gauge for Bruker/Varian GCs
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 1/16" 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
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insertor tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High-temperature string (1 meter)
- Pipe cleaner (12 inch)
- Cotton tip swabs (pk. of 25)

Description	qty.	cat.#
MLE Capillary Tool Kit	kit	22184

Rethreading Tool

for Bruker/Varian Injection Ports

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



Make your injection port threads like new!

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

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

Restek
innovation!

Kit installs easily,
without special tools
or plumbing.



22423

EZ No-Vent® GC Column-Mass Spectrometer Connector

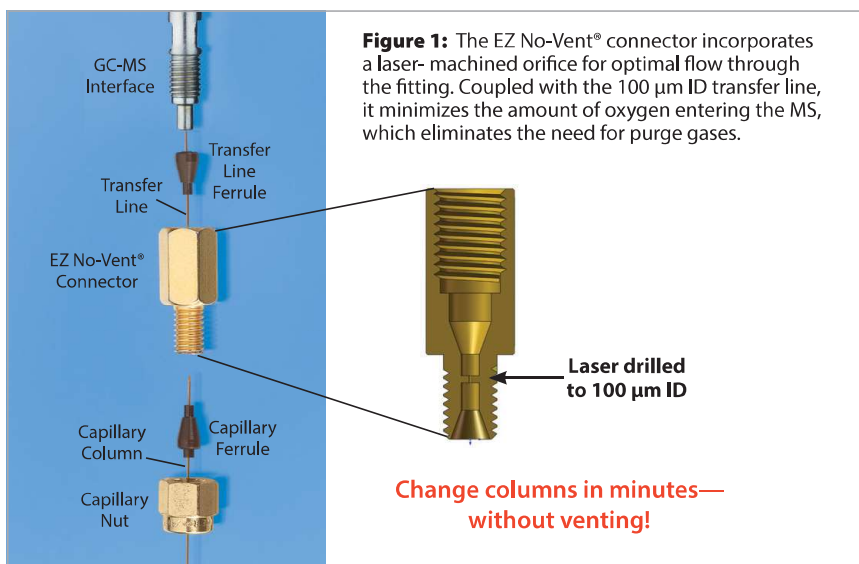
for Bruker/Varian Saturn 2000 Series Mass Spectrometers

- Change GC-MS columns in minutes without venting—100 µm transfer line maintains vacuum and prevents venting.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- High-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.

We designed the EZ No-Vent® GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent® connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas as is required for other manufacturers' vent systems. This enables you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change, saving 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.



As an employee-owned company, we take pride in producing the best chromatography products on the market.



Description	qty.	cat.#
EZ No-Vent Connector Kit for Bruker/Varian Saturn 2000 Series MSs		
Includes: EZ No-Vent connector, two 0.4 mm ID adaptor ferrules for capillary column, two 0.4 mm ID ferrules for transfer line, 100 µm deactivated transfer line (3 ft), column plug, column nut	kit	22423
Replacement ferrules for connecting capillary column to EZ No-Vent connector:		
0.30≤0.40 mm Tubing OD (Virgin Polyimide)	2-pk.	21015
0.40≤0.50 mm Tubing OD (Virgin Polyimide)	2-pk.	21016
Replacement Ferrules (polyimide) for connecting transfer line to EZ No-Vent connector:		
0.4 mm ID	2-pk.	21043
Replacement 100 µm Deactivated Transfer Line	3 ft	21018
Replacement EZ No-Vent column Nut	20-pk.	23100
Replacement EZ No-Vent Plug	5-pk.	23112
Open-End Wrenches, 1/4" x 5/16"	2-pk.	20110

Graphite O-Rings for
PerkinElmer Auto SYS XL or
Clarus GCs With PSS Injector

Fits 4 mm OD liners.

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

Viton® O-Rings
for PerkinElmer PSS Injector

Fits 4 mm OD liners.

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

Silicone O-Rings
for PerkinElmer Auto SYS XL or
Clarus With CAP Injector

Fits 6.2 mm OD liners.

Description	Max. Temp.	Similar to PE Part #	qty.	cat.#
Silicone O-Rings for PerkinElmer Auto SYS XL or Clarus w/CAP Injector	250 °C	N6101374	10-pk.	20262

Thermolite®
SeptaPremium Non-Stick
BTO® Septa**Septa** (11 mm) for PerkinElmer GCs

Thermolite Septa Usable to 340 °C Inlet Temp.		Premium Non-Stick BTO Septa Usable to 400 °C Inlet Temp.	
qty.	cat.#	qty.	cat.#
50-pk.	27142	50-pk.	27090
100-pk.	27143	100-pk.	27091

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo TRACE and Focus GCs.

Merlin Microseal Septa
for PerkinElmer GCs

400 °C max injection port temperature.

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



22781

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

Description	Merlin#	Similar to PE#	cat.#
General Purpose Kit for PerkinElmer GCs (3 to 100 psi) Includes: Nut, Adapter, O-ring & 2 General Purpose (#410) Microseals	51-12W	N9303344	22781
Replacement Microseals			
General-Purpose Microseal (most applications, 3 to 100 psi)	410	N9303345	22812
Low-Pressure Microseal (1 to 45 psi)	310		22815
Microseal for SPME Applications (3 to 100 psi)	21-01W		22782

Check out the Restek blog for
the latest developments and
new applications!

blog.restek.com

GC ACCESSORIES | INSTRUMENT SUPPLIES

Supplies for PerkinElmer GCs



Injector Adaptors for PerkinElmer CAP Injector

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

Description	Similar to PE Part #	qty.	cat.#
For use with PE-style capillary nuts			
Injector Adaptor for PerkinElmer CAP Injector	N6100157	ea.	22318
Siltek-Treated Injector Adaptor for PerkinElmer CAP Injector	—	ea.	22320
For use with 1/16" compression-style nuts			
Injector Adaptor for PerkinElmer CAP Injector	—	ea.	22319

FID Capillary Column Adaptors for PerkinElmer Auto SYS XL

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



Description	Similar to PE Part #	qty.	cat.#
For use with PE-style capillary nuts			
FID Capillary Column Adaptor for PerkinElmer Auto SYS XL	N6120020	ea.	22608
For use with 1/16" compression-style nuts			
FID Capillary Column Adaptor for PerkinElmer Auto SYS XL		ea.	22609



FID Replacement Parts for PerkinElmer Auto SYS XL and Clarus 500

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

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



22185

Everything you need
in one complete kit!

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

Includes:

- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench
- Rubber-tipped slide-lock tweezers
- Scoring wafers
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insertor tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High temperature string (1 meter)
- Pipe cleaner (12-inch)
- Cotton tip swabs (pk. of 25)

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



100%
Satisfaction
Guaranteed

Sky[®]

Inlet Liners

Looking for the Best Solution?

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

See pages 193–202 for details.

Viton® O-Rings

for Shimadzu 17A, 2010, and 2014 GCs

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

**Graphite O-Rings**

for Shimadzu 2010 and 2014 GCs

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

Thermolite®
SeptaPremium
Non-Stick
BTO® Septa**Septa (Plug) for Shimadzu GCs**

Thermolite Septa		Premium Non-stick BTO Septa	
Usable to 340 °C Inlet Temp.		Usable to 400 °C Inlet Temp.*	
qty.	cat.#	qty.	cat.#
50-pk.	27154	50-pk.	27098
100-pk.	27155	100-pk.	27099

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo TRACE and Focus GCs.

*For 17 mm inlets, the maximum temperature is 330 °C. For all injectors, minimum recommended operating temperature for BTO® septa is 250 °C.

Septum Nut

for Shimadzu 17A, 2010, and 2014 GCs

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



22079

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



21895

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

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

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

Merlin Microseal Septa for Shimadzu GCs

- Compatible with Shimadzu models GC-2010 and GC-2025 only.
- 450 °C maximum injection port temperature.
- For use with 23-gauge (0.63 mm, 0.025") needle or probe with blunt, truncated conical tip.

A Merlin Microseal septum provides several distinct advantages: elimination of septum coring, long lifetime, and consistently low needle-insertion force. The Microseal septum incorporates two separate sealing mechanisms; these sliding seals prevent septum coring and the associated accumulation of septum crumbs in the injection port liner. Installation is simple, requiring no modification of the injection port.



22972

Description	Merlin #	cat.#
General Purpose Kit for Shimadzu GCs (3 to 100 psi) Includes: Nut, Adapter, O-Ring, & 2 General-Purpose (#410) Microseals	61-12	22972
Replacement Microseals		
General-Purpose Microseal (most applications, 3 to 100 psi)	410	22812
Low-Pressure Microseal (1 to 45 psi)	310	22815
Microseal for SPME Applications (3 to 100 psi)	21-01W	22782



← slot
22688

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

Meets original manufacturer's performance.

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



← no slot
20375

Restek Enhanced Capillary Nut

for Shimadzu 17A, 2010, and 2014 GCs

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

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

5 mm Ferrules for Shimadzu 17A GCs

- For use with packed columns.
- Graphite construction.



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

Graphite Ferrules

for Shimadzu 17A, 2010, and 2014 GCs

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



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

**Inlet Wrench** for Shimadzu 17A, 2010, and 2014 GCs

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

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

**Capillary Installation Gauge**

for Shimadzu 17A, 2010, and 2014 GCs

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

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

*For use with graphite ferrules only.

See **pages 193-202.**

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

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

**FID Jets** for Shimadzu 2010 GCs

Description	Similar to Shimadzu Part #	qty.	cat.#
Capillary FID Jet for Shimadzu 2010 GCs	221-48258-91	ea.	22630
Packed Column FID Jet for Shimadzu 2010 GCs	221-48885-91	ea.	22631
Wide Bore FID Jet for Shimadzu 2010 GCs	221-49373-91	ea.	22632

Everything you need in
one complete kit!

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

- Capillary installation gauge for Shimadzu GCs
- Injector wrench for Shimadzu GCs
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25-0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench



22182

- Rubber-tipped slide-lock tweezers
- Scoring wafers
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insertor tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High-temperature string (1 meter)
- Pipe cleaner (12 inch)
- Cotton tip swabs (pk. of 25)

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

Dual Vespel® Ring Inlet Seals

Washerless, Leak-Tight Seals for Thermo 1300/1310 GCs

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

Feature	Benefit
Vespel® ring embedded in bottom surface.	Eliminates need for a washer.
Vespel® ring embedded in top surface.	Very little torque required to make seal—reduces operator variability.
Lower leak rate compared to OEM metal inlet seals.	Less detector noise.
Prevents oxygen from permeating the carrier gas.	Increases column lifetime.

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

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

0.8 mm ID Dual Vespel Ring Inlet Seal	2-pk. cat.#	10-pk. cat.#
Gold-Plated	22243	22244
Siltek-Treated	22247	22248
1.2 mm ID Dual Vespel Ring Inlet Seal	2-pk. cat.#	10-pk. cat.#
Gold-Plated	22245	22246
Siltek-Treated	22249	22250

Replacement Inlet Seals With Washers

- Siltek® treatment provides inertness similar to fused silica.
- All seals include washers.

Replacement Inlet Seals for Thermo Scientific 1300/1310 GCs

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

Single-Column Installation

0.8 mm ID (Opening)	Similar to Thermo Part #	qty.	cat.#
Gold-Plated	290GA082	2-pk.	22231
Gold-Plated	290GA081	10-pk.	22232
Siltek-Treated	290GA092	2-pk.	22237
Siltek-Treated	290GA091	10-pk.	22238

0.25/0.32 mm ID Dual-Column Installation

1.2 mm ID (Opening)	Similar to Thermo Part #	qty.	cat.#
Gold-Plated	290GA122	2-pk.	22233
Gold-Plated	290GA121	10-pk.	22234

Cross-Disk Inlet Seals for Thermo Scientific 1300/1310 GCs

All seals include washers.

0.8 mm ID Cross-Disk Inlet Seal	Similar to Thermo Part #	qty.	cat.#
Gold-Plated	290GA083	2-pk.	22235
Gold-Plated	290GA084	10-pk.	22236
Siltek-Treated	290GA093	2-pk.	22239
Siltek-Treated	290GA094	10-pk.	22240

**Patented**

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



Inlet Liner Seals

for Thermo Scientific TRACE PTV

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

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

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



Premium Non-Stick BTO® Septa

**Septa** (9 mm, 9.5 mm, 11 mm, 17 mm) for Thermo Scientific GCs Premium Non-Stick BTO® Septa

- Usable to 400 °C inlet temperature*.
- New plasma coating eliminates sticking in the injection port.
- Precision molding ensures consistent, accurate fit.
- Partial predrilled CenterGuide design.
- Preconditioned and ready to use.
- Packaged in ultra-clean blister packs**.
- Each batch GC-FID tested.
- Bleed and temperature optimized; ideal for demanding GC and GC-MS applications.

Septum Diameter	50-pk. cat.#	100-pk. cat.#
Premium Non-Stick BTO Septa (usable to 400 °C inlet temp.*)		
9 mm CenterGuide	27084	27085
9.5 mm (3/8")	27086	27087
11 mm (7/16") CenterGuide	27090	27091
17 mm CenterGuide	27096	27097

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo TRACE and Focus GCs.

*For 17 mm inlets, the maximum temperature is 330 °C. For all injectors, minimum recommended operating temperature for BTO® septa is 250 °C.

**12.7 mm and 17 mm septa packaged in precleaned glass jars.

HANDY septum size chart

Instrument	Septum Diameter (mm)
Thermo Scientific	
TRACE GC, 8000, 8000 TOP, GCQ w/TRACE, PTV, 8000 series17	17
TRACE 1300, 1310	11
Finnigan (TMQ)	
GC 9001, GCQ, QCQ, TRACE 2000	9.5

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

24971



Description	Similar to TS Part #	qty.	cat.#
Septum Cap for Split/Splitless Injector on Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	35001050	ea.	24971



21299



24972

Septa Holder Kits

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

- Includes septum support and holder.
- Made from high-quality stainless steel.
- Silcosteel® -AC-treated version helps with septum removal.

Description	Similar to TS Part #	qty.	cat.#
Septa Holder for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	23303015, 350054335	kit	21299
Silcosteel-AC-Treated Septa Holder for Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	23303015, 35005433	kit	24972

Gold-Plated Liner Cap

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

22089



Description	Similar to TS Part #	qty.	cat.#
Gold-Plated Liner Cap for Split/Splitless Injector on Thermo Scientific TRACE, 8000, 8000 TOP & Focus SSL	29004290	ea.	22089

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

23057



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



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



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

Adapters for Capillary Columns on Thermo Scientific TRACE & Focus SSL

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

Description	Similar to TS Part #	qty.	cat.#
For use with standard 1/16" ferrules.			
Adaptor for Capillary Column on Detector Base		ea.	24916
Adaptor for Capillary Column on Split/Splitless Injector		ea.	24917
Siltek Treated Adaptor for Capillary Column on Split/Splitless Injector		ea.	20543
For use with M4 ferrules.			
Adaptor for Capillary Column on Detector Base	347 25 436	2-pk.	24969
Adaptor for Capillary Column on Split/Splitless Injector	347 05 451	ea.	24970
Siltek Treated Adaptor for Capillary Column on Split/Splitless Injector		ea.	20544

Nut for Terminal Fitting for Thermo Scientific TRACE GCs



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

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

Made of high-quality stainless steel.



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

FID Jet for Thermo Scientific TRACE & Focus GCs Meets or exceeds original manufacturer's performance.



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

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Liner Cap Removing Tool

for Thermo Scientific GCs:
Focus GC, TRACE GC Ultra &
TRACE GC x GC

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



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



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



Turn counter-clockwise to loosen liner cap.



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

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



Metric Wrench Set

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

Description	qty.	cat. #
Metric Wrench Set	set	22997



Metric 9-Piece, Ball-Point Hex Key Set

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

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



Capillary Installation Gauge

for Thermo Scientific TRACE & Focus SSL (M4 Ferrules)

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



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

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

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

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

*For use with graphite ferrules only.



Everything you need in one complete kit!

22183



Make Life Easier (MLE) Capillary Tool Kit

for Thermo Scientific GCs

Includes:

- Capillary installation gauge for Thermo Scientific GCs
- Liner cap removing tool for Thermo Scientific GCs
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 1/16" open end wrench
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench

- Rubber-tipped slide-lock tweezers
- Scoring wafers
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insertor tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High-temperature string (1 meter)
- Pipe cleaner (12 inch)
- Cotton tip swabs (pk. of 25)

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

EZ No-Vent® GC Column-Mass Spectrometer Connector

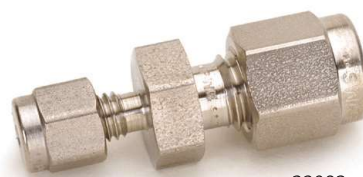
for Thermo Scientific Focus DSQ GC Mass Spectrometers

- Change GC-MS columns in minutes without venting—100 µm transfer line maintains vacuum and prevents venting.
- Easy to install and maintain—no special tools or plumbing required.
- Gold-plated body for inertness.
- High-temperature polyimide ferrules eliminate leaks at the problematic transfer line fitting.
- Lower cost than other “no-vent” fittings.

We designed the EZ No-Vent® GC column-mass spectrometer connector to be simple and easy to use. A critical orifice in the EZ No-Vent® connector minimizes the amount of oxygen allowed into the MS source, eliminating the need for purge gas as is required for other manufacturers’ vent systems. This enables you to skip the lengthy vent and pump-down cycle otherwise required when you make a column change, saving 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.



22454



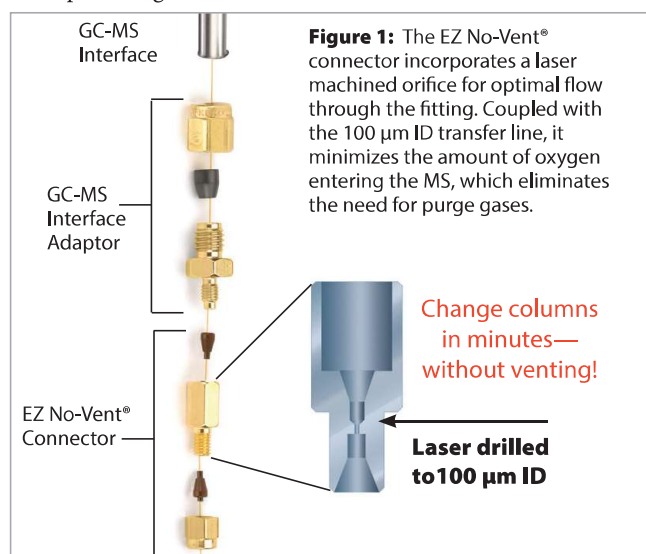
22082

Transfer Line Reducing Kit

for Thermo Scientific TRACE & Focus DSQ Mass Spectrometers

Meets or exceeds original manufacturer’s performance.

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



Description	qty.	cat.#
EZ No-Vent Connector Kit for Thermo Scientific Focus DSQ GC Mass Spectrometers Includes: EZ No-Vent Connector, interface adaptor, two 0.4 mm ID adaptor ferrules for capillary column, two 0.4 mm ID ferrules for transfer line, 100 µm deactivated transfer line (3 ft), column plug, column nut	kit	22454
Replacement Ferrules for connecting capillary column to EZ No-Vent Connector:		
0.30±0.40 mm Tubing OD (Virgin Polyimide)	2-pk.	21015
0.40±0.50 mm Tubing OD (Virgin Polyimide)	2-pk.	21016
Replacement Ferrules (polyimide) for connecting transfer line to EZ No-Vent connector: 0.4 mm ID	2-pk.	21043
Replacement 100 µm Deactivated Transfer Line	3 ft	21018
Replacement EZ No-Vent Column Nut	20-pk.	23100
Replacement EZ No-Vent Plug	5-pk.	23112
Open-End Wrenches, 1/4" x 5/16"	2-pk.	20110
Open-End Wrenches, 3/8" x 7/16"	2-pk.	22455



Sky
Inlet Liners

Looking for the Best Solution?

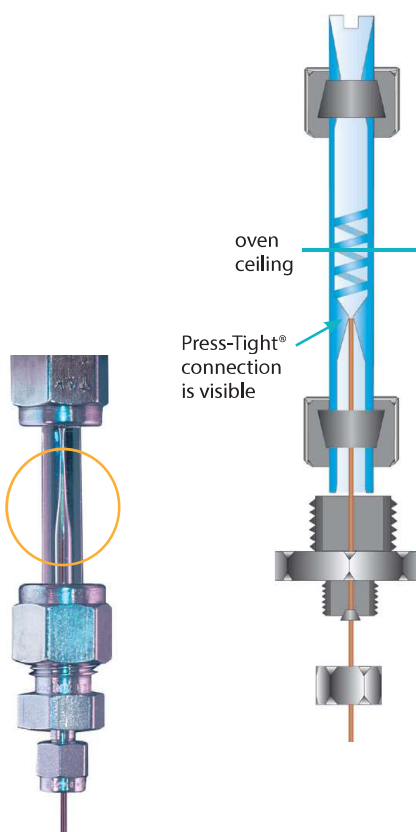
Sky® inlet liners, featuring a state-of-the-art deactivation, give you the inertness you need for accurate, reproducible trace-level results.

See pages 193–202 for details.

Packed Column Inlet Conversion

it's a fact

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



Converting Packed Inlets to Capillary Column Use

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

Features of Both Conversion Kits:

- Fit Agilent, Bruker/Varian, and other common GCs with 1/4-inch packed column injection ports (with maximum insertion depth of 4 inches).
- Install easily within 15 minutes.
- Accommodate either 0.32 or 0.53 mm ID fused silica columns (tubing OD ≥ 0.5 mm).
- Liners are deactivated and extremely inert.
- Liners designed to accept dirty samples are available for either system.
- Press-Tight® connections between the liner and column inlet minimize dead volume, reduce solvent peak tailing, and sharpen early-eluting components.

Vu-Tight DI Liners for 1/4-Inch Packed Injection Port Conversion

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

Vu-Tight DI Liners for 1/4-Inch Packed Injection Port Conversion

Can easily be packed with wool for dirty samples.

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

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

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

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

Vu-Tight Installation Fittings Kit

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

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



Uniliner® Liner for 1/4-Inch Packed Injection Port Conversion

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

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

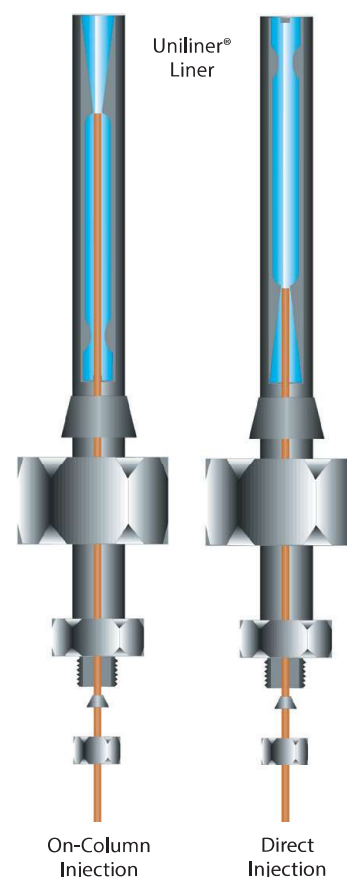
it's a fact

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

Description	Column ID Injection Mode*	ea. cat.#	5-pk. cat.#
Uniliner Liner (small buffer volume chamber 60 mm long, for injections ≤2 µL)	0.53 mm DI or OC	20902	20903
Uniliner Liner (large buffer volume chamber 85 mm long, for injections ≤4 µL)	0.32 & 0.53 mm DI only	20308	20309
	0.53 mm DI or OC	20301	20305
Cyclo-Uniliner Liner (for active, dirty samples)	0.32 & 0.53 mm DI only	20319	20320
Open-Top Uniliner Liner (packed with wool)	0.32 & 0.53 mm DI only	20315	20316
Low Volume/Purge & Trap Uniliner Liner (1 mm ID x 5 mm OD: use in 1/4" injection ports to troubleshoot purge & trap units)	0.32 & 0.53 mm DI only		20314
Includes 1/4-inch nut & graphite ferrule, 1/16-inch nut, and 0.8 mm ID graphite ferrule.			
Uniliner Liner Adaptor (required for installing Uniliner liners in 1/4" injection ports)		Stainless Steel cat.#	Siltek-Treated cat.#
	For injection ports <8 cm	20310	22282
	For injection ports 8-15 cm	20311	
	qty.	cat.#	
1/4" Ferrules for Uniliner Liner Adaptor	5-pk.	20234	

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

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



Packed Column Inlet Conversion, Dual-Column Analysis

Injection Port Conversion Chart

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

*Does not require Uniliner liner adaptor.

Inlet Adaptor Kit for Dual Column Installation

for Agilent Capillary Injectors
(Split/Splitless Fitting for
Capillary Columns)

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

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

Graphite Replacement Ferrules

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



1/8-Inch Capillary Inlet Adaptor Fitting Kit

(Split/Splitless Fitting for 0.53 mm ID Capillary Columns)

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

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

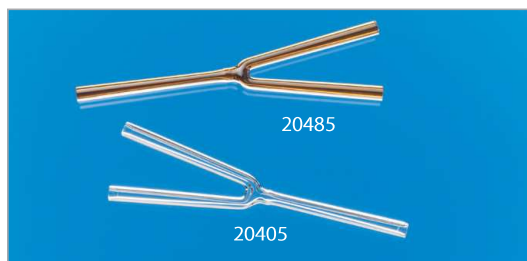
Two-Hole Ferrules for 1/8-Inch and 1/16-Inch Compression-Type Fittings

- Use 1/16-inch, two-hole ferrules with the 1/16-inch capillary inlet adaptor fitting kit (cat.# 27185).
- Use 1/8-inch, two-hole ferrules with the 1/8-inch capillary inlet adaptor fitting kit (cat.# 20645).

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

Press-Tight® Connectors

- Deactivated Press-Tight® connectors maintain complete inertness along the GC flow path.
- Siltek®-deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit 0.33–0.74 mm OD columns (Restek® 0.1–0.53 mm ID).

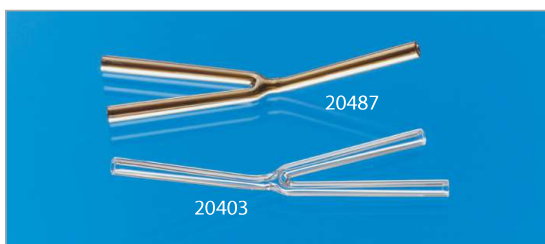


Universal “Y” Press-Tight® Connectors

An alternative method of performing dual-column confirmational analyses!

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

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



Universal Angled “Y” Press-Tight® Connectors

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

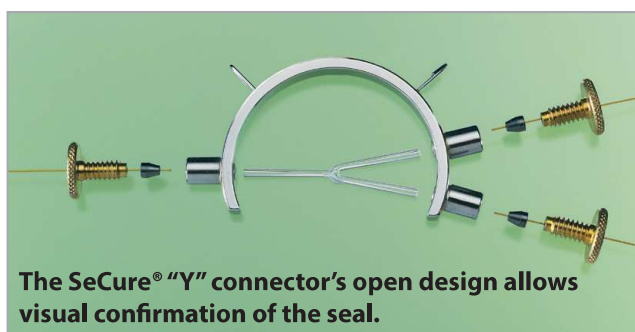
Description	ea.	3-pk.
Universal Angled “Y” Press-Tight Connector	20403	20404
Universal Angled “Y” Press-Tight Connector, Deactivated	20403-261	20404-261
Universal Angled “Y” Press-Tight Connector, Siltek Deactivated	20487	20469

Polyimide Resin

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



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



The SeCure® “Y” connector’s open design allows visual confirmation of the seal.

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.
- Fit both Restek® cage designs.

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

Kits include: SeCure® “Y” connector body, three knurled nuts, universal “Y” Press-Tight® union, and three ferrules.

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

MXT® “Y”-Union Connector Kits

For Connecting Metal and/or Fused Silica GC 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.
- Can also be used for connecting fused silica to metal.



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

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

Purge & Trap, PID

Purge-and-Trap Spargers

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



20676



20675



23020

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



21035

Moisture Control By-Pass Lines for Tekmar Instruments

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

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

Photoionization (PID) Lamps

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

Features

Benefits

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

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



Antifoam Agent for Purge-and-Trap Samples

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

See **page 546**.

Make Life Easier (MLE) Capillary Tool Kits

Everything you need in one complete kit!

All kits include these components:

- 1/8", 3/16", 1/4" nylon brushes
- 1/4", 3/8", 1/2" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 1/2" open end wrench
- Rubber-tipped slide-lock tweezers
- Scoring wafers
- Inlet liner removal tool
- Septum puller
- Mini wool puller/insertor tool
- 4-inch tapered needle file
- Swivel head flashlight
- Mini hand drill set
- 15 cm compact steel ruler
- Pocket magnifier
- High temperature string (1 meter)
- Pipe cleaner (12-inch)
- Cotton tip swabs (pk. of 25)



22186

MLE Capillary Tool Kit for Agilent GCs (cat.# 22186) also includes:

- Capillary installation gauge for Agilent GCs
- Injector wrench for Agilent GCs
- Septum nut removal tool
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench

MLE Capillary Tool Kit for Bruker/Varian GCs (cat.# 22184) also includes:

- Capillary installation gauge for Varian GCs
- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench

MLE Capillary Tool Kit for PerkinElmer GCs (cat.# 22185) also includes:

- 7/16" x 1/2" open end wrench
- 1/2" x 9/16" open end wrench

MLE Capillary Tool Kit for Shimadzu GCs (cat.# 22182) also includes:

- Capillary installation gauge for Shimadzu GCs
- Injector wrench for Shimadzu GCs
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench

MLE Capillary Tool Kit for Thermo Scientific GCs (cat.# 22183) also includes:

- Capillary installation gauge for Thermo Scientific GCs
- Liner cap removing tool for Thermo Scientific GCs
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench

Description	qty.	cat.#
MLE Capillary Tool Kit for Agilent GCs	kit	22186
MLE Capillary Tool Kit for Bruker/Varian GCs	kit	22184
MLE Capillary Tool Kit for PerkinElmer GCs	kit	22185
MLE Capillary Tool Kit for Shimadzu GCs	kit	22182
MLE Capillary Tool Kit for Thermo Scientific GCs	kit	22183



22185

MLE tool kits conveniently provide the tools that make it easier to install and maintain capillary columns at a discounted price compared to buying the tools individually!



22184

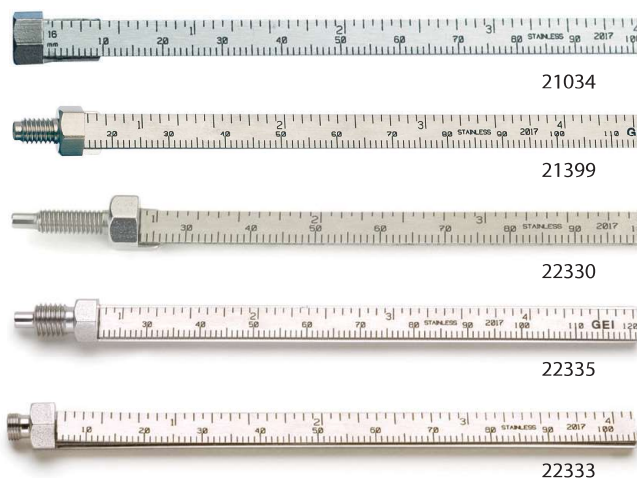


22182



22183

Easily seat ferrules for consistent installations!

**Capillary Installation Gauge**

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

Using the Capillary Installation Gauge for Agilent-Style Fittings



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



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



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

Description	qty.	cat.#
Capillary Installation Gauge for Agilent-style fittings (compact ferrules)	ea.	21034
Capillary Installation Gauge for 1/16" fittings (1/16" ferrules)	ea.	21399
Capillary Installation Gauge for Bruker/Varian GCs for use with 1/16" ferrules	ea.	22335
Capillary Installation Gauge for Shimadzu 17A, 2010, and 2014 GCs	ea.	22333
Capillary Installation Gauge for Thermo Scientific TRACE & Focus SSL (M4 ferrules)	ea.	22330

*For use with graphite ferrules only.

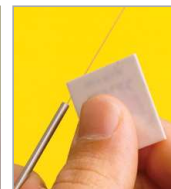
Restek innovation!

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

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



Install the nut and ferrule onto the column, then insert the column through the installation tool, exposing several centimeters at the exit end. Tighten the nut (not depicted).



Score and remove the exposed end of the column.



Loosen the nut.

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



22858



21044

Capillary Column Caps

- Attach to the column in seconds to form an airtight seal.
- Increase column lifetime—prevent moisture and air from entering the column during storage.
- Two styles to choose from: glass or silicone material.
- Glass caps are color-coded for identifying detector and injector ends.
- Not recommended for reuse.

Description	Material	qty.	cat.#
Capillary Column Caps	Glass	10-pk.	21044
Capillary Column Caps	Silicone	10-pk.	22858



23015

Scoring Wafer With Handle

- Ceramic wafer is straight-edged for cutting fused silica tubing cleanly.
- Unique, ergonomic handle is made of soft, comfortable rubber.

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



23027

Shortix® Capillary GC Column Cutter

- Consistently make precise, clean, square cuts with a diamond blade.
- Built-in magnifier to verify square cut.
- Use with 0.25 mm ID to 0.53 mm ID tubing (0.78 mm OD maximum).



23026

Description	qty.	cat. #
Shortix Capillary GC Column Cutter	ea.	23026
Maintenance Kit for Shortix Capillary GC Column Cutter (Includes: diamond cutting wheel, O-rings, and a tool to open the column cutter)	kit	23027

Ceramic Scoring Wafer

Four straight scoring edges for cutting fused silica tubing and four serrated edges for cutting MXT® metal capillary columns.



20116

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

Sapphire Scribe

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



20182



One quick stroke...



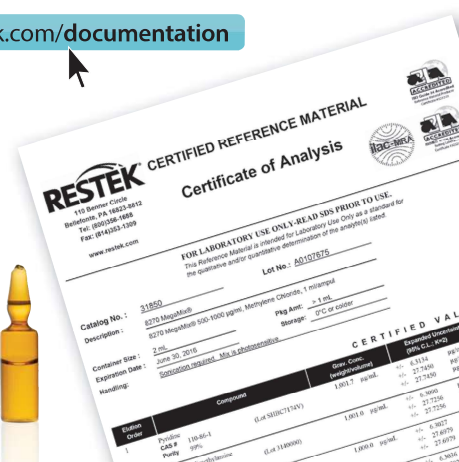
and just a tap leaves a clean, square end.

Description	qty.	cat. #
Sapphire Scribe	ea.	20182

Reference Standards Documentation Search

Locate SDSs, certificates, and data packs by cat. # or lot #

www.restek.com/documentation



Inlet Liner Removal Tool

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



20181

No more burned fingers!**Description**

Inlet Liner Removal Tool

qty.

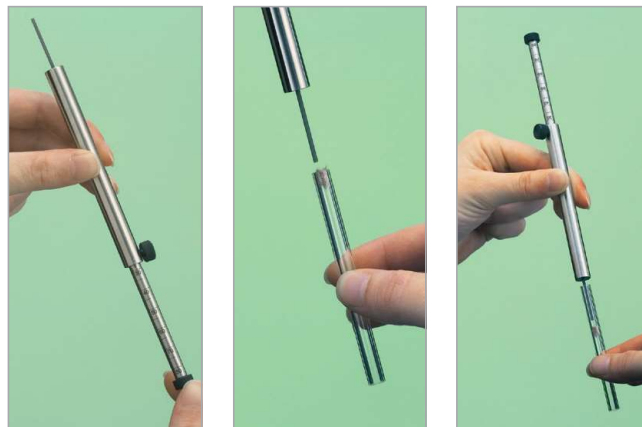
3-pk.

cat.#

20181

**Eliminates user variation!****Inlet Liner Packing Tool**

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



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

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

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

Description

Inlet Liner Packing Tool

qty.

ea.

cat.#

20339

Recommended for inlet liners with an ID \geq 2 mm.**The Claw and The Claw Holder Kit**

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

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



26262

Description

The Claw

qty.

ea.

cat. #

26261

The Claw Holder Kit (includes The Claw and holder)

kit

26262

WISP 48 Snap Seal Vial

100-pk.

24658

Inlet Wrench for Agilent 5890/6850/6890 GCs

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



22065

Description

Inlet Wrench for Agilent 5890/6850/6890 GCs

Similar to Agilent Part #

19251-00100

qty.

ea.

cat.#

22065



21159

Inlet Wrench for Shimadzu 17A, 2010, and 2014 GCs

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

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



22334

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

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



20387

Open-End Wrench Set

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

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



20110

Open-End Wrenches

High-quality wrenches for tightening capillary fittings.

Description	Size	qty.	cat.#
Open-End Wrenches	1/4" x 5/16"	2-pk.	20110
Open-End Wrenches	3/8" x 7/16"	2-pk.	22455



22997

Metric Wrench Set

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

Description	qty.	cat.#
Metric Wrench Set	set	22997



22999

Metric 9-Piece, Ball-Point Hex Key Set

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

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



22998

12-Piece, Ball-Point Hex Key Set

Includes twelve hex keys (Allen wrenches): 0.050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", and 5/16".

Description	qty.	cat.#
12-Piece, Ball-Point Hex Key Set	set	22998



23034

Torx® Screwdriver Set

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

Description	qty.	cat.#
Torx Screwdriver Set	set	23034

Torx® is a registered trademark of Textron Inc.



20109

High-Temperature String

Use to restring capillary columns, attach column connectors to column cages, or hold the column in the GC oven. Capable of withstanding temperatures to 400 °C.

Description	qty.	cat.#
High-Temperature String	10 m	20109
High-Temperature String	450 m	20618



20101

Slide-Lock Tweezers and 15 cm Compact Steel Ruler

- “Lock” capillary columns to the correct insertion distance recommended by the instrument manufacturer during installation.
- Useful for many laboratory tasks.

This duo provides an alternative way to install capillary columns to the correct insertion distance recommended by the instrument manufacturer.

Description	qty.	cat.#
Slide-Lock Tweezers and 15 cm Compact Steel Ruler	set	20101



20112

Stainless Steel Tube Brushes/Surface Brush

Unlike brass brushes that can leave a metal residue, these stainless steel tube brushes ($3/8$ -, $3/16$ -, and $1/4$ -inch) work well for cleaning dirty collectors, injector ports, and detector ports. The surface brush can be used to remove residue that builds up on metal detector jets and electronic contacts.

Description	qty.	cat.#
Stainless Steel Tube Brushes/Surface Brush	4-piece set	20112



20108

Nylon Tube Brushes and Pipe Cleaner

Use to remove small septum fragments and residue from dirty glass inlet liners. Brushes are $1/8$ -, $3/16$ -, and $1/4$ -inch in diameter; pipe cleaner is one foot (30 cm) long.

Description	qty.	cat.#
Nylon Tube Brushes and Pipe Cleaner	4-piece set	20108



20106

4" Tapered Needle Files

These files can be used for many purposes. They are especially useful for removing ferrules that are lodged in injector or detector ports.

Description	qty.	cat.#
4" Tapered Needle Files	2-pk.	20106

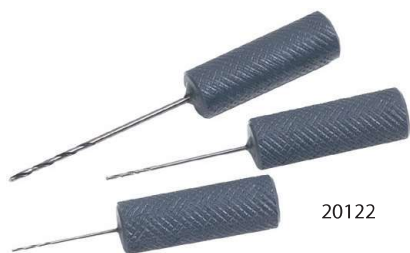


21601

MXT® Needle Files

Multi-purpose files especially useful for cutting Siltek® treated stainless steel columns.

Description	qty.	cat.#
MXT Needle Files	2-pk.	21601



Mini Hand Drill Set

Drill ferrules to the proper ID in seconds! Includes three drills, for use with 0.25, 0.32, and 0.53 mm ID (0.4, 0.5, and 0.8 mm OD) capillary columns.

Description	qty.	cat.#
Mini Hand Drill Set	3-piece set	20122



Stainless Steel Jet Reamers / Ferrule Removers

A great tool for cleaning detector jets or removing stuck ferrules from other small orifices. Serrated design is optimal for removing silica deposits and other contaminants.

Description	qty.	cat.#
Stainless Steel Jet Reamers / Ferrule Removers	6-piece set	20113



Pocket Magnifier

- Small and easy to handle.
- 10x magnification makes it easy to see the column end to verify a square cut.

Description	qty.	cat.#
Pocket Magnifier	ea.	20124

GC Oven Thermometer

- Verify GC oven temperature.
- Quick measurements via sensor in the measuring tip.
- Swivel head can turn 180°.
- Wide measuring range: -50 °C to +350 °C.

Description	qty.	cat.#
GC Oven Thermometer	ea.	22066



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

Septum Puller

- Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or debris.
- Keep several on hand in your laboratory for other uses, too.



Dislodge a stuck ferrule quickly and easily—without scoring the fitting.



Remove a septum without damaging an expensive weldment.

Description	qty.	cat.#
Septum Puller	ea.	20117



GC Accessories

Gas Management

Gas Purification Essentials	285
Gas Management System	286
Leak Detector	286
Super Clean® Gas Filters.....	287–291
Gas Traps.....	292–293
Gas Management Supplies	294
Gas Generators	295–300
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Tubing.....	312–315
Gas Valves.....	316
VCO Fittings.....	316
Installation Tools.....	317
Tubing Tools.....	318–319
Fitting Tools.....	319



Restek provides the following total gas system solution:

- Restek® gas purifiers provide cost-effective gas purity assurance.
- Restek stainless steel and copper tubing is precleaned and ready to use.
- Swagelok® and Parker A-Lok® tube fittings consistently deliver high-quality performance.
- Extensive line of hand tools, including Restek's electronic leak detector, to make your work easier and faster.
- Gas generators offer an uninterrupted supply of gas.
- Gas regulators ensure optimum line pressure control of all your chromatography gases.

Restek Technical Service (1-800-356-1688, ext. 4; 1-814-353-1300, ext. 4; or support@restek.com) or your Restek representative can answer your questions and provide system-design advice. From the gas source to your point of use, we offer the products and services that ensure the purity of your gas.

**Why do I need to use traps and where should I install them?**

Carrier gas must contain less than 1 ppm of oxygen, water vapor, or any other trace contaminant to prevent column degradation, shortened column lifetime, and increased stationary phase bleed. Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. The expense of using high-purity gases in combination with carrier gas purifiers will be offset by longer column lifetime and less instrument maintenance.

Moisture Removal

Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise (particularly with ECDs). As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines. Our favorite trap is the Super Clean® ultra-high capacity moisture filter (cat.# 22028, p. 287).

Hydrocarbon Removal

Use a hydrocarbon trap if your gas has a potential source of hydrocarbon contaminants (e.g., an oil pump in an air compressor) or if you suspect you are observing carrier gas ghost peaks. Install the hydrocarbon trap after the moisture trap to prevent moisture from degrading the hydrocarbon-trapping ability of the activated carbon in the hydrocarbon trap. We recommend the Super Clean® ultra-high capacity hydrocarbon filter (cat.# 22030, p. 287).

Oxygen Removal

Oxygen is a column killer and can enter the system at any connection that is leaking. It is present even in ultra-high purity gases, as minute leaks at fittings allow oxygen to influx against the concentration gradient. There are many choices for oxygen removal—the Super Clean® ultra-high capacity oxygen Filter (cat.# 22029, p. 287) is popular with Restek chemists. Because oxygen can enter a gas line at any fitting, the oxygen trap should be the last connection before the gas line enters the chromatograph.

Leak Checking

To prevent column degradation, increase column lifetime, and decrease stationary phase bleed, carrier gas should always contain <1 ppm oxygen. This can be monitored by continually leak checking all gas system connections using the Restek® electronic leak detector (cat.# 22655, p. 286).

for more info**Questions about which carrier gas purifier to use?**

Call Restek Technical Service at 1-814-353-1300, ext. 4, or contact your Restek representative to discuss your application.

Gas Management System, Leak Detector

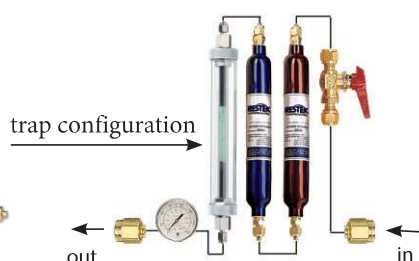
Restek® Gas Management System

- 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: 150 cc/min for optimal performance.

Restek has put together a convenient unit providing gas purification all in one step. Complete with an indicating trap, your gas purification issues are handled in one central location.



Dimensions:
12" x 14" x 3"
(30.5 x 35.6 x 7.6 cm)



did you know?

The Restek® gas management system removes water vapor (to 10 ppb), hydrocarbons (to 0.1 ppm), and oxygen (to less than 0.1 ppm) with three traps housed in one unit.

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



22655



NEW LOOK!

Restek® Electronic Leak Detector

Don't let a small leak turn into a costly repair—protect your analytical column by using a Restek® leak detector.

Backed by a one-year warranty, the Restek® leak detector is the industry standard for performance and affordability in handheld leak detectors.

Leak Detector Specifications

Detectable Gases:	Helium, nitrogen, argon, carbon dioxide, hydrogen
Battery:	Rechargeable lithium ion internal battery pack (12 hours normal operation)
Operating Temperature Range:	32–120 °F (0–48 °C)
Humidity Range:	0–97%
Warranty:	One year
Certifications:	CE, Ex, Japan
Compliance:	WEEE, RoHS

Description	qty.	cat.#
Leak Detector With Hard-Sided Carrying Case and Universal Charger Set (U.S., UK, European, Australian)	ea.	22655
Small Probe Adaptor for Leak Detector	ea.	22658
Dynamic Duo Combo Pack (Restek Leak Detector and ProFLOW 6000 Flowmeter)	kit	22654
Soft-Sided Storage Case for Leak Detector or ProFLOW 6000 Flowmeter	ea.	22657
Car Charger/Adaptor	ea.	22652
Universal AC Power Adaptor	ea.	22653

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

*Caution: The Restek® electronic leak detector is designed to detect trace amounts of hydrogen in a noncombustible environment. It is NOT designed for determining leaks in a combustible environment. A combustible gas detector should be used for determining combustible gas leaks under any condition. When using it to detect hydrogen, the Restek® electronic leak detector may only be used for determining trace amounts in a GC environment.

Restek recommends

If you think that your Restek® electronic leak detector needs service or repair, please contact Restek® Customer Service before sending your unit in (cat.# 22655-R). Leak detector service/repair will include inspection and testing of the unit.



22658

Verify hard-to-reach leaks using the small probe adaptor (sold separately).



22652

22653

Restek® Super Clean® Gas Filter Kits and Replacements

- High-purity output ensures 99.9999% pure gas (at max. flow of 2 L/min).
- Designed for easy, hassle-free cartridge changes.
- Glass inside to prevent diffusion; polycarbonate housing outside for safety.
- All traps measure 10 ⁵/₈" x 1 ³/₄" (27 x 4.4 cm).
- Each base plate unit measures 4" x 4" x 1 ⁷/₈" (10.2 x 10.2 x 4.8 cm).

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

Type of Filter	Outlet Gas Quality (%)	Maximum Pressure/ Maximum Flow Rates	Use for:	Indicator Color Change	Capacity			Estimated Lifetime (Years)
					H ₂ O (g)	O ₂ (mL)	Hydrocarbons (g) (n-Butane)	
Moisture cat.# 22028	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	Yellow/orange to clear	7.2	—	—	>2
Oxygen cat.# 22029	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas	Green to grey	—	1,000	—	>2
Hydrocarbons cat.# 22030	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	No indicator	—	—	12	>2
Fuel Gas ¹ cat.# 22022	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	Yellow/orange to clear	3.5	—	6	>1.5
Triple ² cat.# 22020	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas	Yellow/orange to clear Green to grey	1.8	500	4	>1
Helium Specific ² cat.# 21982	>99.9999	11 bar 159 psi/ 7 L/min	Helium	Yellow/orange to clear Green to grey	1.8	500	4	>1

¹ Removes hydrocarbons and moisture.² Removes hydrocarbons, moisture, and oxygen.**did you know?**

All Super Clean® gas filter cartridges (except the 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.



22020



22022



base plate

Description	qty.	cat.#
Carrier Gas Cleaning Kit	kit	22019
Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon triple gas filter		
Fuel Gas Purification Kit	kit	22021
Includes: mounting base plate, 1/8" inlet/outlet fittings, and hydrocarbon/moisture fuel gas filter		
Ultra-High Capacity Hydrocarbon Filter	ea.	22030
Ultra-High Capacity Moisture Filter	ea.	22028
Ultra-High Capacity Oxygen Filter	ea.	22029
Replacement Triple Gas Filter (removes oxygen, moisture, and hydrocarbons)	ea.	22020
Replacement Fuel Gas Filter (removes moisture and hydrocarbons)	ea.	22022
Helium-Specific Carrier Gas Cleaning Kit	kit	21983
Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon helium-specific filter		
Replacement Helium-Specific Gas Filter (removes oxygen, moisture, and hydrocarbons)	ea.	21982
Gas Filter Bundle Kit	kit	22031
Includes: one triple gas filter (cat.# 22020) and two fuel gas filters (cat.# 22022)		

i tech tip**Oxygen and Moisture Traps**

Restek highly recommends 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

**Restek® Filter Base Plates**

- End fittings available in brass or stainless steel.
- Base plates fit all stand alone Super Clean® gas filters offered.

Each single-position base plate unit measures:

4" x 4" x 1 7/8" (10.2 x 10.2 x 4.8 cm)

Each 2-position base plate unit measures:

8" x 4" x 1 7/8" (20.3 x 10.2 x 4.8 cm)

Each 3-position base plate unit measures:

12" x 4" x 1 7/8" (30.5 x 10.2 x 4.8 cm)

Standard base plate inlet/outlet fittings accept 1/8" tubing. To adapt to 1/4" tubing, order 1/8" to 1/4" tube end reducers.

Description	Brass		Stainless Steel	
	qty.	cat.#	qty.	cat.#
Filter Base Plate, Single-Position	ea.	22025	ea.	22344
Filter Base Plate, 2-Position	ea.	22026	ea.	22345
Filter Base Plate, 3-Position	ea.	22027	ea.	22346

Wall Mounting Bracket

Base plates can be mounted by using screws and the mounting holes on the base plate, or by using this optional wall mounting bracket.



Description	qty.	cat.#
Wall Mounting Bracket for Super Clean Base Plates	ea.	21984

Replacement O-Rings for Cartridge Base Plates

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



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

1/8-Inch to 1/4-Inch Tube End Reducer

To adapt 1/8" Super Clean® base plate fittings to 1/4" tubing, use 1/8" to 1/4" tube end reducers.



Description	Brass		Stainless Steel	
	qty.	cat.#	qty.	cat.#
Tube End Reducer, 1/8" to 1/4"	5-pk.	21833	2-pk.	21933

Restek® Super Clean® Gas Trapping System for LC-MS

A Super Clean® quick-change cartridge system efficiently removes hydrocarbons from nitrogen!

- Designed for easy, hassle-free cartridge changes.
- Up to 20 L of hydrocarbon-free nitrogen per minute.
- Filters connected in parallel to handle high flows for LC-MS.

Super Clean® gas filters provide high-purity outlet gas

Type of filter: Hydrocarbon (charcoal)

Max. Flow: 20 L/min

Outlet Gas Quality %: 99.9999%

Maximum Pressure: 11 bar/159 psi

Estimated Lifetime: 3 to 6 months

All traps measure:

10 5/8" x 1 3/4" (27 x 4.4 cm)

Each 2-position base plate unit measures:

8" x 4" x 1 7/8" (20.3 x 10.2 x 4.8 cm)

Standard base plate inlet/outlet fittings accept 1/4" tubing.

To adapt to 1/8" tubing, order 1/8" to 1/4" tube end reducers.



20 L of purified nitrogen per minute!

The Super Clean® gas trapping system purifies nitrogen and is ideal for use in LC-MS systems. The two-position base plate (installed in the gas line; standard base plate inlet/outlet fittings accept 1/4" tubing) allows cartridges to be exchanged without introducing impurities into the system. Spring-loaded check valves seal when a cartridge is removed and open only when a new cartridge has been locked in place. There is no need for loosening and tightening fittings every time you change cartridges, and your system cannot become contaminated during the changing process.

To meet the high flow needs of the LC-MS system, the activated charcoal-filled cartridges are positioned and connected in parallel. The incoming gas stream is split equally between the cartridges, and the two streams are rejoined after purification but before the gas exits the base plate. This approach allows longer contact between the nitrogen and the adsorbent, ensuring higher gas purity and eliminating a potential source of contaminants to your analyses.

A handy date wheel, included with the system, indicates the cartridge installation date and the recommended replacement date.

Description	qty.	cat.#
Super Clean Gas-Trapping System (2-position base plate, 2 charcoal filters)	ea.	22062
Replacement Hydrocarbon (Charcoal) Filters	2-pk.	22061
Particle Drop-In Filter, 0.5 µm	2-pk.	22367

also available**Looking for a nitrogen generator for your LC-MS?**

Restek offers a full line of Parker LC-MS generators.

See page 299.



Restek® Click-On Inline Super Clean® Purification Gas 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 gas trap is ideal for GC-MS—it contains oxygen, moisture, and hydrocarbon scrubbers in one cartridge.
- Triple gas trap is ideal for purifying carrier gas—it contains oxygen, moisture, and hydrocarbon scrubbers in one cartridge.
- Fuel gas trap is ideal for purifying flame ionization detector (FID) fuel gases, removing both moisture and hydrocarbons.

Click-On adaptor connectors allow cartridges to be exchanged without introducing oxygen, moisture, and hydrocarbons. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.

See next page for more Click-On in-line Super Clean® products.

Filter Type	Gas Quality at Outlet	Maximum Pressure	Maximum Flow (L/min)	Use For	H ₂ O (g)	Capacity O ₂ (mL)	Hydrocarbons (g) (n-Butane)	Estimated Lifetime (Years)
Moisture cat.# 22467	>99.9999	11 bar 160 psi	25	Inert carrier gas, helium, air, H ₂	15	NA	NA	>3
Oxygen cat.# 22468	>99.9999	11 bar 160 psi	25	Inert carrier gas	NA	2,000	NA	>3
Hydrocarbon cat.# 22466	>99.9999	11 bar 160 psi	25	Inert carrier gas, helium, air, H ₂	NA	NA	24	>3
Fuel Gas ¹ cat.# 22465	>99.9999	11 bar 160 psi	25	Inert carrier gas, helium, air, H ₂	7	NA	12	>2
Triple ² cat.# 22464	>99.9999	11 bar 160 psi	25	Inert carrier gas	4	1,000	8	>2
Helium-Specific Triple ² cat.# 22473	>99.9999	11 bar 160 psi	25	Helium	4	1,000	8	>2

¹Removes hydrocarbons, moisture.

²Removes hydrocarbons, moisture, oxygen.

NOTE: Super Clean® gas filters are recommended for purifying noncorrosive gases with low concentrations of contaminants. The maximum concentration of oxygen in the incoming gas stream for oxygen purifiers is 0.5%.

Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

**did you know?**

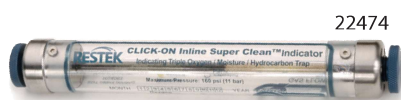
Trap replacement depends on the quality of the incoming gas. Use the double connector and install an indicating cartridge after a trap to indicate when the trap should be replaced.

Restek Click-On In-Line Super Clean® Gas Traps and Connector Kits

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

**i tech tip**

To prevent settling of desiccant, mount vertically, not horizontally.



Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

Click-On In-Line Super Clean® Indicator

- Oxygen: green to grey
- Moisture: beige to clear

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

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

Note: Fittings sold separately.

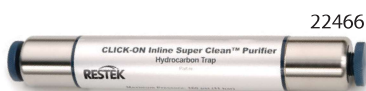


Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

Click-On In-Line Super Clean® Replacement Gas Traps

Description	qty.	cat.#
Triple Trap (removes oxygen, moisture and hydrocarbons)	ea.	22464
Fuel Gas Trap (removes moisture and hydrocarbons)	ea.	22465

Note: Replacement trap only—fittings sold separately.



Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

Click-On In-Line Super Clean® Ultra-High Capacity Gas 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

Click-On In-Line Super Clean® Connectors

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



Attach Click-On connectors to the gas lines once—avoid damaging the lines.

Each connector is 2 3/8" (6 cm) in length.

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

Click-On In-Line Super Clean® Double Connector

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



Each double connector is 3" (8 cm) in length.

Description	qty.	cat.#
Click-On In-line Super Clean Double Connector, Stainless Steel	ea.	22479



22480



22481

Accessories for In-Line Super Clean® Gas Traps and Connectors

Description	qty.	cat.#
Wall-Mounting Clamps for Click-On In-line Super Clean Gas Traps	4-pk.	22480
Replacement O-Rings for Click-On In-line Super Clean Connectors (includes 10 large and 10 small)	20-pk.	22481

Helium-Specific Click-On In-Line Super Clean® Gas Trap and Connector Kits

Helium-specific Click-On in-line Super Clean® gas trap and kits are designed specifically for purification of helium in GC-MS systems.

Description	qty.	cat.#
Helium-Specific Carrier Gas Cleaning Kits		
Includes: (2) 1/8" SS connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22469
Includes: (2) 1/8" brass connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22470
Includes: (2) 1/4" SS connectors and (1) oxygen/moisture/hydrocarbon helium-specific triple trap	kit	22471
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



Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

Click-On In-Line Super Clean® Big Trap Filter Kits

- Largest-capacity traps available—run longer without replacing.
- “Quick connect” fittings with spring-loaded check valves allow filter replacement in seconds without tools or contamination.
- Stainless steel construction withstands pressures up to 1,000 psig.
- High-purity output ensures 99.9999% pure gas (maximum flow of 8 L/min).
- Triple gas trap is ideal for purifying carrier gas.
- Helium-specific triple gas trap is made for GC-MS—ready to use within 15 minutes of installation.
- Hydrocarbon trap removes hydrocarbon contamination from carrier gas to help eliminate ghost peaks.

Click-On In-Line Super Clean® Big Traps measure:

22" x 2 1/2" (55.9 x 6.4 cm)

Capacity:

Triple Gas Traps: 2.0 L oxygen; 30 g total hydrocarbons; 70 g water

Hydrocarbon Trap: 90 g total hydrocarbons



27201



Description	qty.	cat.#
Triple Helium Kit, 1/4" Includes: (2) 1/4" SS connectors, (1) oxygen/moisture/hydrocarbon helium-specific trap, and (2) wall-mounting clamps	kit	27201
Triple Helium Kit, 1/8" Includes: (2) 1/8" SS connectors, (1) oxygen/moisture/hydrocarbon helium-specific trap, and (2) wall-mounting clamps	kit	27202
Hydrocarbon Kit, 1/4" Includes: (2) 1/4" SS connectors, (1) oxygen/moisture/hydrocarbon trap, and (2) wall-mounting clamps	kit	27203

Click-On In-Line Super Clean® Big Trap Replacement Filters**Capacity:**

Triple Gas Traps: 2.0 L oxygen; 30 g total hydrocarbons; 70 g water

Hydrocarbon Trap: 90 g total hydrocarbons



27205

Description	qty.	cat.#
Triple Helium Trap	ea.	27204
Triple Standard Trap	ea.	27205
Hydrocarbon Trap	ea.	27206

Note: Replacement filter only—fittings sold separately. See Click-On in-line Super Clean® Big Trap filter kits for more information.

Click-On In-Line Super Clean® Big Trap Wall-Mounting Clamp Set

Description	qty.	cat.#
Click-On In-Line Super Clean Big Trap Wall-Mounting Clamp Set	2-pk.	27207



27207

Gas Traps



Dimensions: 9 1/4" x 2" (23.5 x 5.1 cm)



22081

High-Capacity Indicating Oxygen Trap

- Indicator changes from dark blue to black as oxygen and water are trapped.
- Lasts longer than three smaller traps.
- Use with all carrier gases.
- Ambient operating temperature, 100 psi (689 kPa) operating pressure.
- Built-in frit traps microparticles.
- Outlet gas purity:

$O_2 < 0.1$ ppm when inlet does not exceed 15 ppm.

$H_2O < 0.5$ ppm when inlet does not exceed 10 ppm.

- Maximum operating pressure: 150 psi (1,034 kPa).
- Maximum flow: 16.5 L/min.

Description	Fittings	qty.	cat.#
High-Capacity Indicating Oxygen Trap	1/8" Compression Tube Brass	ea.	20624
High-Capacity Indicating Oxygen Trap	1/4" Compression Tube Brass	ea.	20623
Replacement Cartridge (fits 1/4" or 1/8" housing)		ea.	20625
Replacement O-Rings (5 small O-rings and 5 large O-rings)		kit	22081



Dimensions: 10" x 1 1/4" (25.4 x 3.2 cm)

Indicating Oxygen Trap

- Indicator changes from light green to grey as oxygen is trapped.
- Heavy-walled glass body, protected by polycarbonate sleeve, prevents oxygen and water infusion.
- Prepurged for fast stabilization.
- 100 psi (689 kPa) maximum operating pressure.
- Reduces oxygen to 0.1 ppm.
- 10 μ m frits at inlet and outlet.
- Optimal flow rate: < 150 mL/min.

Description	Fittings	qty.	cat.#
Indicating Oxygen Trap	1/8" Brass	ea.	22010
Indicating Oxygen Trap	1/4" Brass	ea.	22011



Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)

High-Capacity Oxygen Trap

- Removes up to 600 mg of oxygen or 2 g of water.
- Long life—typically purifies more than five 200 ft³ cylinders.
- Reduces oxygen to 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Flow: 3 L/min @ 32 psi (221 kPa).

Description	Fittings	qty.	cat.#
High-Capacity Oxygen Trap	1/8" Nickel-Plated Brass	ea.	20601
High-Capacity Oxygen Trap	1/4" Nickel-Plated Brass	ea.	20600

Molecular Sieve S-Trap

- Traps water vapor; increases column and oxygen trap lifetime.
- Reduces baseline noise from sensitive detectors such as ECDs and mass spectrometers.
- Activated and ready to use.
- Reduces water to less than 1 ppm.
- Maximum flow: 1 L/min.



20686

Dimensions:
6 3/4" x 5 5/8" (17.1 x 14.3 cm)

Description	Fittings	qty.	cat.#
Molecular Sieve S-Trap	1/8" Brass	ea.	20686

This trap can be regenerated by heating to 300 °C for three hours using a 50-70 mL flow of dry nitrogen.



21997

Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)
Moisture capacity: 16 g of water

High-Capacity Moisture Trap

- Purged with ultra-high-purity helium; ready to use with any carrier gas including hydrogen.
- Reduces water to less than 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Maximum flow: 1.25 L/min.

Description	Fittings	qty.	cat.#
High-Capacity Moisture Trap	1/8" Nickel-Plated Brass	ea.	21997
High-Capacity Moisture Trap	1/4" Nickel-Plated Brass	ea.	20638



22015

Dimensions: 13" x 2" (33 x 5.1 cm)
Moisture capacity: 6 g of water
Maximum flow: 1 L/min

Indicating Moisture Trap

- Reduces water to less than 10 ppb; indicator changes from yellowish-green to blue at 5% relative humidity.
- Prepurged for fast stabilization.
- Reduces noise from high-sensitivity detectors.
- Heavy-walled glass body prevents oxygen and water infusion.
- 10 μ m frit prevents microparticulate damage to needle valves and flow controllers.
- Maximum operating pressure: 100 psi (689 kPa).

Description	Fittings	qty.	cat.#
Indicating Moisture Trap	1/8" Brass	ea.	22014
Indicating Moisture Trap	1/4" Brass	ea.	22015



Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)

Capillary-Grade Hydrocarbon Trap

- Packed with an extremely high surface area, baked coconut shell-based activated carbon.
- Purged with ultra-high-purity helium; ready to use with any carrier gas including hydrogen.
- Reduces organics to 0.1 ppm (assuming 100 ppm input).
- Maximum operating pressure: 250 psi (1,724 kPa).

Description	Fittings	qty.	cat.#
Capillary-Grade Hydrocarbon Trap	1/8" Nickel-Plated Brass	ea.	21991
Capillary-Grade Hydrocarbon Trap	1/4" Nickel-Plated Brass	ea.	21992



Dimensions: 9 1/4" x 2 1/4" (23.5 x 5.7 cm)

Refillable Hydrocarbon Trap

- Removes trace impurities from carrier gas.
- Reduces organics to 0.1 ppm (assuming 100 ppm input).
- 60 µm frit prevents gas contamination by purifier particles.
- Good for purge-and-trap systems.
- Refillable and rechargeable.
- Maximum operating pressure: 125 psig (862 kPa).
- Maximum flow: 5 L/min.

Description	Fittings	qty.	cat.#
Refillable Hydrocarbon Trap	1/8" Nickel-Plated Brass	ea.	22012
Refillable Hydrocarbon Trap	1/4" Nickel-Plated Brass	ea.	22013
Carbon Refill (two recharges)		pint	20626

Hydrocarbon S-Trap

- Removes hydrocarbons and other contaminants.
- Reduces organics to 0.1 ppm (assuming 100 ppm input).
- Each individually activated to ensure maximum efficiency.
- Fits in GC oven for easy thermal recharging.
- Maximum operating pressure: 60 psi (414 kPa).



Dimensions: 6 3/4" x 5 5/8" (17.1 x 14.3 cm)

Description	Fittings	qty.	cat.#
Hydrocarbon S-Trap	1/8" Brass	ea.	22016



Dimensions: 6" x 1 3/4" (15.2 x 4.4 cm)

Indicating Hydrocarbon Trap for Air Compressors

- Pass compressed air from an oil-filled air compressor through this trap to remove oil vapors and mist.
- Indicator changes from pale pink to deep pink.

Description	Fittings	qty.	cat.#
Indicating Hydrocarbon Trap for Air Compressors	1/8" Brass	ea.	20637
Indicating Hydrocarbon Trap for Air Compressors	1/4" Brass	ea.	20636



Dimensions: 6" x 1" (15.2 x 2.5 cm)

High-Capacity Split Vent Trap

- Reduces the release of hazardous materials from the capillary split vent into the lab.
- Includes connecting lines and mounting kit.

Description	Fittings	qty.	cat.#
High-Capacity Split Vent Trap	1/8"	ea.	20698
High-Capacity Split Vent Trap	1/8"	5-pk.	20699



Dimensions: 6" x 1" (15.2 x 2.5 cm)

ECD Vent Trap

- Reduces the release of hazardous materials from the ECD vent into the lab.
- Includes connecting lines and mounting kit.

Description	Fittings	qty.	cat.#
ECD Vent Trap	1/8"	ea.	22017



Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed.

The expense of using high-purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.



Dimensions:
21" x 1 1/2"
(53.3 x 3.8 cm)

VICI® Mat/Sen® Gas-Specific Purifier Modules

- Replace separate oxygen, moisture, and hydrocarbon traps with one multiple-bed purifier, specific for purifying helium, hydrogen, nitrogen, or air.
- Reduce gas impurities from ppm to low ppb levels.
- Decrease baseline noise and increase GC-MS sensitivity.
- Prepurged with the specified gas to shorten downtime.

Performance for these purifiers is optimized by incorporating a multiple-bed format that progressively lowers concentrations of contaminants at each successive bed. VICI® Mat/Sen® purifiers are guaranteed to produce gases that are purer than 99.9999%, when supplied with gas of 99.995% purity, and are prepurged with the specified gas to speed conditioning. Purifier capacity is approximately four tanks of gas at 99.995% (50 ppm) purity, and correspondingly longer for purer gases.

Please Note: We recommend using an indicating oxygen trap (e.g., cat. # 22029, pg. 287) downstream from a VICI® Mat/Sen® purifier to continually ensure gas purity and indicate absolute change-out time.

Specifications:

Length:	21" (53.3 cm)
Diameter:	1.5" (3.8 cm)
Maximum Inlet Pressure:	1,000 psi (6895 kPa)
Maximum Recommended Flow:	500 mL/min
Pressure Drop from 120 psi (827 kPa) inlet at a flow of 0-500 mL/min:	<0.20 psi (1.4 kPa)
Compression End Fittings:	1/8" or 1/4", stainless steel
Shipping Weight:	3.04 lb (1,300 g)

Compression Tube Fittings

Gas-Specific Purifier Module	1/4-inch		1/8-inch	
	qty.	cat.#	qty.	cat.#
Helium Purifier Module	ea.	22600	ea.	22601
Hydrogen Purifier Module	ea.	22602	ea.	22603
Nitrogen Purifier Module*	ea.	22604	ea.	22605
Air Purifier Module	ea.	22606	ea.	22607

*Warning: Do not use with nitrogen containing more than 500 ppm of oxygen. If the oxygen level in the stream exceeds 500 ppm, use an air purifier.

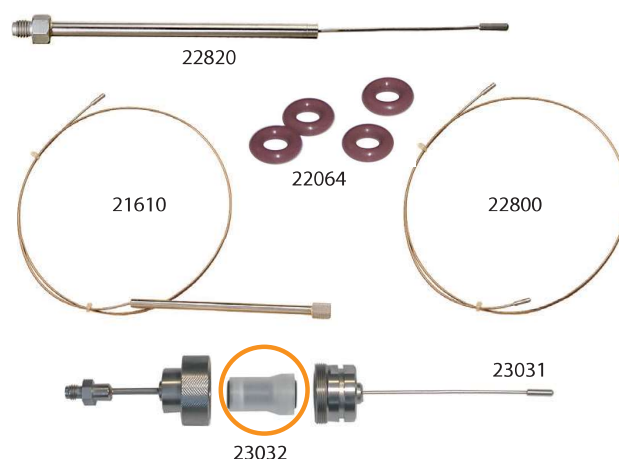
Gas Pressure Gauge Kit

- Use an in-line pressure gauge to indicate when a thermal gas purifier getter tube should be replaced.
- Includes 1/8" tee and 0-100 psi (0-689 kPa) gauge.



21657

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



Replacement Chemical Traps and Parts for Agilent GCs

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

Description	Similar to Agilent Part #		qty.	cat.#
Replacement Split Vent Trap for Agilent 6850/6890 GCs	G1544-80550	ea.		22820
Replacement Chemical Trap for Agilent 5890 GCs	05890-61260	ea.		21610
Split Vent Line (32-inch) for Agilent GCs Includes: all installation hardware		2-pk.		22800
O-Rings for Agilent Trap Fittings	5180-4181	25-pk.		22064
Optional Split Vent Trap Assembly for Agilent 6850/6890 GCs	G1544-60610, G1544-80530	kit		23031
Replacement Traps (2) and O-Rings (4)	G1544-80530, 5188-6495	kit		23032

Parker Balston® H2PEMPD Hydrogen Generators

- Proton exchange membrane (PEM) cell eliminates the need for liquid electrolytes.
- Maintenance-free palladium purifier removes oxygen to <0.01 ppm and moisture to <1.0 ppm.
- Produces continuous supply of 99.99999+% pure hydrogen gas.
- Does not require downstream gas filters.
- Maximum outlet pressures of 100 or 175 psig (690 or 1,200 kPa).
- Automatic safety feature shuts the generator down if a hydrogen leak is detected.
- Compact unit, requires only one square foot of bench space.

Specifications:

Purity:	99.99999+% pure hydrogen
Outlet Port:	1/4" compression
Electrical Requirements:	100 to 230 VAC, 50/60Hz
Physical Dimensions:	17.1" h x 13.5" w x 21" d
Shipping Weight:	60 lb

Description	Model #	Capacity	Delivery Pressure	qty.	cat.#
Hydrogen Generator	H2PEMPD-510	510 cc/min	100 psig	ea.	22144
Hydrogen Generator	H2PEMPD-510	510 cc/min	175 psig	ea.	22145
Hydrogen Generator	H2PEMPD-650	650 cc/min	100 psig	ea.	22146
Hydrogen Generator	H2PEMPD-650	650 cc/min	175 psig	ea.	22147
Hydrogen Generator	H2PEMPD-850	850 cc/min	100 psig	ea.	22148
Hydrogen Generator	H2PEMPD-850	850 cc/min	175 psig	ea.	22149
Hydrogen Generator	H2PEMPD-1100	1,100 cc/min	100 psig	ea.	22150
Hydrogen Generator	H2PEMPD-1100	1,100 cc/min	175 psig	ea.	22151
Hydrogen Generator	H2PEMPD-1300	1,300 cc/min	100 psig	ea.	22152
Hydrogen Generator	H2PEMPD-1300	1,300 cc/min	175 psig	ea.	22153

Maintenance Kits

6-Month Maintenance Kit for H2PEMPD Units

Includes: Deionizer cartridge, 100 µm water filter, environmental filters (2), and filter replacement tool

kit

22154

24-Month Maintenance Kit for H2PEMPD Units

Includes: deionizer cartridge, 100 µm water filter, environmental filters (2), filter replacement tool, tube clamp, water pump, and fan guard (2)

kit

22155



Your satisfaction is our top priority.



- Dimensions: 17.12" x 13.46" x 17.95"
- 59 lb dry weight

Safer alternative to high-pressure gas cylinders!

Parker Balston® PEM Hydrogen Generators

- Proton exchange membrane (PEM) cell eliminates the need for liquid electrolytes.
- Reliably generate 99.9995% pure hydrogen—for better chromatography.
- Eliminates high-pressure cylinders—greater convenience and improved lab safety.
- Compact unit, requiring only one square foot of bench space.
- Quick and easy to service and maintain; unique display lighting changes color for easy status checks and water level indication.
- Comes with a set of universal power adapters for U.S., European, and Asian plug types.
- Automatic safety feature shuts the generator down if a hydrogen leak is detected.

Specifications

Purity:	99.9995% pure hydrogen
Delivery Pressure:	5-100 psig \pm 0.5 psig (69-689 kPa \pm 7kPa)
Outlet Port:	1/8" compression
Electrical Requirements:	100-230 VAC/50-60 Hz
Physical Dimensions:	17.12" h x 13.46" w x 17.95" d (43.48 x 34.19 x 45.6 cm)
Shipping Weight:	59 lb (27 kg) dry

Description	Model #	Capacity	qty.	cat.#
Hydrogen Generator	H2PEM-100	100 cc/min	ea.	23065
Hydrogen Generator	H2PEM-165	165 cc/min	ea.	23066
Hydrogen Generator	H2PEM-260	260 cc/min	ea.	23067
Hydrogen Generator	H2PEM-510	510 cc/min	ea.	23068

Replacement and Maintenance Components for Hydrogen Generators (for all models listed above)

Replacement Desiccant Cartridge for H2PEM Generators	ea.	23069
6-Month Maintenance Kit for H2PEM Generators	kit	23070
Includes: 1 deionizer cartridge, 1 water filter, 3 environmental filters		
24-Month Maintenance Kit for H2PEM Generators		
Includes: 1 deionizer cartridge, 1 water filter, 3 environmental filters, 1 water level sensor, 1 water pump, and 1 desiccant cartridge	kit	23071

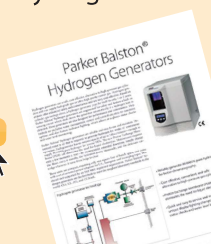
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Restek Electronic Leak Detector

Protect your instrument and analytical column!

- Ergonomic, handheld design.
- Handy probe storage for cleanliness and convenience.

www.restek.com/leakdetector



Parker Balston® 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 gas cylinders.
- Silent operation, minimal operator attention required.

Parker Balston® gas stations provide both UHP grade hydrogen gas and zero grade air for flame ionization detectors. The system is specifically designed to supply 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 0.1 ppm or less (measured as methane).

The hydrogen generators produce hydrogen gas from deionized water, using the principle of electrolytic dissociation of water and hydrogen proton conduction through a proton exchange membrane cell.

Specifications - FID Gas Stations:

Hydrogen Purity:	99.9995%
Zero Air Purity:	< 0.1 ppm total hydrocarbons as methane
Max. Hydrogen Flow Rate:	FID-1000: 90 cc/min FID-2500: 250 cc/min
Max. Zero Air Flow Rate:	FID-1000: 1000 cc/min FID-2500: 2500 cc/min
Power:	120 VAC/amp, 60 Hz, 480 watts
Hydrogen Outlet Pressure:	60 psig (414 kPa)
Zero Air Outlet Pressure:	40-125 psig* (276-862 kPa)
Inlet Connection:	1/4" NPT (female)
Outlet:	1/8" compression
Dimensions:	16.5" h x 10.5" w x 17" d (42 cm x 27 cm x 43 cm)
Weight:	53 lb (24 kg)

Description	Model #	qty.	cat. #
Gas Station	Model FID-1000 (ideal for 1-2 FIDs)	ea.	20177
Gas Station	Model FID-2500 (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	ea.	21671
FID Gas Station Annual Maintenance Kit	ea.	24915

*Zero air inlet requires minimum of 40 psig (276 kPa) compressed air pressure.

** Filters should be changed every year; resin and desiccant cartridges can be replaced every 2 years.

ordering note

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CE

**Produce zero air and pure hydrogen
from one unit!**

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GNTS1437-UNV





20697

CE

Parker Balston® Nitrogen Gas Generators

- Produces ultra-pure nitrogen (up to 99.9999%).
- Require only a compressed air source and 110 volt AC power.
- Typical applications include GC carrier gas, make-up gas, and low flow sample concentrators.
- Maintenance kits include replacement filters.

Specifications Model HPN2-1100 or UHPN2-1100

Maximum Nitrogen Flow Rate:	See Flow Table
Nitrogen Purity:	99.9999%
Minimum/Maximum Inlet Pressure:	60 psig/125 psig (414/862 kPa)
Electrical Requirements ¹ :	120 VAC/60 Hz
Dimensions:	35" h x 12" w x 16" d (89 cm x 30 cm x 41 cm)
Shipping Weight:	115 lb (52 kg)

Flow Table for Models HPN2-1100 and UHPN2-1100

Inlet Air Pressure	Maximum Outlet Flow (cc/min)	Maximum Outlet Pressure	Note: Model HPN2-1100 does not remove hydrocarbons. ¹ Power consumption is: Model HPN2-1100 = 25 Watts Model UHPN2-1100 = 700 Watts
125 psig (862 kPa)	1100	85 psig (586 kPa)	
110 psig (758 kPa)	1000	75 psig (517 kPa)	
100 psig (689 kPa)	900	65 psig (448 kPa)	
90 psig (621 kPa)	800	60 psig (414 kPa)	
80 psig (552 kPa)	700	50 psig (345 kPa)	
70 psig (483 kPa)	600	45 psig (310 kPa)	
60 psig (414 kPa)	500	35 psig (241 kPa)	

Nitrogen Generators	Model #	qty.	cat. #
Nitrogen Generator	HPN2-1100 (ultra-high purity)	ea.	21653
Nitrogen Generator	UHPN2-1100 (ultra-high purity zero grade)	ea.	20697
Maintenance Kits	Model #	qty.	cat. #
Annual Maintenance Kit Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter	for HPN2-1100, 76-92	kit	21649
Annual Maintenance Kit Includes: 1st, 2nd, and 3rd stage prefilters (1 each) and 1 final filter	for UHPN2-1100, 76-94, 76-96	kit	21655

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Gas Management Supplies for GC Labs

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lit. cat.# GNBR1758-UNV

Parker Balston® Nitrogen Gas Generators for LC-MS

- Turn compressed air into ultra-pure nitrogen (up to 99.5%).
- Flows from 1 to 44 L/min.
- Models N2-04, N2-14, N2-22, and N2-35 require no electricity.
- Safe, reliable, low maintenance.
- Maintenance kits include replacement filters.



22130



22129

Specifications	NitroFlow Lab*	N2-04	N2-14	N2-22 or N2-22A	N2-35 or N2-35A
Maximum Nitrogen Flow Rate:	32 L/min	8 L/min N2-22A: 29 L/min	36 L/min max. flow	N2-22: 44 L/min	44 L/min
Nitrogen Purity:	99.50%	99%	95.0%–99.5%	99%	99%
Min/Max Inlet Pressure:	N/A	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig
Electrical Requirements:	120 VAC/60 Hz	None	None	N2-22: None N2-22A: 120 VAC/60 Hz	N2-35: None N2-35A: 120 VAC/60 Hz
Dimensions:	27.6" h x 35.4" w x 12.2" d (70 cm x 90 cm x 31 cm)	11" h x 13" w x 16" d (27 cm x 34 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)
Shipping Weight:	205 lb (93 kg)	43 lb (20 kg)	75 lb (34 kg)	N2-22: 101 lb (46 kg) N2-22A: 106 lb (48 kg)	N2-35: 115 lb (52 kg) N2-35A: 119 lb (54 kg)

* Has built-in air compressor.

Nitrogen Generators for LC-MS

	Model #	qty.	cat. #
Nitrogen Generator for LC-MS	NitroFlow Lab Model, 32 L/min max. flow	ea.	22129
Nitrogen Generator for LC-MS	N2-04 Model for ELSD, 8 L/min max. flow	ea.	22130
Nitrogen Generator for LC-MS	N2-14 (general purpose) 36 L/min max. flow	ea.	20677
Nitrogen Generator for LC-MS	N2-22 Model, 44 L/min max. flow	ea.	22131
Nitrogen Generator for LC-MS	N2-22A Model, 29 L/min max. flow	ea.	22132
Nitrogen Generator for LC-MS	N2-35 Model, 44 L/min max. flow	ea.	22133
Nitrogen Generator for LC-MS Includes: Oxygen analyzer and audible alarm (monitors oxygen in nitrogen stream and signals high or low concentrations)	N2-35A Model, 44 L/min max. flow	ea.	22134

Maintenance Kits

	Model #	qty.	cat. #
Maintenance Kit Includes: carbon filter	for NitroFlow Lab	kit	22156
6-Month Maintenance Kit* Includes: 1st stage prefilter, 2nd stage prefilter, and final filter (2 each)	for N2-14, N2-14A, 75-72, 75-720NA	kit	21648
6-Month Maintenance Kit With Carbon Filter* Includes: 1st stage prefilter, 2nd stage prefilter, hydrocarbon scrubber, and final filter (1 each)	for N2-14, N2-14A, 75-72, 75-720NA	kit	22135
Generator Maintenance Kit Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter	for HPZA-3500, HPZA-7000, HPZA-18000, HPZA-30000, and 75-80 (Zero Air); N2-04 (Nitrogen); and TOC-1250 (TOC)	kit	21647

*The manufacturer recommends maintenance for this unit every 6 months.



20677

ordering note

For **international orders**, please contact Customer Service or your Restek representative.



Parker Balston® Zero Air Generators

- Turn in-house compressed air into ultra-pure air (<0.1 ppm total hydrocarbons).
- Remove hydrocarbons to less than 0.1 ppm by catalytic oxidation.
- Operate at 40–125 psi (276–862 kPa).
- Typical payback is less than one year, based on cylinder costs.
- Install easily and take up little bench space*.
- Maintenance kits include a one-year supply of prefilters and final filter.



Specifications

Maximum Zero Air Flow Rate:	75-83NA	1 L/min
	HPZA-3500	3.5 L/min
	HPZA-7000	7 L/min
	HPZA-18000	18 L/min
	HPZA-30000	30 L/min
Outlet Hydrocarbon Concentration (as Methane):	75-83NA	< 0.1 ppm
	HPZA-30000	< 0.1 ppm
	Other Models	< .05 ppm
Minimum/Maximum Inlet Air Pressure:	40 psig/125 psig (276/862 kPa)	
Maximum Inlet Hydrocarbon Concentration (as Methane):	100 ppm	
Pressure Drop at Maximum Flow Rate:	4 psi (28 kPa) differential	
Maximum Inlet Air Temperature:	78°F (25°C)	
Inlet/Outlet Ports:	1/4" NPT (female)	
Start-up Time to Specified Hydrocarbon Concentration:	45 minutes	
Electrical Requirements:	75-83NA	120 VAC/60 Hz, 0.5 amps
	HPZA-3500, HPZA-7000	120 VAC/60 Hz, 2.0 amps
	HPZA-18000, HPZA-30000	120 VAC/60 Hz, 4.0 amps
Dimensions:	75-83NA	10" h x 12" w x 3" d (25 cm x 30 cm x 8 cm)
	Other Models	16" h x 11" w x 13" d (42 cm x 27 cm x 34 cm)
Shipping Weight:	75-83NA	7 lb (3 kg)
	Other Models	41 lb (19 kg)

Model	Number of FIDs*
75-83NA	Up to 2
HPZA-3500	Up to 8
HPZA-7000	Up to 16
HPZA-18000	Up to 40
HPZA-30000	Up to 66

*Based on a 450 cc/min fuel air rate

Zero Air Generator	Model #	Capacity	qty.	cat. #
Zero Air Generator	75-83NA	1,000 cc/min	ea.	20684
Zero Air Generator	HPZA-3500	3,500 cc/min	ea.	20680
Zero Air Generator	HPZA-7000	7,000 cc/min	ea.	20681
Zero Air Generator	HPZA-18000	18,000 cc/min	ea.	20682
Zero Air Generator	HPZA-30000	30,000 cc/min	ea.	20683
Annual Maintenance Kits			qty.	cat. #
Annual Maintenance Kit			kit	21646
Includes: 1 prefilter and 1 sintered metal filter	for 75-83NA			
Generator Maintenance Kit	for HPZA-3500, HPZA-7000, HPZA-18000, HPZA-30000, and 75-80 (Zero Air); N2-04 (Nitrogen); and TOC-1250 (TOC)		kit	21647
Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter				
Replacement Catalyst Towers	Model #	Capacity	qty.	cat. #
Replacement Catalyst Tower	for 75-83NA	1,000 cc/min	ea.	22005
Replacement Catalyst Tower	for HPZA-3500	3,500 cc/min	ea.	22004
Replacement Catalyst Tower	for HPZA-7000	7,000 cc/min	ea.	22006
Replacement Catalyst Tower	for HPZA-18000	18,000 cc/min	ea.	22007
Replacement Catalyst Tower	for HPZA-30000	30,000 cc/min	ea.	22008

*Parker Model 75-83NA (Restek cat. # 20684) is a wall-mount model, and its dimensions are 12" w x 10" h x 3" d.

ordering note

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Zero Air Generators

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lit. cat.# GNTS1439-UNV

Silcosteel® Regulators and Switchover Systems

Applications:

- CEM continuous emission monitoring.
- Environmental stack and gas emission standards.
- Low-level sulfur and mercury analysis.
- Reactive or corrosive gases.
- Off-shore platform systems.
- Corrosive and salt water exposure.

Single- and dual-stage regulators and switchover systems are available with Silcosteel® surface treatment. This proprietary passivation process provides excellent inertness for sulfur and mercury calibration standards and improved corrosion resistance over bare 316L stainless steel or other more expensive alloys.

Silcosteel®-treated sampling and transfer systems allow oil and gas exploration companies, chemical and petrochemical plants, and refineries to obtain accurate sulfur and mercury data the first time, every time, with no delay, sample errors, or false readings, down to part-per-billion (ppb) levels. Analysts charged with monitoring sulfur and mercury levels in process streams can save thousands of dollars in improved yields, better test cycle times, and improved system reliability.

Silcosteel® Regulators (Dual Stage & Single Stage)

Description	qty.	cat.#
Single-Stage Regulator		
CGA 330 (H ₂ S and other reduced sulfurs)	ea.	21361-5
CGA 350 (H ₂ , P ₅)	ea.	21361-6
CGA 660 (NO, NO ₂ , SO ₂)	ea.	21361-11
Dual-Stage Regulator		
CGA 330 (H ₂ S and other reduced sulfurs)	ea.	21360-2
CGA 350 (H ₂ , P ₅)	ea.	21360-7

For other CGA fittings, please contact your local Restek representative.



Outlet pressure: 0 to 150 psig
 Outlet gauge: 30"-0 to 200 psig
 Inlet gauge: 0 to 4,000 psig
 Outlet assembly: diaphragm valve, 1/4" tube fitting

Automatic Switchover System for Corrosive Gases (Silcosteel®-Treated)

Description	qty.	cat.#
CGA 320 (CO ₂ , CH ₃ F)	ea.	22364320
CGA 330 (H ₂ S and other reduced sulfurs)	ea.	22364330
CGA 350 (H ₂ , P ₅)	ea.	22364350



Outlet pressure: 0 to 150 psig
 Outlet gauge: 30"-0 to 200 psig
 Inlet gauge: 0 to 4,000 psig
 Outlet assembly: diaphragm valve, 1/4" tube fitting

Overview of Restek Ultra-High Purity (UHP) Gas Regulators

- Regulators feature metal-to-metal seals throughout for long-term leak-tightness.
- Metal diaphragm outlet valve ensures gas purity.
- Each regulator is helium leak-test-certifiable to 1×10^{-8} scc/sec.
- Temperature range: -40 °C to 60 °C.

Ultra-High Purity (UHP) Brass Body Gas Regulators

UHP brass regulators are the best choice when using ultra-high purity carrier gas for sensitive GC applications using MS, PID, or ECD detection methods. They feature reduced internal dead volume relative to stainless steel bodies. The metal valve diaphragm ensures leak-free shutoff. Oxidation-resistant chrome plating maintains a like-new appearance.

Dual-Stage Ultra-High Purity Chrome-Plated Brass Gas Regulators

- Oxidation-resistant, chrome-plated.
- Most stable outlet pressure control.
- Secondary pressure regulation not needed.
- Most widely used regulator.
- Less internal volume than stainless steel gas regulators.

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat. #
CGA 580 (N ₂ , He, Ar)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	21667
CGA 350 (H ₂ , P ₂)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	21668
CGA 590 (Air)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	21669
DIN 477 #1 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22369
DIN 477 #6 (He, Ar)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22368
DIN 477 #9 (Air)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22370
DIN 477 #10 (N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22371
BS 341 #3 (He, Ar, Air, N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22136
BS 341 #4 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22137

Note: CGA fittings are for U.S. use; DIN fittings are for European use; BS fittings are for use in the UK.

Single-Stage Ultra-High Purity Chrome-Plated Brass Gas Regulators

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

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat. #
CGA 580 (N ₂ , He, Ar)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20646
CGA 350 (H ₂ , P ₂)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20647
CGA 590 (Air)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20648
DIN 477 #1 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22373
DIN 477 #6 (He, Ar)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22372
DIN 477 #9 (Air)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22374
DIN 477 #10 (N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22375
BS 341 #3 (He, Ar, Air, N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22138
BS 341 #4 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22139

Note: CGA fittings are for U.S. use; DIN fittings are for European use; BS fittings are for use in the UK.

Ultra-High Purity Chrome-Plated Brass Line Gas Regulator

- Oxidation-resistant, chrome-plated.
- Use where you need to reduce the line pressure by 20 psig (138 kPa) or more.
- Same purity protection as high-pressure cylinder regulators.

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat. #
1/4" female NPT ports*	0–50 psig (0–345 kPa)	30", 0 to 100 psig (0–689 kPa)	ea.	21666
1/4" female NPT ports*	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	22452

*Order appropriate male connector, pipe-to-tube fittings.



All regulators are rated to 3,000 psig (20,684 kPa) maximum inlet pressure.

Inlet gauge: 0 to 4,000 psig (0–27,579 kPa)
Outlet assembly: diaphragm valve, 1/4" tube fitting



All regulators are rated to 3,000 psig (20,684 kPa) maximum inlet pressure.

Inlet gauge: 0 to 4,000 psig (0–27,579 kPa)
Outlet assembly: diaphragm valve, 1/4" tube fitting



Inlet connections: 1/4" FPT
Outlet assembly: 1/4" FPT port

Ultra-High Purity (UHP) Stainless Steel Body Gas Regulators

UHP stainless steel regulators are the standard for ultra-high-purity and corrosion-resistant pressure regulation. They are more easily purged of atmospheric components, compared to brass gas regulators, making them ideal for the most demanding applications. Stainless steel is especially useful in atmospheres of dry corrosive gases such as hydrogen.

Dual-Stage Ultra-High Purity Stainless Steel Gas Regulators

- Most stable outlet pressure control.
- Secondary pressure regulation not needed.

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20662
CGA 350 (H ₂ , P ₅)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20663
CGA 590 (Air)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20664
DIN 477 #1 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22377
DIN 477 #6 (He, Ar)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22376
DIN 477 #9 (Air)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22378
DIN 477 #10 (N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22379
BS 341 #3 (He, Ar, Air, N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22140
BS 341 #4 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22141

Note: CGA fittings are for U.S. use; DIN fittings are for European use; BS fittings are for use in the UK.



All regulators are rated to 3,000 psig (20,684 kPa) maximum inlet pressure.

Inlet gauge: 0 to 4,000 psig (0–27,579 kPa)

Outlet assembly: diaphragm valve, 1/4" tube fitting

Single-Stage Ultra-High Purity Stainless Steel Gas Regulators

- Use when there is secondary pressure regulation downstream.
- Identical gas purity protection as with dual-stage gas regulators.

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20665
CGA 350 (H ₂ , P ₅)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20666
CGA 590 (Air)	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	20667
DIN 477 #1 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22380
DIN 477 #6 (He, Ar)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22445
DIN 477 #9 (Air)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22446
DIN 477 #10 (N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22447
BS 341 #3 (He, Ar, Air, N ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22142
BS 341 #4 (H ₂)	0 to 10 bar (0–150 psig)	30", 0 to 14 bar (0–200 psig)	ea.	22143

Note: CGA fittings are for U.S. use; DIN fittings are for European use; BS fittings are for use in the UK.



All regulators are rated to 3,000 psig (20,684 kPa) maximum inlet pressure.

Inlet gauge: 0 to 4,000 psig (0–27,579 kPa)

Outlet assembly: diaphragm valve, 1/4" tube fitting

ordering note

International Fittings

All gas regulators are available with the following BS (British Standard) and DIN (German Industrial Standards Organization) connections. Please contact your local Restek representative for more information.

BS 341 #01	BS 341 #08	BS 341 #15	DIN 477 #06	DIN 477 #10	DIN 477 #14
BS 341 #02	BS 341 #10	DIN 477 #01	DIN 477 #07	DIN 477 #11	DIN 477 #15
BS 341 #03	BS 341 #13	DIN 477 #03	DIN 477 #08	DIN 477 #12	
BS 341 #04	BS 341 #14	DIN 477 #05	DIN 477 #09	DIN 477 #13	



BS 341 #3 Fitting



DIN 477 #3 Fitting



21339

Flexible Stainless Steel Hoses

Description	Length	Fittings	qty.	cat. #
Flexible Stainless Steel Hose	36"	1/4" Female NPT	ea.	21339
Flexible Stainless Steel Hose	18"	1/4" Female NPT	ea.	21340



21334

Hydrogen Flashback Arrestor

- Valve cuts off gas supply in the event of a flashback.
- Can be reset and reused after flashback has occurred.
- Meets safety requirements of BS6158, EN730, ISO 5175, AS 4603 and are UL Listed 23Y5.

Specifications:

Body and Internals:	Brass with brass internals
Temperature Sensor:	Polyethylene
Valve spring:	316 stainless steel
Connections:	1/4" female NPT
Maximum pressure:	Hydrogen, 50 psig (3.5 bar)

Description	Fittings	qty.	cat. #
Hydrogen Flashback Arrestor, Brass Body	1/4" Female NPT	ea.	21334



21336

CGA Fittings

CGA-specified nuts and nipples with internal frit, 1/4-inch NPT nickel-plated brass.

Description	qty.	cat. #
CGA 580 Fitting (N ₂ , He, Ar)	ea.	21336
CGA 350 Fitting (H ₂ , P ₂)	ea.	21337
CGA 590 Fitting (Air)	ea.	21338



23134



23179

Swagelok® Male Connector, Pipe-to-Tube Fittings

Fitting Type	Size (inches)	Similar to Swagelok	Brass qty.	Brass cat. #	Stainless Steel qty.	Stainless Steel cat. #
Male Connector	1/4" to 1/8" NPT	400-1-4	10-pk.	23134	2-pk.	23184
Male Connector	1/8" to 1/4" NPT	200-1-4	10-pk.	23136	2-pk.	23186
Tube End Reducer	1/4" to 1/8"	200-R-4	5-pk.	23129	2-pk.	23179

Automatic Switchover System for Noncorrosive Gases (Critical Purity)

High-purity automatic switchover systems provide a continuous supply of high-purity gas to the laboratory, process, or instrument to allow you to replace a depleted gas source without interruption in the gas supply. Continuous gas supply is achieved by setting the two regulators at slightly different pressures and discharging one side of the system at a time. These models include flexible, all-stainless-steel pigtailed with armor casing. The CGA connection on each pigtail has a check valve in the gland to prevent contamination and minimize purging requirements.

Switching pressure: 200 psig/170 psig (1,379/1,172 kPa)
Inlet connections: flexible SS pigtailed (36")
Line regulator: 0 to 150 psig (0–1,034 kPa)

Brass Automatic Switchover System with Line Regulator

	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	20668580
CGA 350 (H ₂ , P ₅)	ea.	20668350
CGA 590 (Air)	ea.	20668590

Stainless Steel Automatic Switchover System with Line Regulator

	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	21593580



20668580

Protocol Station

The protocol station is designed for convenient wall mounting of high-purity gas regulators. Wall mounting provides ease of use, prevents gas regulator damage, and improves safety. Either chrome-plated brass or 316 stainless steel option is complete with a 3-foot, flexible, all-stainless-steel pigtail with armor casing. The CGA connection on the pigtail has an integral check valve in the gland to prevent contamination during cylinder changeout.

Chrome-Plated Brass Protocol Station*

	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	21347
CGA 350 (H ₂ , P ₅)	ea.	21348
CGA 590 (Air)	ea.	21349

Stainless Steel Protocol Station*

	qty.	cat.#
CGA 580 (N ₂ , He, Ar)	ea.	21327

*Pressure regulator not included. Order separately.



21347

Technical Service

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

Contact us:

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

In the U.S.: Phone: 1-800-356-1688, ext. 4 • e-mail: support@restek.com

Outside the U.S.: Contact International Technical Service at intltechsupp@restek.com or find a local distributor at www.restek.com/distributor



21321

Cylinder Valve Wrench

This specially designed wrench enables easy opening of cylinder valves that are fitted with a hand wheel. It is also suitable for removing difficult cylinder caps.

Description	qty.	cat.#
Cylinder Valve Wrench	ea.	21321



21322

Universal Cylinder Wrench

Use this versatile wrench for tightening gauges and gas regulator CGA fittings to cylinder outlets and pipe thread connections.

Description	qty.	cat.#
Universal Cylinder Wrench	ea.	21322



21333



23400



23401



23402

Cylinder Holders, Wall Mounted

Prevent serious injuries! These holders are designed to prevent free-standing gas cylinders from tipping over and injuring personnel. The cast aluminum holder can be secured to a wall or the side of a work bench. Each mount will secure a cylinder 4-15 inches in diameter.

Description	Size	qty.	cat.#
Cylinder Holder, Wall Mounted	Single	ea.	21333
Cylinder Holder, Wall Mounted	Double	ea.	23400
Cylinder Holder, Wall Mounted	Triple	ea.	23401
Cylinder Holder, Wall Mounted	Four	ea.	23402



20635

Backpressure Gas Regulator

Capillary GC inlet systems have backpressure regulators to maintain a constant upstream pressure and rapidly respond to catastrophic leaks. The 0–60 psig (0–414 kPa) operating range is sufficient to operate a 105 m, 0.25 mm ID column at its optimum flow rate.

Description	qty.	cat.#
Backpressure Gas Regulator	ea.	20635



20610

MINICYL Regulator

This compact general purpose regulator has many laboratory applications including air-drying glassware, sparging or evaporating solutions, and controlling pneumatic valves. It is constructed of lightweight aluminum with an elastomer diaphragm. Includes a 0–60 psig (0–414 kPa) gauge and either 1/8- or 1/4-inch tube fittings.

Description	Fittings	Max Inlet Pressure	qty.	cat.#
MINICYL Regulator	1/8" Fittings	300 psi	ea.	20610
MINICYL Regulator	1/4" Fittings	300 psi	ea.	20611

Swagelok® Fitting Kits

Save more than 40% by purchasing a Swagelok® fittings kit compared to paying full price for the individual parts!

- Includes the most common assortment of 1/8" and 1/4" brass or stainless steel fittings.
- Parts list makes reordering easy.
- Parts come in sturdy toolbox for easy and convenient storage.

**Swagelok® Fitting Kit (Brass)****Swagelok # Description (qty included in kit)**

B-202-1	1/8" brass nut (20)
B-402-1	1/4" brass nut (20)
B-203-1	1/8" brass front ferrule (20)
B-403-1	1/4" brass front ferrule (20)
B-204-1	1/8" brass back ferrule (20)
B-404-1	1/4" brass back ferrule (20)
B-200-C	1/8" brass cap (6)
B-400-C	1/4" brass cap (6)
B-200-P	1/8" brass plug (6)
B-400-P	1/4" brass plug (6)
B-200-6	1/8" brass union (2)
B-400-6	1/4" brass union (2)
B-400-6-2	1/4" to 1/8" brass reducing union (2)
B-200-3	1/8" brass tee (2)
B-400-3	1/4" brass tee (2)
B-400-R-2	1/8" to 1/4" brass tube end reducer (2)
B-200-R-4	1/4" to 1/8" brass tube end reducer (2)
MS-IG-200	1/8" inspection gauge (1)
MS-IG-400	1/4" inspection gauge (1)

Description	qty.	cat.#
Swagelok Fitting Kit, Brass	kit	23141

Swagelok® Fitting Kit (Stainless Steel)**Swagelok # Description (qty included in kit)**

SS-202-1	1/8" SS nut (20)
SS-402-1	1/4" SS nut (20)
SS-203-1	1/8" SS front ferrule (20)
SS-403-1	1/4" SS front ferrule (20)
SS-204-1	1/8" SS back ferrule (20)
SS-404-1	1/4" SS back ferrule (20)
SS-200-C	1/8" SS cap (6)
SS-400-C	1/4" SS cap (6)
SS-200-P	1/8" SS plug (6)
SS-400-P	1/4" SS plug (6)
SS-200-6	1/8" SS union (2)
SS-400-6	1/4" SS union (2)
SS-400-6-2	1/4" to 1/8" SS reducing union (2)
SS-200-3	1/8" SS tee (2)
SS-400-3	1/4" SS tee (2)
SS-400-R-2	1/8" to 1/4" SS tube end reducer (2)
SS-200-R-4	1/4" to 1/8" SS tube end reducer (2)
MS-IG-200	1/8" inspection gauge (1)
MS-IG-400	1/4" inspection gauge (1)

Description	qty.	cat.#
Swagelok Fitting Kit, Stainless Steel	kit	23197

Swagelok® Fittings (Brass & Stainless Steel)

Restek is pleased to offer one of the premier lines of fittings available for chromatographers in the market today. We can supply the entire line of Swagelok® fittings. If you do not see the exact product you're looking for, please call us or contact your Restek representative for a quote.



nut



front ferrule



back ferrule



nut & ferrule set



plug



union



reducing union



tee



cross



tube end reducer



port connector



male connector



female connector



male quick coupling



female quick coupling

Fitting Type	Size	Swagelok #	Brass		316 Grade Stainless Steel	
			qty.	cat.#	qty.	cat.#
Nut	1/16"	102-1	20-pk.	23100	5-pk.	23150
	1/8"	202-1	40-pk.	23101	10-pk.	23151
	1/4"	402-1	40-pk.	23102	10-pk.	23152
Front Ferrule	1/16"	103-1	20-pk.	23103	10-pk.	23153
	1/8"	203-1	40-pk.	23104	20-pk.	23154
	1/4"	403-1	40-pk.	23105	20-pk.	23155
Back Ferrule	1/16"	104-1	20-pk.	23106	10-pk.	23156
	1/8"	204-1	40-pk.	23107	20-pk.	23157
	1/4"	404-1	40-pk.	23108	20-pk.	23158
Nut & Ferrule Set	1/16"	—	10-pk.	23109	2-pk.	23159
	1/8"	—	20-pk.	23110	5-pk.	23160
	1/4"	—	20-pk.	23111	5-pk.	23161
Plug	1/16"	100-P	5-pk.	23112	2-pk.	23162
	1/8"	200-P	10-pk.	23113	4-pk.	23163
	1/4"	400-P	10-pk.	23114	4-pk.	23164
Union	1/16"	100-6	3-pk.	23115	ea.	23165
	1/8"	200-6	5-pk.	23116	2-pk.	23166
	1/4"	400-6	5-pk.	23117	2-pk.	23167
Reducing Union	1/8" to 1/16"	200-6-1	5-pk.	23118	ea.	23168
	1/4" to 1/16"	400-6-1	5-pk.	23119	2-pk.	23169
	1/4" to 1/8"	400-6-2	5-pk.	23120	2-pk.	23170
Tee	1/16"	100-3	2-pk.	23121	ea.	23171
	1/8"	200-3	2-pk.	23122	ea.	23172
	1/4"	400-3	2-pk.	23123	ea.	23173
Cross	1/8"	200-4	2-pk.	23124	ea.	23174
	1/4"	400-4	2-pk.	23125	ea.	23175
Tube End Reducer	1/8" to 1/16"	100-R-2	5-pk.	23126	2-pk.	23176
	1/4" to 1/16"	100-R-4	5-pk.	23127	2-pk.	23177
	1/8" to 1/4"	400-R-2	5-pk.	23128	2-pk.	23178
	1/4" to 1/8"	200-R-4	5-pk.	23129	2-pk.	23179
Port Connector	1/8"	201-PC	5-pk.	23130	2-pk.	23180
	1/4"	401-PC	10-pk.	23131	2-pk.	23181
	1/8" to 1/4"	401-PC-2	5-pk.	23132	2-pk.	23182
Male Connector	1/8" to 1/8" NPT	200-1-2	10-pk.	23133	2-pk.	23183
	1/4" to 1/4" NPT	400-1-4	10-pk.	23134	2-pk.	23184
	1/16" to 1/8" NPT	100-1-2	5-pk.	23135	2-pk.	23185
	1/8" to 1/4" NPT	200-1-4	10-pk.	23136	2-pk.	23186
	1/4" to 1/8" NPT	400-1-2	10-pk.	23137	2-pk.	23187
Female Connector	1/8" to 1/8" NPT	200-7-2	5-pk.	23138	2-pk.	23188
	1/4" to 1/4" NPT	400-7-4	5-pk.	23139	2-pk.	23189
	1/4" to 1/8" NPT	400-7-2	5-pk.	23140	2-pk.	23190
Male & Female Quick Couplings	1/8" male*	QC4D-200	—	—	ea.	23191
	1/8" male	QC4S-200	—	—	ea.	23192
	1/8" female*	QC4B-200	—	—	ea.	23193
	1/4" male*	QC4D-400	—	—	ea.	23194
	1/4" male	QC4S-400	—	—	ea.	23195
	1/4" female*	QC4B-400	—	—	ea.	23196

*Includes self-sealing shutoff valve.

Swagelok® Fittings (Siltek®/Sulfinert® & Silcosteel®-CR Treated)

- Full line of treated 1/16", 1/8", and 1/4" fittings.
- Silcosteel®-CR treatment enhances corrosion resistance by 10x or more.
- For custom treatment on any Swagelok® fitting or other system parts not listed here, call us or contact your Restek representative.

Fitting Type	Size	Swagelok #	Siltek/Sulfinert Treated		Silcosteel-CR Treated	
			qty.	cat.#	qty.	cat.#
Union	1/16"	SS-100-6	ea.	22540	ea.	22575
	1/8"	SS-200-6	ea.	22541	ea.	22576
	1/4"	SS-400-6	ea.	22542	ea.	22577
	3/8"	SS-600-6	ea.	22909	ea.	22904
Tee	1/16"	SS-100-3	ea.	22543	ea.	22578
	1/8"	SS-200-3	ea.	22544	ea.	22579
	1/4"	SS-400-3	ea.	22545	ea.	22580
	3/8"	SS-600-3	ea.	22910	ea.	22905
Reducing Union	1/8" to 1/16"	SS-200-6-1	ea.	22546	ea.	22581
	1/4" to 1/16"	SS-400-6-1	ea.	22547	ea.	22582
	1/4" to 1/8"	SS-400-6-2	ea.	22548	ea.	22583
	3/8" to 1/4"	SS-600-6-4	ea.	22911	ea.	22906
Elbow	1/8"	SS-200-9	ea.	22549	ea.	22584
	1/4"	SS-400-9	ea.	22550	ea.	22585
Plug	1/8"	SS-200-P	ea.	22573	ea.	22620
	1/4"	SS-400-P	ea.	22574	ea.	22597
Cross	1/8"	SS-200-4	ea.	22551	ea.	22586
	1/4"	SS-400-4	ea.	22552	ea.	22587
Tube End Reducer	1/8" to 1/16"	SS-100-R-2	ea.	22553	ea.	22588
	1/4" to 1/16"	SS-100-R-4	ea.	22554	ea.	22589
	1/8" to 1/4"	SS-400-R-2	ea.	22555	ea.	22590
	1/4" to 1/8"	SS-200-R-4	ea.	22556	ea.	22591
Port Connector	1/8"	SS-201-PC	ea.	22557	ea.	22592
	1/4"	SS-401-PC	ea.	22558	ea.	22593
	1/8" to 1/4"	SS-401-PC-2	ea.	22559	ea.	22594
Male Connector	1/8" to 1/8" NPT	SS-200-1-2	ea.	22561	ea.	22595
	1/4" to 1/4" NPT	SS-400-1-4	ea.	22562	ea.	22596
	1/16" to 1/8" NPT	SS-100-1-2	ea.	22563	ea.	22610
	1/8" to 1/4" NPT	SS-200-1-4	ea.	22564	ea.	22611
	1/4" to 1/8" NPT	SS-400-1-2	ea.	22565	ea.	22612
	3/8" to 3/8" NPT	SS-600-1-6	ea.	22912	ea.	22907
Female Connector	1/8" to 1/8" NPT	SS-200-7-2	ea.	22566	ea.	22613
	1/4" to 1/4" NPT	SS-400-7-4	ea.	22567	ea.	22614
	1/4" to 1/8" NPT	SS-400-7-2	ea.	22568	ea.	22615
	1/8" to 1/4" NPT	SS-200-7-4	ea.	22569	ea.	22616
Bulkhead Union	1/8"	SS-200-61	ea.	22570	ea.	22617
	1/4"	SS-400-61	ea.	22571	ea.	22618



union



tee



reducing union



elbow



plug



cross



tube end reducer



port connector



male connector



female connector



bulkhead union

Custom Coatings

- **Siltek®**—The ultimate passivation of treated surfaces, from glass to high nickel alloys of steel; ideal for sulfurs, automotive exhaust testing, or stack gas sampling.
- **Sulfinert®**—A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds.
- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater.

For more information on our custom coatings, see page 312.

Parker® Fittings (Brass & Stainless Steel)

Parker's (A-Lok®) two-piece ferrules and NPT fittings are ideal for installing new equipment, modifying existing instrumentation, or replacing worn connections. Restek offers both brass and stainless steel fittings. If there is a particular Parker® fitting that you are looking for and it is not listed here, please contact us to inquire about availability.



nut



front ferrule



back ferrule



nut & ferrule set



plug



union



reducing union



tee



cross



tube end reducer



port connector



male connector



female connector



male & female quick couplings

Fitting Type	Size	Parker #	Brass		316 Grade Stainless Steel	
			qty.	cat.#	qty.	cat.#
Nut	1/16"	1 Nu 1	20-pk.	21800	5-pk.	21900
	1/8"	2 Nu 2	40-pk.	21801	10-pk.	21901
	1/4"	4 Nu 4	40-pk.	21802	10-pk.	21902
Front Ferrule	1/16"	1 FF 1	20-pk.	21803	10-pk.	21903
	1/8"	2 FF 2	40-pk.	21804	20-pk.	21904
	1/4"	4 FF 4	40-pk.	21805	20-pk.	21905
Back Ferrule	1/16"	1 BF 1	20-pk.	21806	10-pk.	21906
	1/8"	2 BF 2	40-pk.	21807	20-pk.	21907
	1/4"	4 BF 4	40-pk.	21808	20-pk.	21908
Nut & Ferrule Set	1/16"	—	10-pk.	21809	2-pk.	21909
	1/8"	—	20-pk.	21810	5-pk.	21910
	1/4"	—	20-pk.	21811	5-pk.	21911
Plug	1/16"	1 BLP 1	5-pk.	21815	2-pk.	21915
	1/8"	2 BLP 2	10-pk.	21816	4-pk.	21916
	1/4"	4 BLP 4	10-pk.	21817	4-pk.	21917
Union	1/16"	1 SC 1	3-pk.	21818	ea.	21918
	1/8"	2 SC 2	5-pk.	21819	2-pk.	21919
	1/4"	4 SC 4	5-pk.	21820	2-pk.	21920
Reducing Union	1/8" to 1/16"	2 RU 1	5-pk.	21823	ea.	21923
	1/4" to 1/16"	4 RU 1	5-pk.	21824	2-pk.	21924
	1/4" to 1/8"	4 RU 2	5-pk.	21825	2-pk.	21925
Tee	1/16"	1 ET 1	2-pk.	21826	ea.	21926
	1/8"	2 ET 2	2-pk.	21827	ea.	21927
	1/4"	4 ET 4	2-pk.	21828	ea.	21928
Cross	1/8"	2 ECR 2	2-pk.	21829	ea.	21929
	1/4"	4 ECR 4	2-pk.	21830	ea.	21930
Tube End Reducer	1/8" to 1/16"	2 TUR 1	5-pk.	21831	2-pk.	21931
	1/4" to 1/16"	4 TUR 1	5-pk.	21832	2-pk.	21932
	1/8" to 1/4"	2 TUR 4	5-pk.	21833	2-pk.	21933
	1/4" to 1/8"	4 TUR 2	5-pk.	21834	2-pk.	21934
Port Connector	1/8"	2 PC 2	5-pk.	21835	2-pk.	21935
	1/4"	4 PC 4	10-pk.	21836	2-pk.	21936
	1/8" to 1/4"	2 PC 4	5-pk.	21837	2-pk.	21937
Male Connector	1/8" to 1/8" NPT	2 MSC 2N	10-pk.	21841	2-pk.	21941
	1/4" to 1/4" NPT	4 MSC 4N	10-pk.	21842	2-pk.	21942
	1/16" to 1/8" NPT	1 MSC 2N	5-pk.	21843	2-pk.	21943
	1/8" to 1/4" NPT	2 MSC 4N	10-pk.	21844	2-pk.	21944
	1/4" to 1/8" NPT	4 MSC 2N	10-pk.	21845	2-pk.	21945
Female Connector	1/8" to 1/8" NPT	2 FSC 2N	5-pk.	21846	2-pk.	21946
	1/4" to 1/4" NPT	4 FSC 4N	5-pk.	21847	2-pk.	21947
	1/4" to 1/8" NPT	4 FSC 2N	5-pk.	21848	2-pk.	21948
Male & Female Quick Couplings	1/8" male*	2A-Q4VN	—	—	ea.	21957
	1/8" male	2A-Q4P	—	—	ea.	21958
	1/8" female*	2A-Q4CN	—	—	ea.	21959
	1/4" male*	4A-Q4VN	—	—	ea.	21960
	1/4" male	4A-Q4P	—	—	ea.	21961
	1/4" female*	4A-Q4CN	—	—	ea.	21962

*Includes self-sealing shut-off valve.

Parker® Fittings (Siltek®/Sulfinert® Treated & Silcosteel®-CR Treated)

A broad line of 1/16", 1/8" and 1/4" fittings are available with Siltek®/Sulfinert® or Silcosteel®-CR treatment. Because of expanding applications for these coatings, we have received many requests for a broader product offering. If you do not see everything you need, contact us for information on custom coating services.

Fitting Type	Size	Parker #	Siltek/Sulfinert Treated		Silcosteel-CR Treated	
			qty.	cat.#	qty.	cat.#
Union	1/16"	1 SC 1	ea.	22520	ea.	22863
	1/8"	2 SC 2	ea.	22521	ea.	22864
	1/4"	4 SC 4	ea.	22522	ea.	22865
Tee	1/16"	1 ET 1	ea.	22526	ea.	22866
	1/8"	2 ET 2	ea.	22527	ea.	22867
	1/4"	4 ET 4	ea.	22528	ea.	22868
Reducing Union	1/8" to 1/16"	2 RU 1	ea.	22523	ea.	22869
	1/4" to 1/16"	4 RU 1	ea.	22524	ea.	22870
	1/4" to 1/8"	4 RU 2	ea.	22525	ea.	22871
Elbow	1/8"	2 EE 2	ea.	22530	ea.	22875
	1/4"	4 EE 4	ea.	22531	ea.	22876
Plug	1/8"	2 BLP 2	ea.	21540	ea.	22878
	1/4"	4 BLP 4	ea.	21541	ea.	22879
Cross	1/8"	2 ECR 2	ea.	21542	ea.	22872
	1/4"	4 ECR 4	ea.	21543	ea.	22873
Tube End Reducer	1/8" to 1/16"	2 TUR 1	ea.	21544	ea.	22880
	1/4" to 1/16"	4 TUR 1	ea.	21545	ea.	22881
	1/8" to 1/4"	2 TUR 4	ea.	21546	ea.	22882
	1/4" to 1/8"	4 TUR 2	ea.	21547	ea.	22883
Port Connector	1/8"	2 PC 2	ea.	21548	ea.	22884
	1/4"	4 PC 4	ea.	21549	ea.	22885
	1/8" to 1/4"	2 PC 4	ea.	21550	ea.	22886
Male Connector	1/8" to 1/8" NPT	2 MSC 2N	ea.	21551	ea.	22887
	1/4" to 1/4" NPT	4 MSC 4N	ea.	21552	—	—
	1/16" to 1/8" NPT	1 MSC 2N	ea.	21553	ea.	22889
	1/8" to 1/4" NPT	2 MSC 4N	ea.	21554	ea.	22890
	1/4" to 1/8" NPT	4 MSC 2N	ea.	21555	ea.	22891
Female Connector	1/8" to 1/8" NPT	2 FSC 2N	ea.	21556	ea.	22892
	1/4" to 1/4" NPT	4 FSC 4N	ea.	21557	ea.	22893
	1/4" to 1/8" NPT	4 FSC 2N	ea.	21558	ea.	22894
	1/8" to 1/4" NPT	2 FSC 4N	ea.	21559	—	—
Plug Valve, 2-Way	1/8"	2A PR4 VT SS	ea.	21586	—	—
	1/4"	4A PR4 VT SS	ea.	21587	—	—
Ball Valve, 2-Way	1/8"	2A B2LJ2 SSP	ea.	21588	—	—
	1/4"	4A B2LJ2 SSP	ea.	21589	—	—

Please note: Nuts and ferrules are not treated unless requested (custom parts). Nuts and ferrules normally are not in contact with sample pathway, and thus do not require coating.

Ball and plug valves are also available in brass and stainless steel. See **page 316**.



union



tee



reducing union



elbow



plug



cross



tube end reducer



port connector



male connector



female connector



plug valve, 2-way



ball valve, 2-way

Valco® Fittings (Siltek®/Sulfinert® Treated)

Fitting Type	Size	Siltek/Sulfinert Treated	
		qty.	cat.#
Zero Dead Volume Tee	1/16"	ea.	22534
	1/8"	ea.	22535
Zero Dead Volume Union	1/16"	ea.	22532
	1/8"	ea.	22533



zero dead volume tee



zero dead volume union

Tubing and Available Coatings

Restek sets the standard in tubing for analytical and process applications. Complete your system with precleaned or treated tubing and treated fittings and valves for an inert, corrosion-resistant pathway.

Available tubing coatings include:

- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater.
- **Sulfinert®**—A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds.

Frequently Asked Questions

1. Can treated tubing be bent?

Treated tubing can be bent into curves with a bend radius greater than 1 inch for 1/16-inch OD tubing, 2 inches for 1/8-inch OD tubing, or 4 inches for 1/4-inch OD tubing. The treatment layer will remain intact as long as the tubing isn't stretched dramatically. If tight bends are necessary, use a treated elbow union or bend untreated tubing and send it to Restek for custom treatment.

2. Can compression fittings be used without crushing the treatment layer?

Yes. The layer is thin and permeates the surface. It compresses with minimal damage.

3. Is welding possible after treatment?

Yes. The coating does not interfere with the welding of two coated components. The coating is lost at the weld and in the heat affected zones approximately 2 to 5 mm on either side of the weld.

4. Is any additional chemical deactivation necessary?

A Sulfinert® or Silcosteel® layer leaves few exposed active sites, so there usually is no need for additional treatment. Chemical deactivation is useful in chromatographic applications in which water will be vaporized on the Silcosteel®-treated surface, but is not necessary for Sulfinert®-treated surfaces. Parts used in high-temperature applications (>400 °C) cannot be chemically deactivated.

5. What are the temperature constraints of these surface treatments?

On stainless steel, a Silcosteel® layer is stable to 600 °C. Parts treated with a secondary polymeric layer are limited to temperatures of 400 °C in inert atmospheres and 250 °C when oxygen is present, the temperature maximums for the polymer. Temperatures above 600 °C can be used under certain conditions—please contact us for information.

6. Why use Sulfinert® or Silcosteel® treatment instead of PTFE coating?

Three reasons: 1) Sulfinert® and Silcosteel® layers are nonpolymeric, so they do not exhibit the problems associated with gas permeability. 2) PTFE coating often flakes off the surface, while the Sulfinert® or Silcosteel® layer is tightly integrated into the substrate lattice. 3) PTFE coating is limited to 280 °C, while Silcosteel®-treated stainless steel tubing and fittings can be used to 600 °C.

7. Why use Sulfinert®-treated tubing for transfer lines?

Sulfinert®-treated stainless steel tubing offers all of the advantages of glass or fused silica tubing for the transfer of active compounds (e.g., sulfurs), but is far more durable and flexible.

8. Is treated tubing similar to glass-lined tubing (GLT)?

No. Sulfinert® or Silcosteel®-treated tubing is flexible and can be bent without heating. Also, the Sulfinert® or Silcosteel® layer is highly inert, unlike impure glass.

9. How can I clean the surface of a treated part after use?

Most often, a mild organic solvent (methylene chloride, methanol, hexane) or water is sufficient. Mild sonication may assist and accelerate the process. Do not use caustic, abrasive, or high pH (pH>8) cleaners, as they will damage or dissolve the layer. Steam cleaning in the presence of oxygen or air could create surface activity, and also should be avoided.

10. What materials should I avoid using with Silcosteel®-treated parts?

The Silcosteel® coating is silicon-based and is prone to attack by hydrofluoric acid or by basic compounds. The surface should not be exposed to media with pH>8.

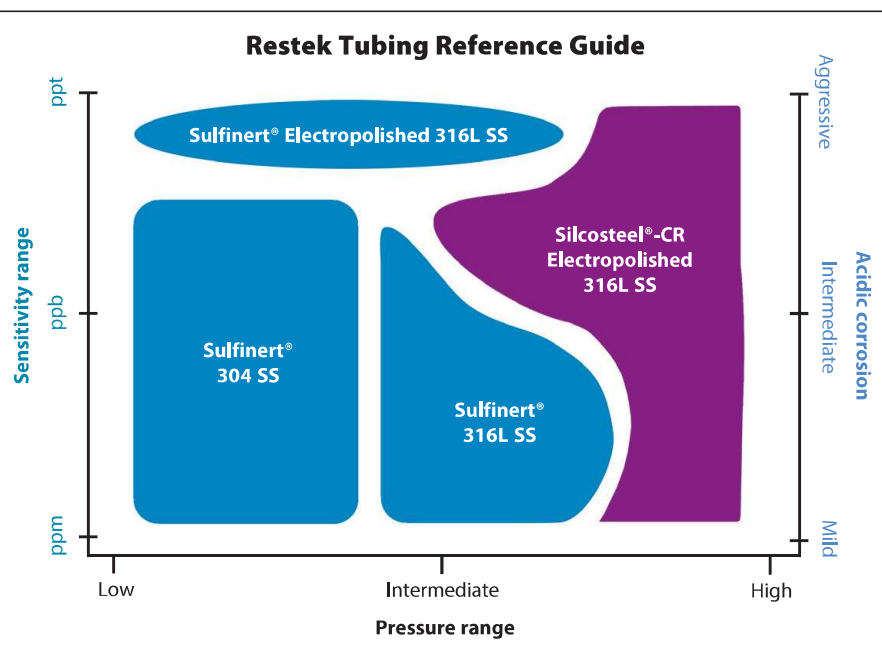
11. Siltek® and Sulfinert®: What's the Difference?

Siltek® is the name for the patented deposition process. When the Siltek® process was developed, the application that showed the greatest benefit was the storage and transfer of low ppb level active sulfur compounds, such as hydrogen sulfide and mercaptans. Because there was (and continues to be) demand for a reliable surface treatment for this application, the name Sulfinert® is used to describe Siltek®-treated products created specifically for this purpose.

frequently asked question

Which treated tubing should I use?

This chart will help you determine the tubing best suited to your application with respect to pressure, sensitivity of your analysis, and acidic environment exposure.



Rinsed and Cleaned 304 Stainless Steel Tubing

Use for providing carrier, fuel, make-up, or auxiliary gases to laboratory instruments.

ID (in.)	OD (in.)	Length							
		6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat.#*
0.01"	1/16"	29000	29001	29002	29003	21500	29004	29005	21502
0.02"	1/16"	29006	29007	29008	29009	21503	29010	29011	21505
0.03"	1/16"	29012	29013	29014	29015	21506	29017	29018	21508
0.04"	1/16"	29019	29020	29021	29022	21509	29023	29024	21511
0.085"	1/8"	29025	29026	29027	29028	21512	29029	29030	21514
0.21"	1/4"	29031	29032	29033	29034	21515	29035	29036	21517

*The availability of long lengths is subject to inventory constraints. Lead times may vary depending on the continuous length needed. Please inquire before ordering. Maximum continuous lengths are: 2,000 ft (cat.# 21502, 21505, 21508, 21511), 1,500 ft (cat.# 21514), and 750 ft (cat.#21517). Pricing for lengths of 101 ft or more is on a per foot basis.



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.

Copper Tubing

- Use for plumbing GC systems.
- Cleaned to remove residual organics.

ID	OD	Wall	Max Operating Pressure	qty.	cat.#
0.065"	1/8"	0.030"	2,800 psig	50 ft	22628
0.190"	1/4"	0.030"	1,000 psig	50 ft	22629

Minimum Bend Radius for Coated Tubing

OD	Min. Bend Radius
1/16"	1" (2.5 cm)
1/8"	2" (5.1 cm)
1/4"	4" (10.2 cm)
3/8"	6" (15.2 cm)

ordering note

Required length in meters x 3.2808
= length in feet.

did you know?

A smoother internal surface is less adsorptive.



Top: electropolished finish, surface roughness average number: 10-15.

Bottom: conventional finish, surface roughness average number: approx. 23-27.

Treated Seamless Electropolished 316L Grade Stainless Steel Tubing

Our highest performing tubing. Recommended for:

- Demanding/corrosive environments.
- High temperatures.
- Ultimate inertness.

ID	OD	Wall Thickness	Length							
			6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#*	>100 Feet cat.#*
Silcosteel®-CR Treated (Coiled)										
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29037	29038	29039	29040	29041	29042	—	29043
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29044	29045	29046	29047	29048	29049	29050	29051
Sulfinert Treated (Coiled)										
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29052	29053	29054	29055	29056	29057	—	29058
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29059	29060	29061	29062	29063	29064	29065	29066

*1/8" OD: 95 ft in one continuous coil; 1/4" OD: 300 ft in one continuous coil. Longer lengths will be more than one coil. Pricing for lengths of 101 ft or more is on a per foot basis.

Note: required length in meters x 3.2808 = length in feet.

did you know?

Other lengths and diameters of treated tubing are available on a custom basis.

Call for availability of lengths greater than 1,000 ft.

An extra charge is applied for cutting Sulfinert® or Silcosteel®-CR tubing. The charge is calculated from the total number of pieces produced for each line item

Treated Welded/Drawn 304 Grade Stainless Steel Tubing

Our most popular grade of tubing. Recommended for:

- Chromatography applications.
- Gas delivery systems.
- Lower pressures.
- Inert applications.

Maximum temperature of 450 °C in an inert atmosphere.

ID	OD	Wall Thickness	Length							
			6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat.#*
Sulfinert® Treated (Coiled)										
0.011" (0.28 mm)	0.022" (0.56 mm)		29194	29195	29196	29197	29198	29199	29200	29201
0.021" (0.53 mm)	0.029" (0.74 mm)		29202	29203	29204	29205	29206	29207	29208	29209
0.010" (0.25 mm)	1/16" (1.59 mm)		29210	29211	29212	29213	29214	29215	29216	29217
0.020" (0.51 mm)	1/16" (1.59 mm)		29218	29219	29220	29221	29222	29223	29224	29225
0.030" (0.76 mm)	1/16" (1.59 mm)		29226	29227	29228	29229	29230	29231	29232	29233
0.040" (1.02 mm)	1/16" (1.59 mm)		29234	29235	29236	29237	29238	29239	29240	29241
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29242	29243	29244	29245	29246	29247	29248	29249
0.210" (5.33 mm)	1/4" (6.35 mm)	0.020"	29250	29251	29252	29253	29254	29255	29256	29257

*The availability of long lengths is subject to inventory constraints. Lead times may vary depending on the continuous length needed. Please inquire before ordering. Maximum continuous lengths are: 200** ft (cat.# 29201, 29209), 2,000 ft (cat.# 29217, 29225, 29233, 29241), 1,150 ft (cat.# 29249), and 750 ft (cat.# 29257). Pricing for lengths of 101 ft or more is on a per foot basis.

**Contact us if longer length is needed for cat.# 29201 or 29209.

Treated Seamless 316L Grade Stainless Steel Tubing

High durability tubing. Recommended for:

- Inert applications.
- High temperatures.
- High pressures.
- Corrosive environments.
- Zero bleed.

			Length							
ID	OD	Wall Thickness	6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat. #*
Silcosteel®-CR Treated (Coiled)										
0.055" (1.40 mm)	1/8" (3.18 mm)	0.035"	29091	29092	29093	29094	29095	29096	29097	29098
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29099	29100	29101	29102	29103	29104	29105	29106
0.277" (7.04 mm)	3/8" (9.52 mm)	0.049"	29107	29108	29109	29110	29111	29112	29113	29114
Sulfinert® Treated (Coiled)										
0.055" (1.40 mm)	1/8" (3.18 mm)	0.035"	29067	29068	29069	29070	29071	29072	29073	29074
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29075	29076	29077	29078	29079	29080	29081	29082
0.277" (7.04 mm)	3/8" (9.52 mm)	0.049"	29083	29084	29085	29086	29087	29088	29089	29090

*The availability of long lengths is subject to inventory constraints. Lead times may vary depending on the continuous length needed. Please inquire before ordering. 1/8" OD: 1,500 ft in one continuous coil; 1/4" OD: 750 ft in one continuous coil; 3/8" OD: 250 ft in one continuous coil. Longer lengths will be more than one coil. Pricing for lengths of 101 ft or more is on a per foot basis.

ordering note

Required length in meters x 3.2808 = length in feet.

Treated Straight, 6-Foot Length Stainless Steel Tubing

Individual 6-foot ($\pm 1/2$ ") straight pieces.

In response to customer requests, we offer 6-foot straight lengths of $1/8$ -, $1/4$ -, and $3/8$ -inch treated tubing. This tubing can be cut to your exact requirements using a standard tubing cutter.

ID	OD	Wall Thickness	qty.	cat.#
Silcosteel®-CR Treated, 316L Grade				
0.055" (1.40 mm)	$1/8$ " (3.18 mm)	0.035"	ea.	22898
0.180" (4.57 mm)	$1/4$ " (6.35 mm)	0.035"	ea.	22899
0.277" (7.04 mm)	$3/8$ " (9.52 mm)	0.049"	ea.	22900
Sulfinert® Treated, 316L Grade				
0.055" (1.40 mm)	$1/8$ " (3.18 mm)	0.035"	ea.	22901
0.180" (4.57 mm)	$1/4$ " (6.35 mm)	0.035"	ea.	22902
0.277" (7.04 mm)	$3/8$ " (9.52 mm)	0.049"	ea.	22903



Sulfinert® treated tubing is recommended for purge & trap and headspace systems.

Treated Hydroguard® Deactivated Stainless Steel Tubing

Hydroguard® deactivation creates a high-density surface that is not readily attacked by aggressive hydrolysis.

ID	OD	Wall Thickness	Length (per-foot pricing on 101 feet or more)							
			6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat.#
Silcosteel® Treated, 304 Grade										
0.010" (0.25 mm)	1/16" (1.59 mm)		29186	29187	29188	29189	29190	29191	29192	29193
0.020" (0.51 mm)	1/16" (1.59 mm)		29178	29179	29180	29181	29182	29183	29184	29185
0.030" (0.76 mm)	1/16" (1.59 mm)		29170	29171	29172	29173	29174	29175	29176	29177
0.040" (1.02 mm)	1/16" (1.59 mm)		29162	29163	29164	29165	29166	29167	29168	29169
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29154	29155	29156	29157	29158	29159	29160	29161
0.210" (5.33 mm)	1/4" (6.35 mm)	0.020"	29146	29147	29148	29149	29150	29151	29152	29153
Silcosteel® Treated, Seamless 316L Grade										
0.055" (1.40 mm)	1/8" (3.18 mm)	0.035"	29138	29139	29140	29141	29142	29143	29144	29145
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29130	29131	29132	29133	29134	29135	29136	29137
Silcosteel® Treated, Electropolished 316L Grade										
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29123	29124	29125	29126	29127	29128	—	29129
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29115	29116	29117	29118	29119	29120	29121	29122

An extra charge is applied for cutting Sulfinert®, Silcosteel®, or Silcosteel®-CR tubing. The charge is calculated from the total number of pieces produced for each line item.

GC ACCESSORIES | GAS MANAGEMENT

Gas Valves, VCO Fittings



Toggle valve



Ball valve



Plug valve



23207



23209



23214



23211



23215

Shut-Off Gas Valves Swagelok®

Valve Type	1/8" Brass cat.#	1/4" Brass cat.#	1/8" Stainless Steel cat.#	1/4" Stainless Steel cat.#
Toggle	23142	23143	23198	23199
Ball	23144	23145	23200	23201
Plug	23146	23147	23202	23203

Metering Gas Valves

Swagelok®



23206

Description	qty.	cat.#
1/8" Chrome-Plated Brass Metering Valve, straight	ea.	23148
1/4" Chrome-Plated Brass Metering Valve, straight	ea.	23149
1/8" Stainless Steel Metering Valve, straight	ea.	23204
1/4" Stainless Steel Metering Valve, straight	ea.	23205
Vernier Knob for Metering Valve	ea.	23206



23204

VCO® O-Ring Face Seal Fittings

(Stainless Steel & Treated) Swagelok®

- Unique design allows easy installation where space is limited.
- Assemblies can be used from high pressure to critical vacuum across a wide range of temperatures.
- Smooth finish on gland face ensures positive seal.
- Sealing is accomplished with a captive O-ring in the body component.

Swagelok® VCO® O-ring face seal fittings are designed for rapid assembly in pipe, tube, and welded systems.



Specifications:

Pressure Ratings	Up to 15,400 psig (1,061 bar)
Temperature Ratings	Up to 400 °F (204 °C)



Toggle valve



Ball valve



Plug valve

Shut-Off Gas Valves Parker Balston®

Valve Type	1/8" Brass cat.#	1/4" Brass cat.#	1/8" Stainless Steel cat.#	1/4" Stainless Steel cat.#
Toggle	22188	22189	22190	22191
Ball	22192	22193	22194	22195
Plug	22196	22197	22198	22199

Metering Gas Valves

Parker Balston®



22209

Description	qty.	cat.#
1/8" Nickel-Plated Brass Metering, straight	ea.	22200
1/4" Nickel-Plated Brass Metering, straight	ea.	22201
1/8" Stainless Steel Metering, straight	ea.	22204
1/4" Stainless Steel Metering, straight	ea.	22205
Vernier Knob for Metering Valve	ea.	22209



22200

Description	Material	qty.	cat.#
1/4" VCO to 1/4" Tube Adaptor	Stainless Steel	2-pk.	23207
1/4" VCO to 1/4" Tube Adaptor	Siltek Treated	2-pk.	23209
1/4" VCO to 1/4" Tube Fitting	Siltek Treated	ea.	23211
1/4" VCO to 1/8" Tube Fitting	Stainless Steel	2-pk.	23215
1/4" VCO Body Blind	Stainless Steel	2-pk.	23214
Replacement O-Ring, 70 Durometer Fluorocarbon FKM, VCO 1/4", Size 010		10-pk.	23208



21325

GC Installation Kit

This kit contains the tubing and fittings needed to add an additional GC to your lab bench. Kit includes: tubing cutter, one 1/8-inch x 1/4-inch reamer, one 1/4-inch x 1/8-inch brass tube end reducer, 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



23004

54-Piece Tool Kit

Set comes with screwdrivers, pliers, wrenches, sockets, scissors, clamps, and more. Durable, zippered, notebook-style carrying case for easy transport.

Description	qty.	cat.#
Tool Kit	kit	23004

Plier Set

Includes 6-inch nose/side cutter, 6-inch wire cutter, and 6-inch adjusting pliers.

Description	qty.	cat.#
Plier Set	set	23033



22999

Metric 9-Piece, Ball-Point Hex Key Set

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

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



22998

12-Piece, Ball-Point Hex Key Set

Includes twelve hex keys (Allen wrenches): 0.050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", and 5/16".

Description	qty.	cat.#
12-Piece, Ball-Point Hex Key Set	set	22998



23034

Torx® Screwdriver Set

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

Description	qty.	cat.#
Torx Screwdriver Set	set	23034

Torx® is a registered trademark of Textron Inc.



23002

5-in-1 Magnetic Screwdriver

Magnetic power tip holds bits and screws securely.

Description	qty.	cat.#
5-in-1 Magnetic Screwdriver	set	23002



23001

Wrench Set

Includes 4-inch, 6-inch, and 8-inch adjustable wrenches.

Description	qty.	cat.#
Wrench Set	set	23001

Tubing Tools

**1/16-Inch Tubing Cutter**

- Produces square, smooth cuts in 1/16-inch tubing.
- Eliminates tubing distortion.
- Cuts hard or soft copper, aluminum, brass, stainless steel, Monel® alloy, or titanium.
- Replaceable cutting wheel.

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

**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

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

*Not for use with stainless steel tubing.

Hi-Duty Tubing Cutter

- Specifically designed to cut 1/8" to 1-1/8" (4 mm to 28 mm) OD tubing.
- Easily cuts stainless steel, Monel® alloy, and other hard-temper materials.
- Unique design makes clean, right-angle cuts and eliminates spiraling.
- Integral reamer folds away for safety and convenience.
- Replacement cutter wheels also available.



Description	qty.	cat.#
Hi-Duty Tubing Cutter	ea.	22356
Replacement Cutting Wheels	2-pk.	22357

**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, 50–60 Hz.*

Dimensions: 8"x 6 1/4" x 4 1/4" (20.3 x 15.9 x 10.8 cm)

Weight: 11 lb (5.0 kg)

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).



20188

Tubing Burring & Reaming Tool

Removes burrs and reams tubing.

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



20134

Tubing Reamer

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

Description	qty.	cat.#
Tubing Reamer	ea.	20134



23009

Tubing Bender

- Bends 1/8-inch, 3/16-inch, or 1/4-inch tubing.
- Assists in making accurate left-hand, right-hand, or offset bends.

Description	qty.	cat.#
Tubing Bender	ea.	23009

ResTape PTFE Tape

- For threaded connections in a wide range of plumbing materials.
- Each roll is 1/2" x 260".
- Maximum temperature: 260 °C.



Description	Color	Uses	qty.	cat.#
ResTape	Green PTFE	oxygen service*	ea.	22485
ResTape	Yellow PTFE	general gas service**	ea.	22486
ResTape	Grey PTFE	stainless steel fittings***	ea.	22487

*Compatible with gaseous or liquid oxygen, and with many other gases and liquids.

**Compatible with a broad range of gases and liquids.

***Anti-galling. Also compatible with many other metals and polymers.



22627

Flexible Inspection Light

- Inspect inside surfaces of sample cylinders or other chambers.
- 14" reach.
- 100,000-hour LED life.

Description	qty.	cat.#
Flexible Inspection Light	ea.	22627

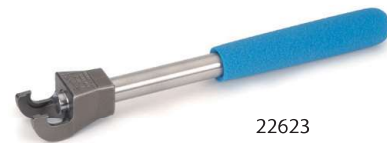


22622

Swaging Tool

- Preswage compression fittings for easy installation.
- Ideal for installations in tight areas.
- For use with 1/4" Swagelok® fittings only.

Description	qty.	cat.#
Swaging Tool	ea.	22622



22623

Tee Wrench

- Hold 1/4" or 6 mm tee or cross fittings secure in multiple orientations during installation.
- Fits easily in tool box, pouch, or belt.
- Cushioned vinyl grip with generous gripping area.
- For Swagelok® fittings only.

Description	qty.	cat.#
Tee Wrench	ea.	22623



22624

Gap Inspection Gauge

- Confirm that fittings are sufficiently tightened.
- For use with 1/4", 3/8", 1/2" Swagelok® fittings.
- For Swagelok® fittings in new installations only.

Description	qty.	cat.#
Gap Inspection Gauge	ea.	22624