

GC Accessories

Inlet Liners

Sky® Inlet Liners193–202

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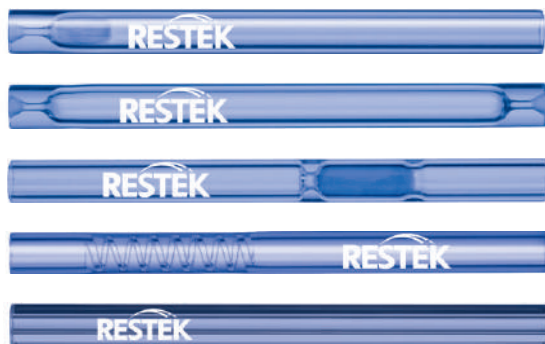
True Blue Performance

- **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.

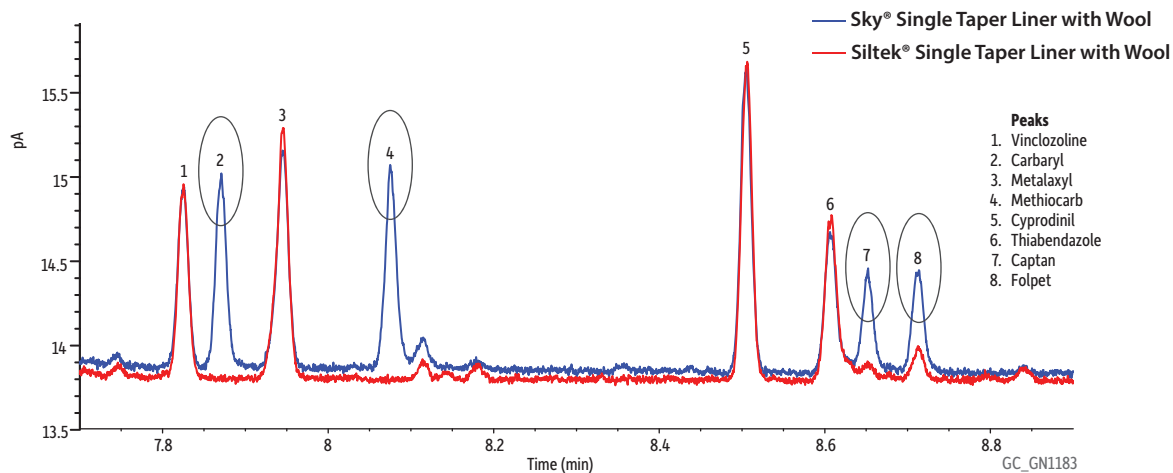
The Story Behind Sky® Liners

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.

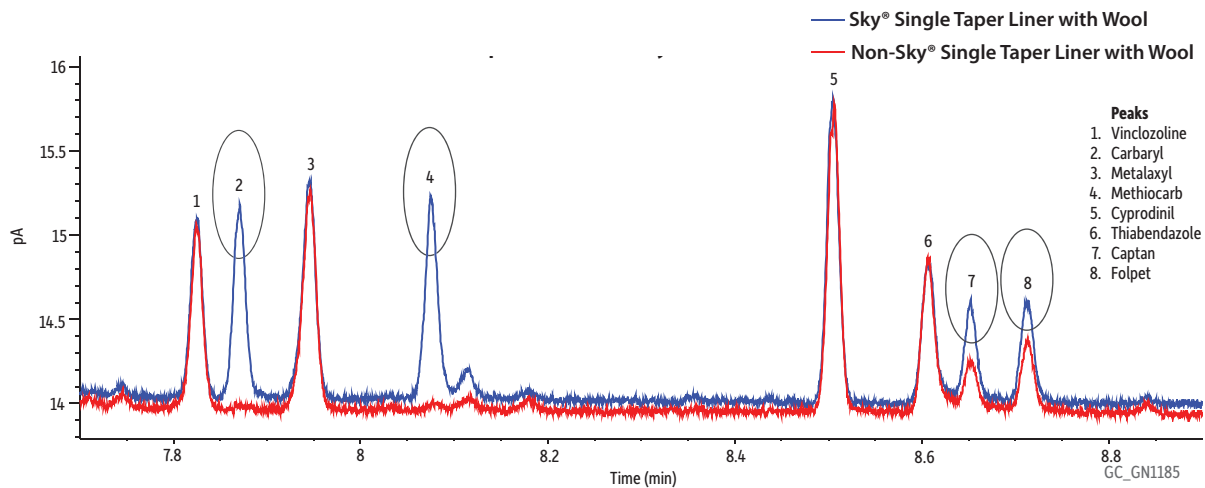
* For details on our 100% satisfaction guarantee, see page 196.

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.

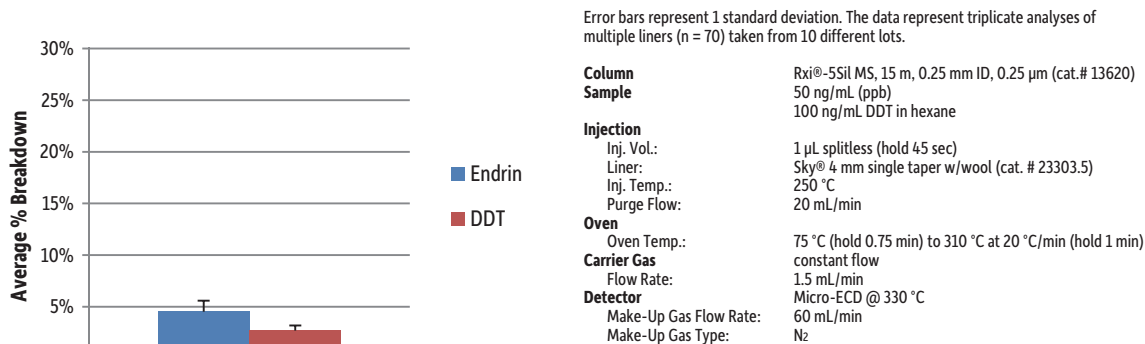
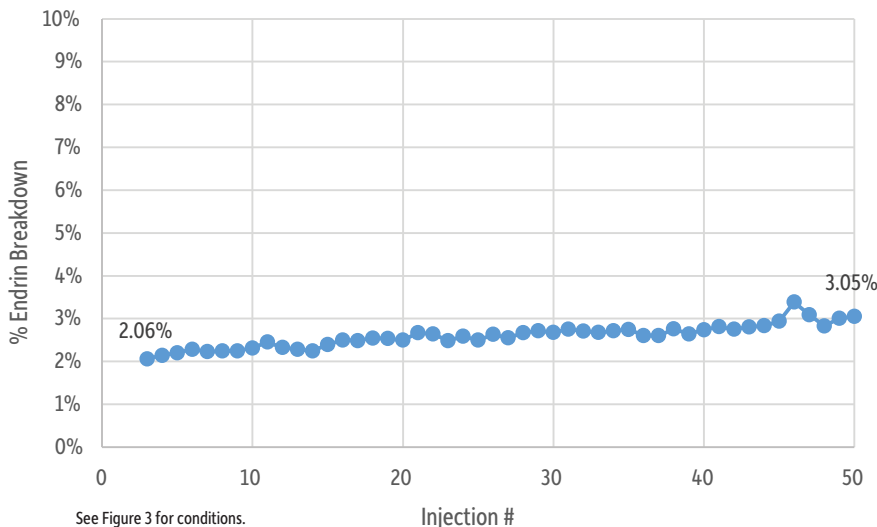


Figure 4: Even after 50 injections, highly robust Sky® liners show minimal increase in compound degradation.









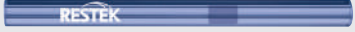

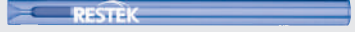









Choose Blue, the Best Choice for Dependable Results

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 | |
|  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 | | | | | |
| 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 | | | | | |
| 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 |

Patent pending



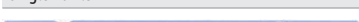
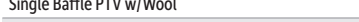
COLUMN INSTALLS THIS END

NEW!


NEW!

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.# |
|--|--------------------------|---------------------------|--------------|----------------|-----------------|
|  On Column PTV | 1.7 mm 3.0 mm x 71 mm | | 23430.1 | 23430.5 | |
|  Single Baffle PTV | 2.0 mm 3.0 mm x 71 mm | 5183-2036 (10-pk.) | | | 23431.10 |
|  Single Baffle PTV w/Wool | 2.0 mm 3.0 mm x 71 mm | 5183-2038 (10-pk.) | | | 23432.10 |
|  Baffled PTV | 1.5 mm 3.0 mm x 71 mm | 5183-2037 (10-pk.) | | | 23433.10 |


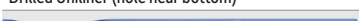
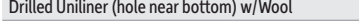
Analytical Controls TPI Inlet Liners
for Agilent GCs

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

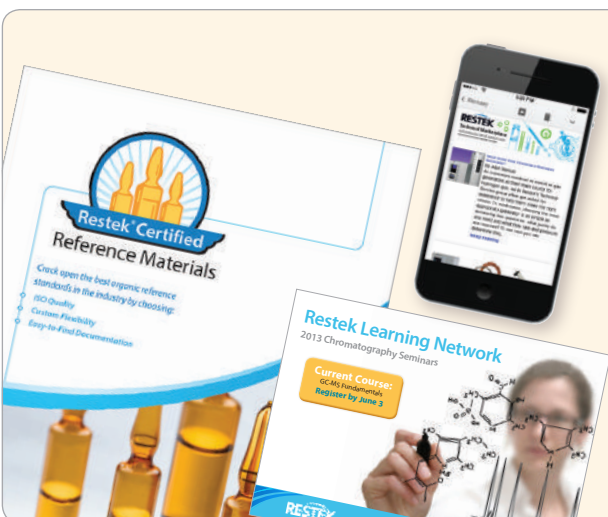
SPME Liners
for Agilent GCs

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

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.# |
|--|----------------------------|---------------------------|--------------|----------------|-----------------|
|  Drilled Uniliner (hole near bottom) | 4.0 mm 6.3 mm x 78.5 mm | G1544-80730 (ea.) | 23306.1 | 23306.5 | 23306.25 |
|  Drilled Uniliner (hole near bottom) w/Wool | 4.0 mm 6.3 mm x 78.5 mm | | 23307.1 | 23307.5 | |
|  Drilled Uniliner (hole near top) | 4.0 mm 6.3 mm x 78.5 mm | | 23311.1 | 23311.5 | 23311.25 |

Patent pending


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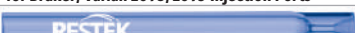




e-mail : sales @ chromtech.net.au

Sky® Inlet Liners for Bruker/Varian Injection Ports

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| Liners for Bruker/Varian 1177 S/SL Injection Ports | ID OD x Length | Similar to Bruker/Varian Part # | ea. cat.# | 5-pk. cat.# |
|---|----------------------------|------------------------------------|--------------|----------------|
|  4 mm Split Liner w/Glass Frit | 4.0 mm 6.3 mm x 78.5 mm | | 23330.1 | 23330.5 |
|  4 mm Precision Liner w/Wool | 4.0 mm 6.3 mm x 78.5 mm | | 23328.1 | 23328.5 |
|  4 mm Single Taper | 4.0 mm 6.5 mm x 78.5 mm | 392611927 | 23331.1 | 23331.5 |
|  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.# |
|---|---------------------------|------------------------------------|--------------|----------------|-----------------|
|  SPI Liner | 0.53 mm 4.6 mm x 54 mm | 190010906 | 23460.1 | 23460.5 | |
|  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.# |
|--|---------------------------|------------------------------------|--------------|----------------|-----------------|
|  3.4 mm Split-No Frit | 3.4 mm 5.0 mm x 54 mm | 392611945 | 23329.1 | 23329.5 | 23329.25 |
|  Split w/Glass Frit | 3.4 mm 5.0 mm X 54 mm | 392611946 | 23462.1 | 23462.5 | |
|  Splitless | 2.0 mm 5.0 mm X 54 mm | 392611947 | 23463.1 | 23463.5 | |
|  SPME Liner | 0.75 mm 5.0 mm X 54 mm | 392611948 | 23465.1 | 23465.5 | |
|  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

| 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




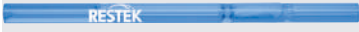




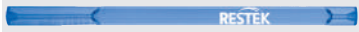




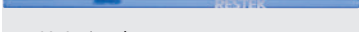


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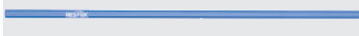

Sky® Inlet Liners for Shimadzu GCs

| 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 | NEW! |
|  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 | NEW! |
|  PTV 2010 w/Wool | 1.5 mm 3.5 mm x 95 mm | | 23472.1 | 23472.10 | NEW! |

Patent pending.

COLUMN INSTALLS THIS END

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 | |

COLUMN INSTALLS THIS END

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 |

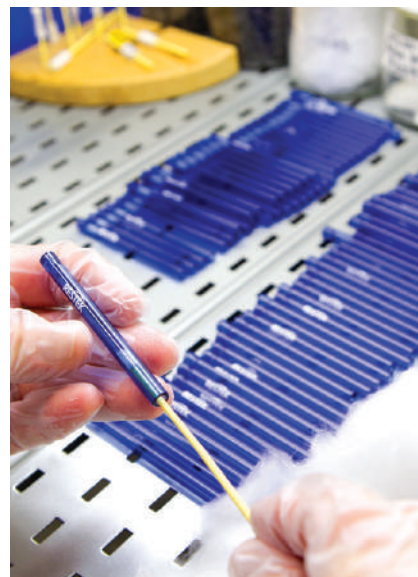
*There is an additional cost for these deactivations. Contact your Restek representative for pricing.

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











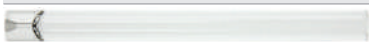









Looking for the Best Solution?

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.

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

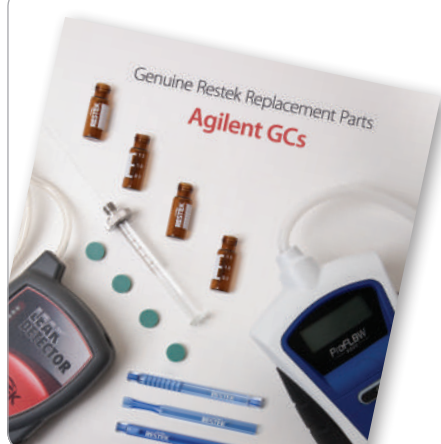
Liners for Agilent GCs, *cont.*

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.# |
|---|---|------------------------------|--|--------------|----------------|-----------------|
|  1 mm Split** | 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 | |
|  4 mm Split w/Deactivated Wool | 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 |
|  Laminar Cup Splitter | high MW compounds | 4.0 mm 6.3 mm x 78.5 mm | | 20801 | 20802 | |
|  mini-Lam Split | high MW compounds | 4.0 mm 6.3 mm x 78.5 mm | | 20990 | 20991 | |
|  Cup Splitter | high & low MW compounds | 4.0 mm 6.3 mm x 78.5 mm | 18740-80190 (ea.) 5183-4699 (5-pk.) | 20709 | 20710 | |
|  Cyclo | dirty samples, many injections before cleaning required | 4.0 mm 6.3 mm x 78.5 mm | | 20706 | 20707 | 20708 |
|  2 mm Split Precision Liner w/Deactivated Wool | dirty samples, trace samples | 2.0 mm 6.3 mm x 78.5 mm | | 20823 | 20824 | |
|  4 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 Single Taper 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 |
| Split/Splitless Liners for Agilent GCs | Benefits/Uses | ID* OD x Length | Similar to Agilent Part # | ea. cat.# | 5-pk. cat.# | 25-pk. cat.# |
|  Low Pressure Drop Precision Liner w/Deactivated Wool | universal | 4.0 mm 6.3 mm x 78.5 mm | | 21032 | 21033 | |
|  Low Pressure Drop 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 |
| SPME Liners for Agilent GCs | Benefits/Uses | ID* OD x Length | | ea. cat.# | 5-pk. cat.# | |
|  SPME Liner | ideal for low-volume SPME applications | 0.75 mm 6.35 mm x 78.5 mm | | 21110 | 21111 | |

*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!

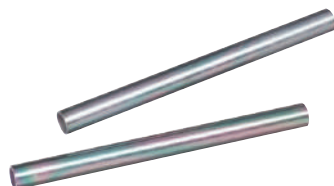
www.restek.com/GRRP

Liners for Agilent GCs, *cont.*

| COLUMN INSTALLS THIS END | DI Liners for Agilent GCs** (For 0.25/0.32/0.53mm ID Columns) | | Benefits/Uses | ID* OD x Length | Similar to Agilent Part # | ea. cat.# | 5-pk. cat.# | 25-pk. cat.# |
|--|--|---|--|----------------------------|------------------------------|--------------|----------------|-----------------|
| | | | 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.# |
| | | | | 2.0 mm 3.0 mm x 71 mm | 5183-2036 | | | 21157 |
| Straight Glass | | | general use | | | | | |
| | | | active compounds, drugs, pesticides | 1.5 mm 3.0 mm x 71 mm | 5183-2037 | | | 21704 |
| Baffled Glass | | | | | | | | |
| | | | | 2.0 mm 3.0 mm x 71 mm | 5183-2038 | | | 21156 |
| Glass w/Deactivated Wool | | | large volume injections | | | | | |

*Nominal ID at syringe needle expulsion point.


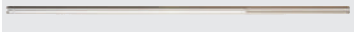

**Hole in Drilled Uniliner liner makes direct injection possible with EPC-equipped Agilent 6890 & 7890 GCs!



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 #!



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Inlet Liners for Bruker/Varian GCs

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


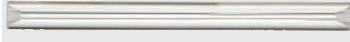

| Split Liners for Bruker/Varian 1075/1077 S/SL Injection Ports | Benefits/Uses: | ID* OD x Length | Similar to Bruker/Varian Part # | ea. cat.# | 5-pk. cat.# |
|--|---|--------------------------|------------------------------------|--------------|----------------|
|  1 mm Split | purge & trap inlet 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



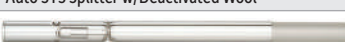





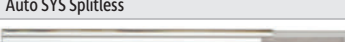

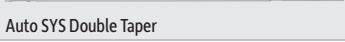

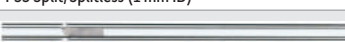

| Liners for Bruker/Varian 1078/1079 Injection Ports | Benefits/Uses: | ID* OD x Length | Similar to Bruker/Varian Part # | ea. cat.# | 5-pk. cat.# | 25-pk. cat.# |
|--|--|---------------------------|------------------------------------|--------------|----------------|-----------------|
|  1078/1079 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) | 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








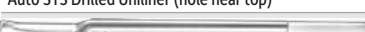
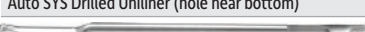
| Split Liners for PerkinElmer GCs | Benefits/Uses: | ID* OD x Length | Similar to PE Part # | ea. cat.# | 5-pk. cat.# | 25-pk. cat.# |
|--|---|----------------------------|-------------------------|--------------|----------------|-----------------|
|  Straight | universal, for most common analyses | 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.

COLUMN INSTALLS THIS END

Liners for PerkinElmer GCs, *cont.*

COLUMN INSTALLS THIS END

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

*Nominal ID at syringe needle expulsion point.



3-IN-1 TECHNOLOGY



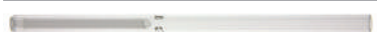
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Inlet Liners for Shimadzu GCs

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 | |





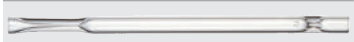

Split/Splitless Liners for Shimadzu 17A, 2010, and 2014 GCs

| 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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- Calculate flows **NEW!**





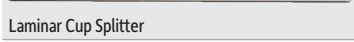

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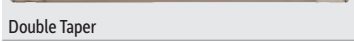
Inlet Liners for Thermo Scientific GCs



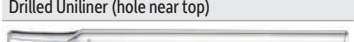
Liners for Thermo Scientific 1300 Series GCs

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

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. # |
|--|------------------------------|---------------------------|-------------------------|---------------|-----------------|------------------|
|  | purge & trap, fast GC | 1.0 mm 8.0 mm x 105 mm | 453 20075 | 20916 | 20917 | |
|  | universal | 3.0 mm 8.0 mm x 105 mm | 453 20031 | 20936 | 20937 | 20938 |
|  | universal | 5.0 mm 8.0 mm x 105 mm | 453 20030 | 20939 | 20940 | 20941 |
|  | high MW compounds | 4.0 mm 8.0 mm x 105 mm | | 20948 | 20949 | |
|  | high & low MW compounds | 4.0 mm 8.0 mm x 105 mm | | 20950 | 20951 | |
|  | dirty samples, trace samples | 5.0 mm 8.0 mm x 105 mm | | 22288 | 22289 | |

| 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. # |
|---|----------------------------------|---------------------------|-------------------------|---------------|-----------------|------------------|
|  | trace samples | 2.0 mm 8.0 mm x 105 mm | | 22266 | 22267 | NEW! |
|  | trace samples | 3.0 mm 8.0 mm x 105 mm | 453 20032 | 20942 | 20943 | 20944 |
|  | trace samples | 5.0 mm 8.0 mm x 105 mm | 453 20033 | 20945 | 20946 | 20947 |
|  | trace, active samples up to 4 µL | 4.0 mm 8.0 mm x 105 mm | | 20952 | 20953 | |
|  | dirty samples, trace samples | 5.0 mm 8.0 mm x 105 mm | | 21028 | 21029 | |

| 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. # |
|---|---|---------------------------|---------------|-----------------|
|  | trace, active samples, high recovery, & linearity | 5.0 mm 8.0 mm x 105 mm | 21005 | 21006 |
|  | trace, active samples, high recovery, & linearity | 5.0 mm 8.0 mm x 105 mm | 22411 | 22412 |
|  | trace, active samples, high recovery, & linearity | 5.0 mm 8.0 mm x 105 mm | 22413 | 22414 |

*Standard ID, stainless steel, deactivated wool

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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 |

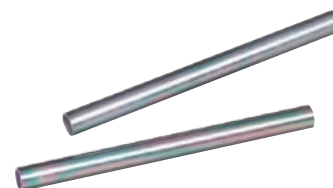
*Nominal ID at syringe needle expulsion point.

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

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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 |

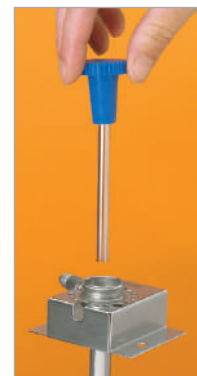


No more burned fingers!

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.

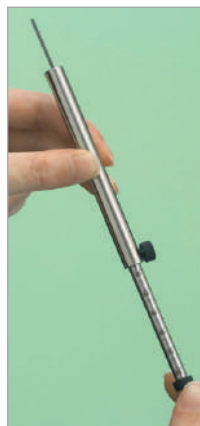
| Description | qty. | cat.# |
|--------------------------|-------|-------|
| Inlet Liner Removal Tool | 3-pk. | 20181 |



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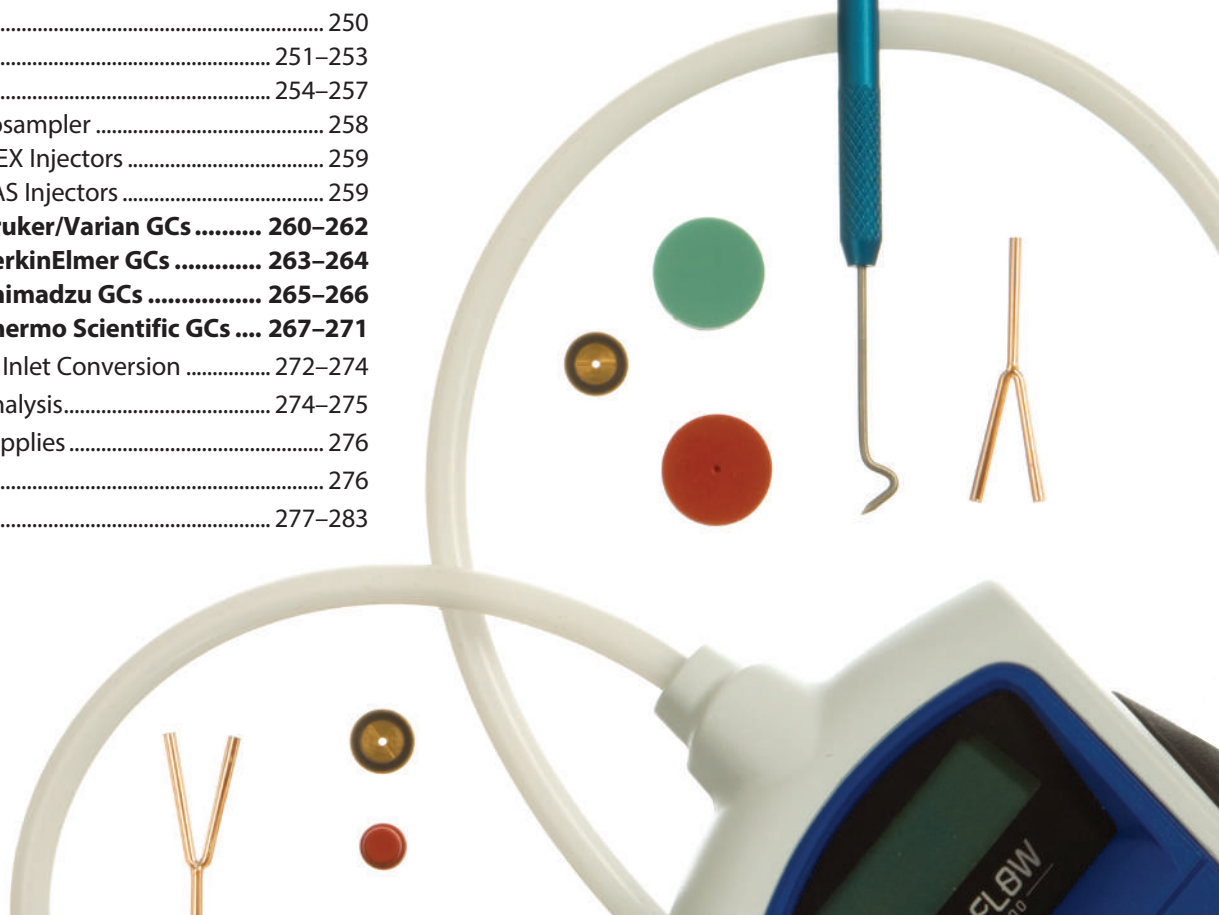
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Dynamic Duo (Restek® Leak Detector and ProFLOW 6000 Flowmeter)

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, 1.0×10^{-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. |

*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



22655

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.



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

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.



22658



22657

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

**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

RESTEK CHROMALYTICS® Distributor in AUSTRALIA : Contact +81 3 9762 2034

www.chromalytic.net.au

e-mail : sales @ chromtech.net.au



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!



| Septum Diameter | 50-pk. cat.# | 100-pk. cat.# |
|-----------------------------|-----------------|------------------|
| 5 mm ($\frac{3}{16}$ ") | 27121 | 27122 |
| 6 mm ($\frac{1}{4}$ ") | 27124 | 27125 |
| 7 mm | 27127 | 27128 |
| 8 mm | 27130 | 27131 |
| 9 mm | 27133 | 27134 |
| 9.5 mm ($\frac{3}{8}$ ") | 27136 | 27137 |
| 10 mm | 27139 | 27140 |
| 11 mm ($\frac{7}{16}$ ") | 27142 | 27143 |
| 11.5 mm | 27145 | 27146 |
| 12.7 mm ($\frac{1}{2}$ ") | 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 ($\frac{3}{8}$ ") | 27086 | 27087 |
| 10 mm | 27088 | 27089 |
| 11 mm ($\frac{7}{16}$ ") CenterGuide | 27090 | 27091 |
| 11.5 mm CenterGuide | 27092 | 27093 |
| 12.7 mm ($\frac{1}{2}$ ") 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

RESTEK *CHROMALYTICS* in AUSTRIA : Contact +81 3 9762 2034
Distributor

SHOPPE 23
www.chromalytic.net.au

e-mail : sales @ chromtech.net.au

**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 |
| Bruker/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 |

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.

Ferrules



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.

NEW!

| Ferrule ID | Fits Column ID | qty. | Vespel | Graphite | 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 |

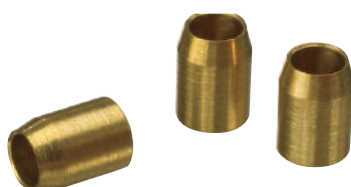
Graphite Ferrules for Shimadzu 17A, 2010, and 2014 GCs

- 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

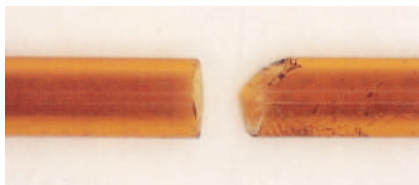
| Fits Column ID | Similar to Gerstel Part # | qty. | cat.# |
|----------------|---------------------------|--------|-------|
| 0.25 mm | 001805-040-00 | 10-pk. | 22223 |
| 0.32 mm | 001805-045-00 | 10-pk. | 22224 |
| 0.53 mm | 001805-007-00 | 10-pk. | 22225 |



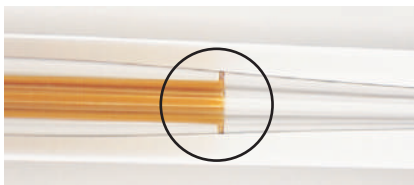
Restek Press-Tight® Connectors

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?

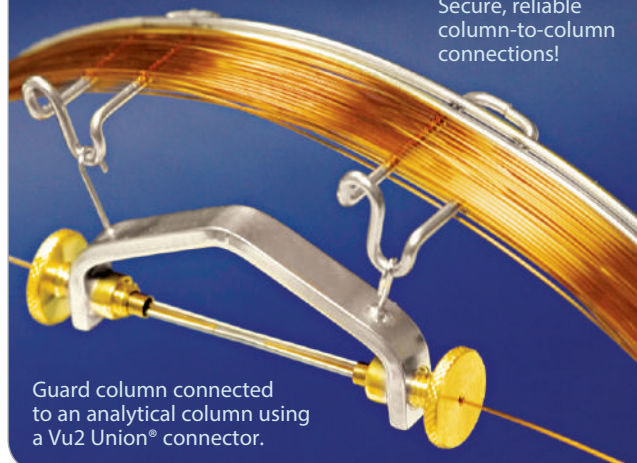
No. To achieve a leak-tight fused silica to stainless steel connection, we recommend an MXT® connector (see page 231).



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 | |

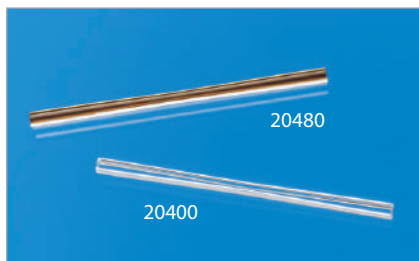
*Additional cost will be added to the price of the column.

Guard columns listed are intermediate polarity (IP) deactivated.

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

Press-Tight® Connectors

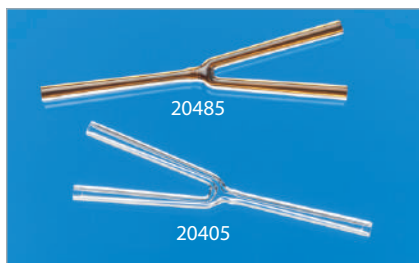
- Deactivated Press-Tight® connectors maintain complete inertness along the GC flow path.
- Siltek®-deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit 0.33–0.74 mm OD columns (Restek® 0.1–0.53 mm ID).



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 | — |

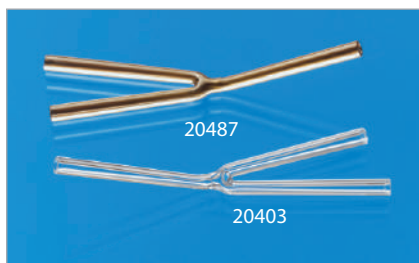


Universal “Y” Press-Tight® Connectors

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.

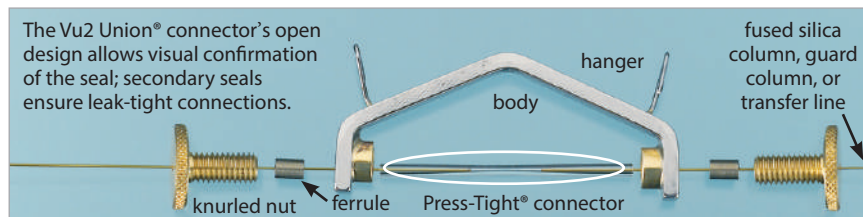
Restek's Vu2 Union® connector combines the simplicity of a Press-Tight® union with the strength of a metal union.

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

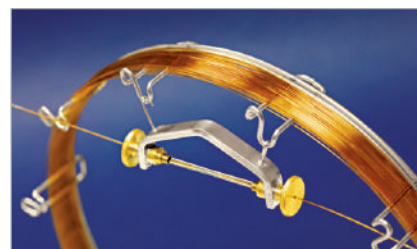
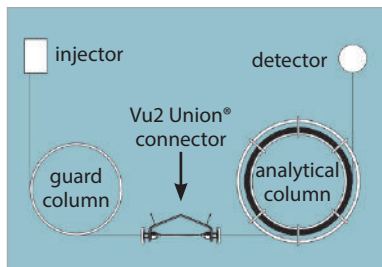
| Description | 5-pk. | 25-pk. | 100-pk. |
|--|-------|--------|---------|
| Universal Press-Tight Connectors | 20400 | 20401 | 20402 |
| Universal Press-Tight Connectors, Deactivated | 20429 | 20430 | — |
| Universal Press-Tight Connectors, Siltek Deactivated | 20480 | 20449 | — |

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.

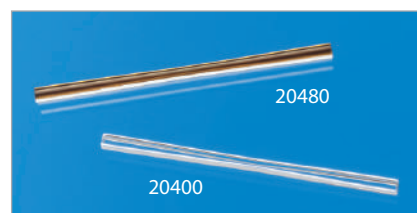


Fit both Restek® cage designs.



Secure, reliable
column-to-column
connections!

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





Fit both Restek® cage designs.



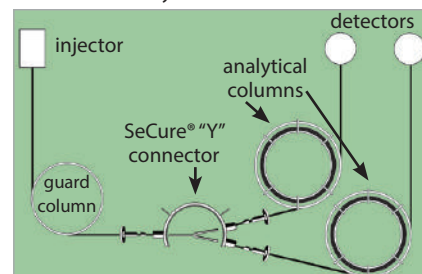
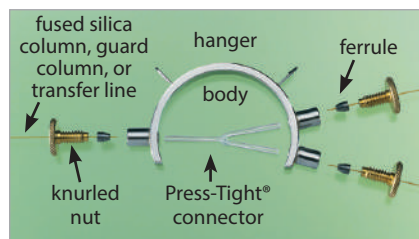
SeCure® "Y" Connector Kits

- 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.



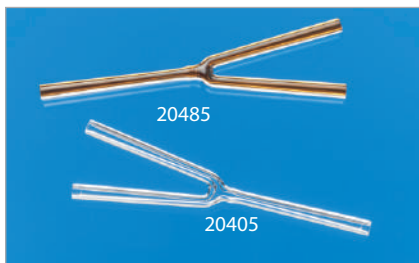
Kits include: SeCure® "Y" connector body, three knurled nuts, universal "Y" Press-Tight® union, three ferrules.

| 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 |
| 0.6 mm | 0.53 mm | 20202 | 20229 |

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.

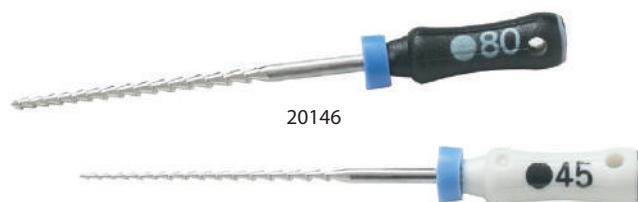
| Description | qty. | cat.# |
|------------------------|------|-------|
| For 0.25 mm ID Columns | kit | 21389 |
| For 0.32 mm ID Columns | kit | 21388 |
| For 0.53 mm ID Columns | kit | 21387 |



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).

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 | | — | — | — | |

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www.restek.com

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E-mail: csreps@restek.com

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E-mail: support@restek.com

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E-mail: salesreps@restek.com

Or visit www.restek.com/USsales to find the sales representative for your region.

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International Technical Service

E-mail: intltechsupp@restek.com

FIND A LOCAL DISTRIBUTOR www.restek.com/distributor



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 |



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 |



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 |



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-Seal 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 syringes.





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

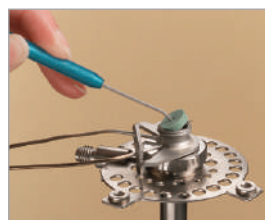
| Agilent Instrument | Septum Diameter (mm) |
|------------------------------------|----------------------|
| 5880A, 5890, 6890, 6850, 7890, PTV | 11 |
| 5700, 5880 | 9.5/10 |
| On-Column Injection | 5 |

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...

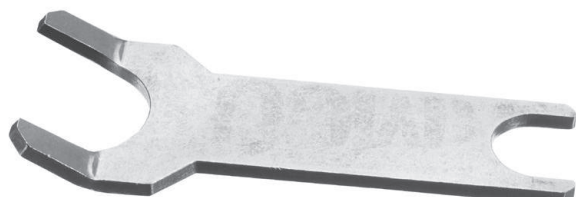


and remove, avoiding hot metal surfaces.



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 5/16" wrench
- Septum puller
- Installation gauge
- Wire cleaning brush
- Jet reamers/ferrule removers
- Inlet liner removal tool
- Septa nut removal tool

| Description | qty. | cat.# |
|-----------------------|------|-------|
| Inlet Maintenance Kit | kit | 22181 |



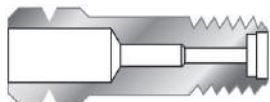
Stainless Steel



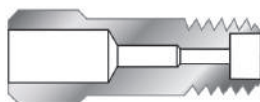
Brass

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.

| 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



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 | 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

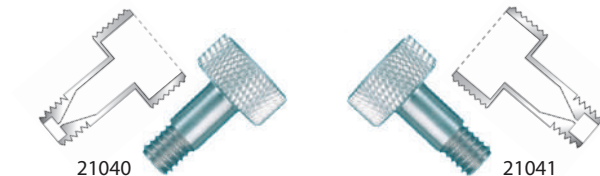
Easily seat ferrules for consistent installations!

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!



A dual Vespel® ring inlet seal eliminates the need for a washer!

Patented



22083

22085

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.



21238

21240

21248

| 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 |



Vespel® ring seal on top and bottom surfaces!

Extend column lifetime!

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!



Patented



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

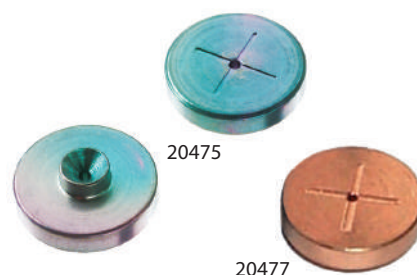
| Description | Similar to Agilent Part # | qty. | cat.# |
|--------------------------------|------------------------------|--------|-------|
| Replacement Inlet Seal Washers | 5061-5869 | 15-pk. | 21710 |

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.

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



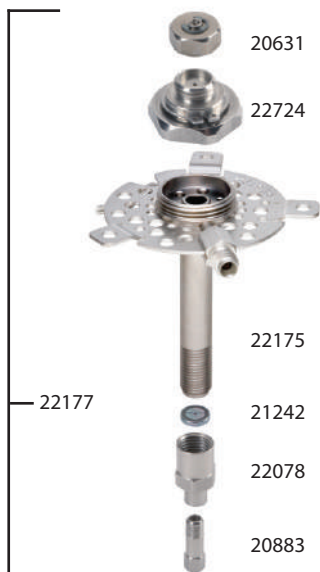
Designed for "drop in" installation!

22175

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.

**tech tip****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

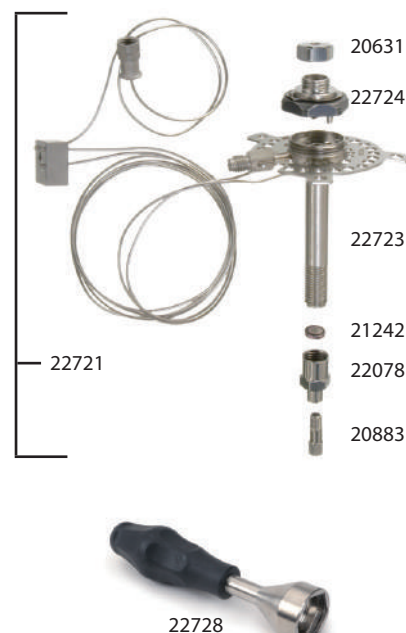
| Description | qty. | cat.# |
|--|------|-------|
| Injection Port Assembly Kit Includes: split/splitless weldment, shell weldment, 2 weldment O-rings, Siltek dual Vespel ring inlet seal, septum nut, reducing nut, stainless steel capillary nut for use with 1/16" ferrules, and weldment removal tool | 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

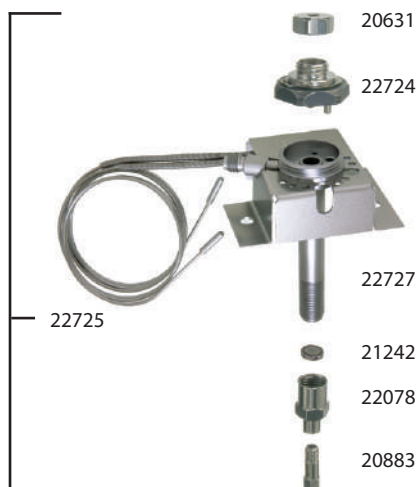
for Agilent 6850/6890 GCs with Pencil Traps

| 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 |
| | 10-pk. | 21243 |
| Weldment Removal Tool | 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 |
| | 10-pk. | 21243 |
| Weldment Removal Tool | ea. | 22728 |



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 |



27184

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.



22078

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



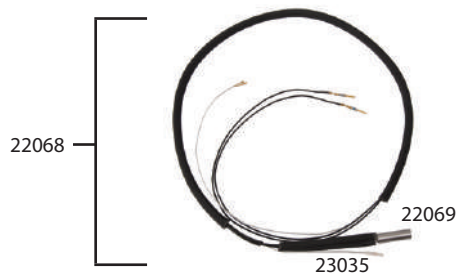
24323

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.



20409

| 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.



27199

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

**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

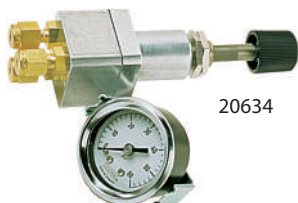
- Aluminum construction.
- Meet or exceed manufacturer's performance.



| 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 |

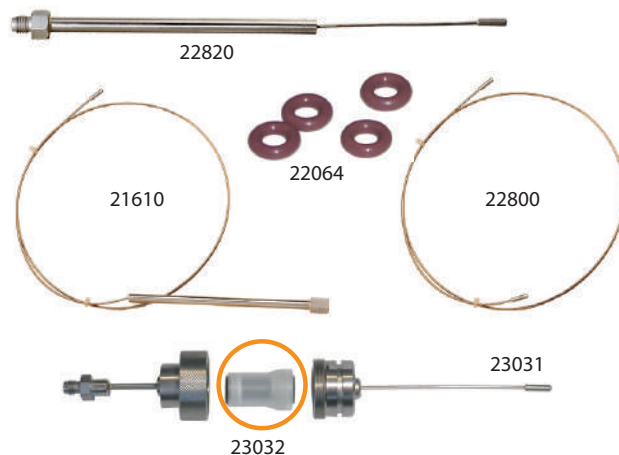
**Oven Temperature Sensor Assembly** for Agilent GCs

| 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.



Large-Bore Dual Vespel® Ring Inlet Seals



1/4" SS Nut



Large-Bore FID Adaptor



1/4" Vespel®/Graphite Ferrule



1/16" SS Nuts



Large-Bore Reducing Nut



1/16" Vespel®/Graphite Ferrules



22430



20772



Solid Phase Extraction Cartridges from Restek

Proven Quality • Superior Cleanliness • Method-Specific Performance

See pages 396–399 or visit

www.restek.com/resprep



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27185

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 |



20645

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 |



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 µm 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.

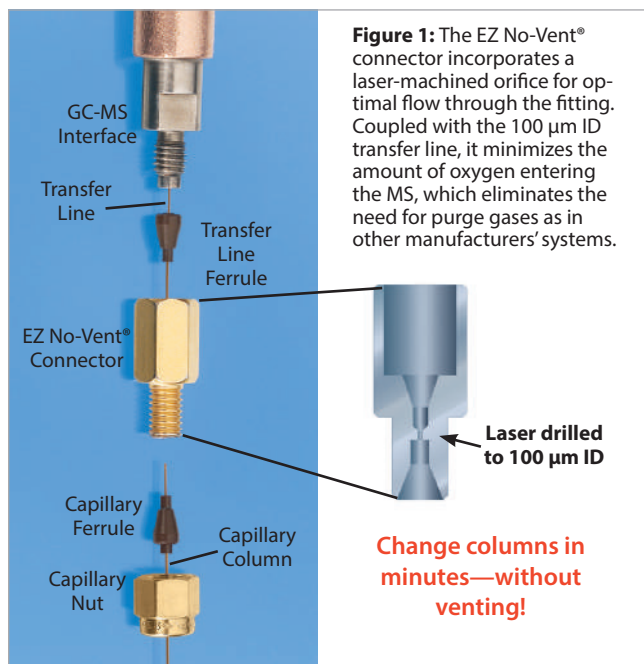
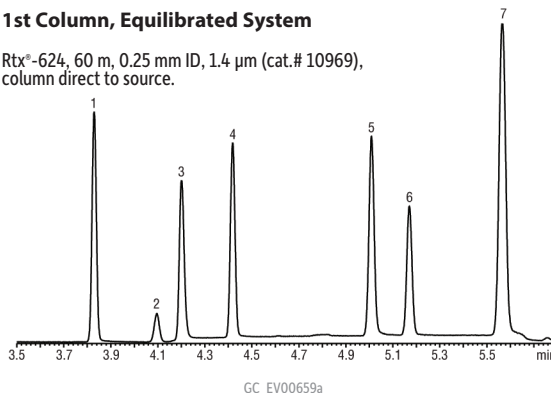


Figure 2: Sharp, symmetric peaks for gases show the EZ No-Vent® connector does not add dead volume and allows rapid column changes.

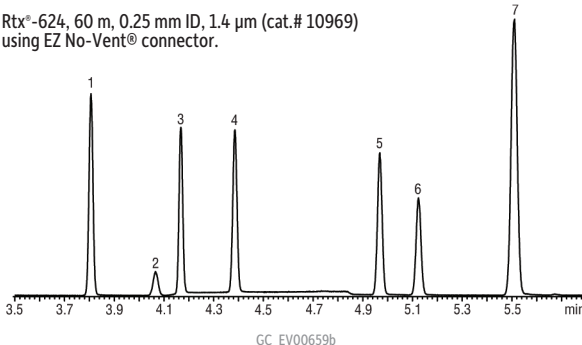
1st Column, Equilibrated System

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



Acquired 76 Minutes After Installing 2nd Column

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



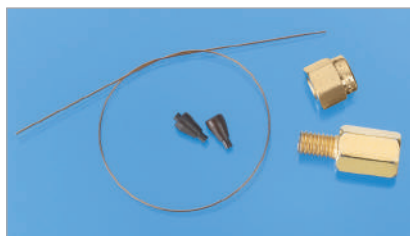
Peaks

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, 1.40 µm (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 | | |

Restek innovation!

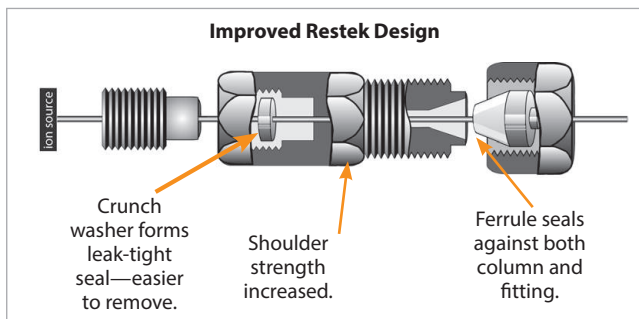
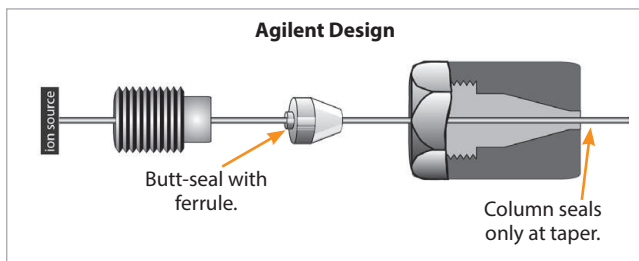
Kit installs easily, without special tools or plumbing.



| 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 µm deactivated transfer line (3 ft.), column plug, column nut | kit | 21323 |
| 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 |

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

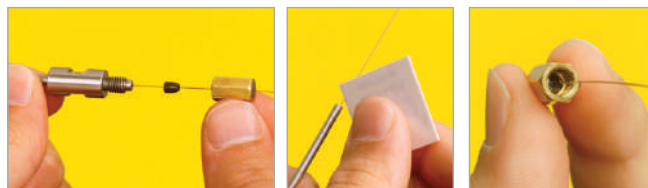
- 1.2 mm nut bore permits easy removal of ferrules with a standard tapered-needle file (cat.# 20106).
- Made of brass to prevent thread-stripping on the transfer line.
- Design enhances ease of threading onto the transfer line and improves overall lifetime.



| 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:

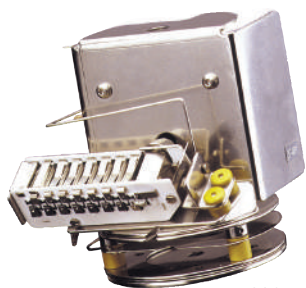
- Lint-free nylon gloves (small, 2 pair)
- Lint-free nylon gloves (large, 2 pair)
- Lint-free cotton cloth, 9 x 9 (10-pk.)
- Micro mesh 4 x 6 sheet (4-pk.)

| 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.

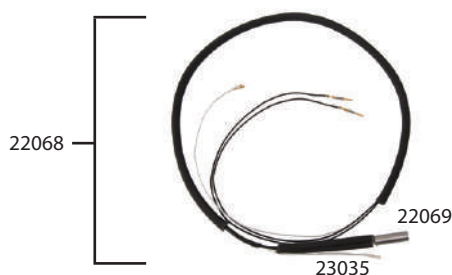
did you know?

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.

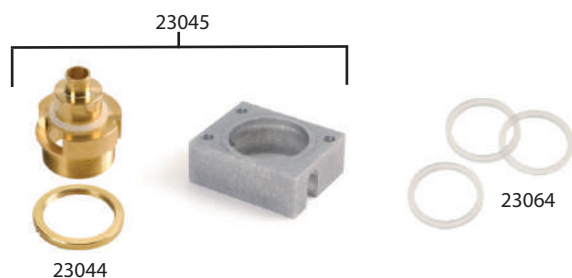
†This unit is designed for use in the 5975, 5973 GC, and the LC-MSD (not for 5975C Triple Axis Detector).



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.

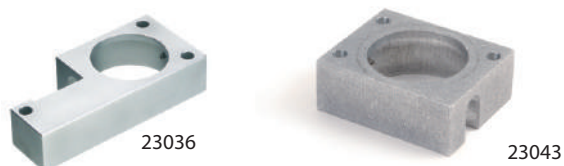
| Description | Similar to Agilent Part # | qty. | cat.# |
|---|---------------------------|------|-------|
| Injector/FID Heater and Injector/FID PRT Sensor | 05890-61140 | kit | 22068 |
| Injector/FID Heater | 19231-60620 | ea. | 22069 |
| Injector/FID PRT Sensor | 19231-60660 | ea. | 23035 |



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...

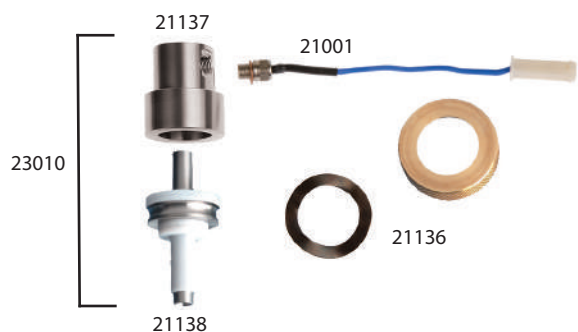


then turn counterclockwise...



and remove.

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

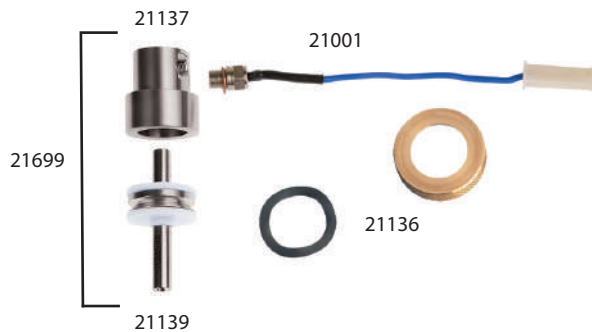


FID Collector Assembly Kit for Agilent 5890 GCs

- 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:

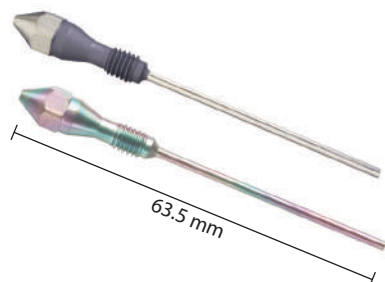
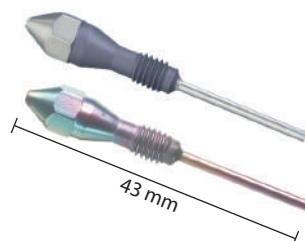
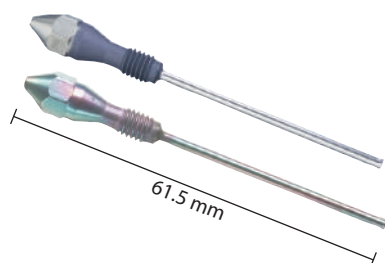
- 1/4" and 0.4, 0.5, and 0.8 mm ID graphite ferrules
- FID/NPD capillary adaptor
- Capillary nuts
- Jet reamers/ferrule removers
- 1/4" nut
- Scoring wafer
- Capillary column caps
- Ignitor for either Agilent 5890 or 6890/6850/7890 GCs
- FID flow-measuring adaptor
- 1/4" x 5/16" wrench
- Installation 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.



22328

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 | | qty. | cat.# | qty. | cat.# |
|--|----------------|-----|-------|-------|-------|-------|
| | Agilent Part # | | | | | |
| 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 | | qty. | cat.# | qty. | cat.# |
|--|----------------|-----|-------|-------|-------|-------|
| | Agilent Part # | | | | | |
| 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 | | qty. | cat.# | qty. | cat.# |
|--|----------------|-----|-------|-------|-------|-------|
| | Agilent Part # | | | | | |
| 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 | | qty. | cat.# | qty. | cat.# |
|--|----------------|-----|-------|-------|-------|-------|
| | Agilent Part # | | | | | |
| 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.



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 |



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 |



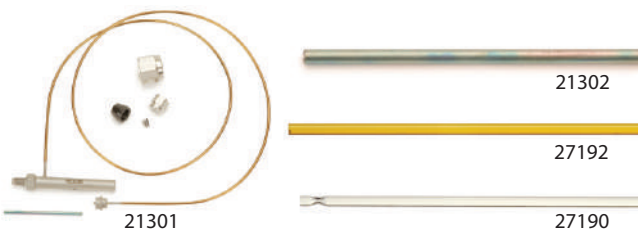
22077

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

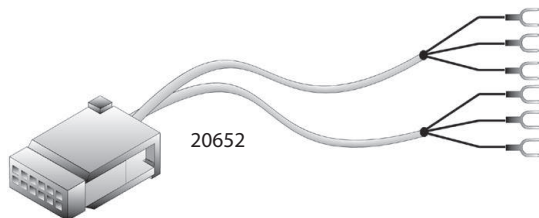
Kit includes: replacement fitting, 1/4" nut, Vespel®/graphite ferrule, 1/16" nut, 0.4 mm ID graphite ferrule, Siltek®-treated guide.

| 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 |

Replacement Cables

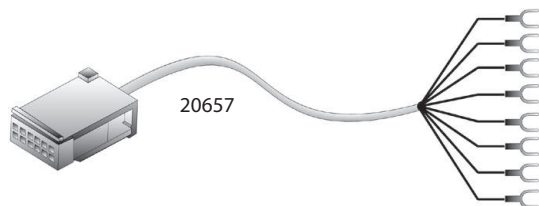
for Agilent GCs, Integrators, & Autosamplers

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



Connect an Agilent 5890 GC to 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 |



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 |

**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 6890/6890/7690 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 Belt

for Agilent 7673A, 7673B, and 7673C Autosamplers

Meets 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.

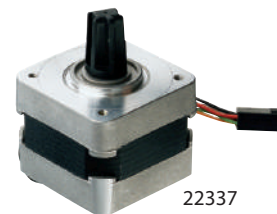


22363

| 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



22354



22355

Viton® O-Rings for Apex Liners

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

Accessories for ATAS LINEX DMI System

| Description | qty. | cat. # |
|--|---------|--------|
| Needle Guide for ATAS LINEX DMI Liner | 5-pk. | 22354 |
| Microval/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.



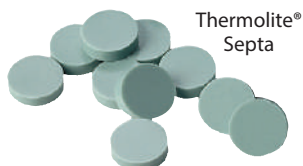
| Description | Max. Temp. | Similar to Bruker/Varian Part # | 10-pk. cat.# | 50-pk. cat.# |
|---|------------|---------------------------------|--------------|--------------|
| 6.35 mm ID Graphite O-Rings for split liners | 450 °C | — | 20296 | 20297 |
| 6.5 mm ID Graphite O-Rings for splitless liners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

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.

**HANDY
septum size
chart**

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



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.

| 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 |



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:

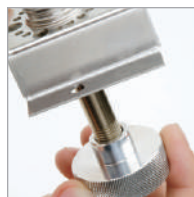
- Capillary installation gauge for Bruker/Varian GCs
- 1/8", 3/16", and 1/4" nylon brushes
- 1/4", 3/8", and 3/16" stainless steel wire tube brushes
- Stainless steel surface brush
- 6 stainless steel jet reamers (0.25–0.65 mm OD)
- 1/4" x 5/16" open end wrench
- 3/8" x 7/16" open end wrench
- 7/16"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



EZ No-Vent® GC Column-Mass Spectrometer Connector

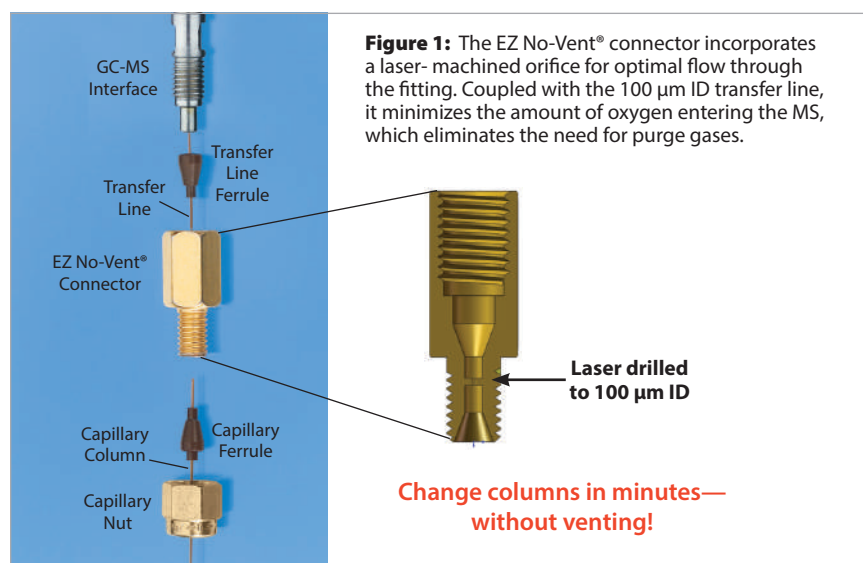
for Bruker/Varian Saturn 2000 Series Mass Spectrometers

- Change GC-MS columns in minutes without venting—100 μ m 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 μ m deactivated transfer line (3 ft), column plug, column nut | kit | 22423 |
| Replacement ferrules for connecting capillary column to EZ No-Vent connector: | | |
| 0.30 \pm 0.40 mm Tubing OD (Virgin Polyimide) | 2-pk. | 21015 |
| 0.40 \pm 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 μ m 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 |

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.

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.



22781

| 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 |

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

ChromaBLOGraphy

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

blog.restek.com



Injector Adaptors for PerkinElmer CAP Injector

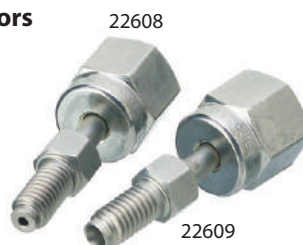
- Made of high-quality stainless steel.
- Meet or exceed original manufacturer's performance.
- Siltek®-treated version available for increased inertness.

| 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 |

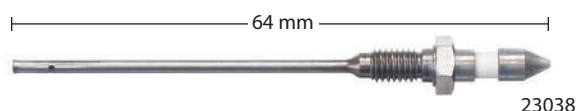
FID Capillary Column Adaptors

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/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 | kit | 22185 |



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 |

**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.



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

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

Includes 17A injector nut, 0.4 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.



| 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 |

**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 |

**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.



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/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 Shimadzu GCs | kit | 22182 |

100%
Satisfaction
Guaranteed

Sky
Inlet Liners

See **pages 193-202.**

Dual Vespe® 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.

**Patented**

| Feature | Benefit |
|--|--|
| Vespe® ring embedded in bottom surface. | Eliminates need for a washer. |
| Vespe® 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 Vespe® 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 Vespe® 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 Vespe Ring Inlet Seal | 2-pk. cat.# | 10-pk. cat.# |
|--------------------------------------|----------------|-----------------|
| Gold-Plated | 22243 | 22244 |
| Siltek-Treated | 22247 | 22248 |

| 1.2 mm ID Dual Vespe 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 |



Note: The 1.2 mm inlet seal is recommended when installing two columns using a two-hole Vespe®/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

| 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 |

**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



| 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

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



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 |

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 |

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 |

WORLD-CLASS SERVICE & LOCAL CONNECTIONS

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Phone: 1-800-356-1688 or 1-814-353-1300, ext. 3

E-mail: csreps@restek.com

Technical Service

Phone: 1-800-356-1688 or 1-814-353-1300, ext. 4

E-mail: support@restek.com

Sales

Phone: 1-800-356-1688 or 1-814-353-1300, ext. 3

E-mail: salesreps@restek.com

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Technical Service

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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

Liner Cap Removing Tool
for Thermo Scientific GCs

Similar to
TS Part #
205 070 10

qty.
ea.

cat.#
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

Metric Wrench Set

qty.
set

cat.#
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

Metri

qty.

cat.#

**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. Finger-tighten column nut.

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

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

Description

Capillary Installation Gauge
for Thermo Scientific TRACE & Focus SSL (M4 ferrules)

qty.
ea.

cat.#
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 7/16" open end wrench
- 6 mm x 7 mm open end wrench
- 8 mm x 10 mm open end wrench
- 16 mm x 17 mm open end wrench
- Rubber-tipped slide-lock tweezers
- Scoring wafers
- 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.#

RESTEK
Distributor

CHROMALYTICs

in AUSTRALIA : Contact +81 3 9762 2034

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SHOPPE
www.chromalytic.net.au
e-mail : sales @ chromtech.net.au

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



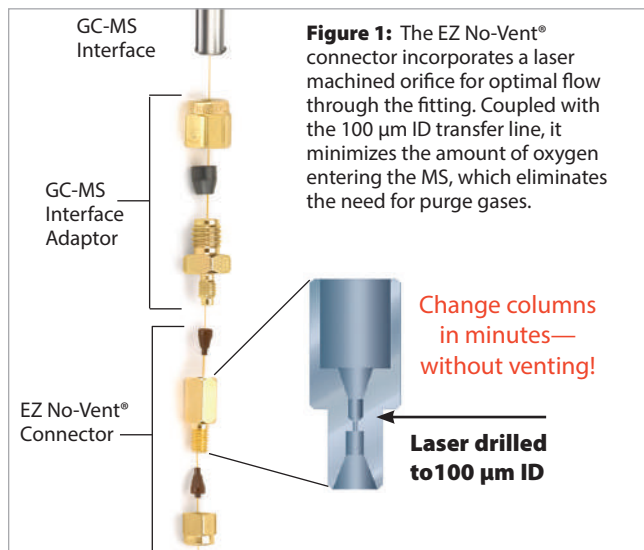
22082

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, 3/16" x 1/16" | 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.

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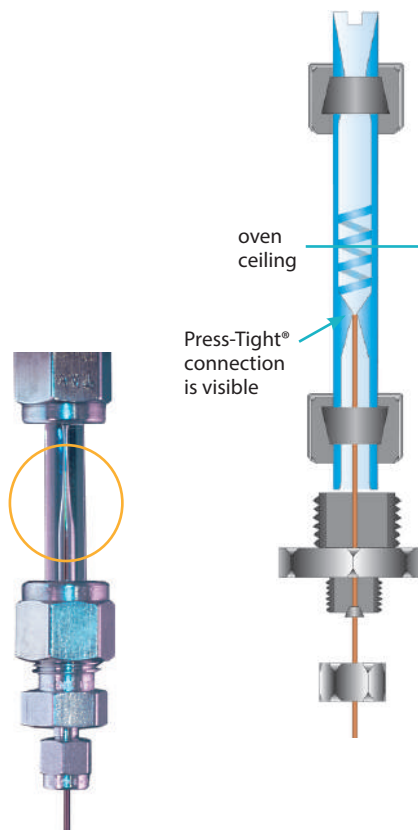
71

www.chromalytic.net.au

e-mail : sales @ chromtech.net.au

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)

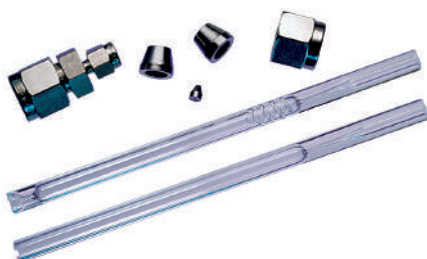
Ideal for dirty samples. Spiral bore prevents nonvolatile residue from contaminating the column.

| 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.

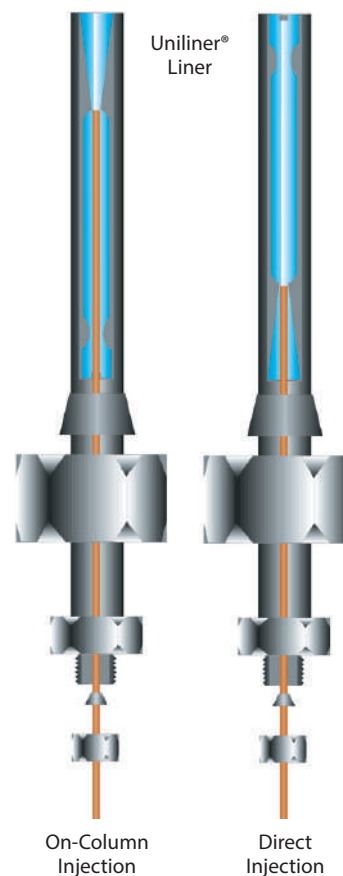
| Description | Column ID Injection Mode* | ea. cat.# | 5-pk. cat.# |
|--|-----------------------------|------------------------------|-----------------------------|
| Uniliner Liner (small buffer volume chamber 60 mm long, for injections ≤2 µL) | 0.53 mm DI or OC | 20902 | 20903 |
| Uniliner Liner (large 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.

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.



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 Installationfor 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 |



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 |

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 |

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

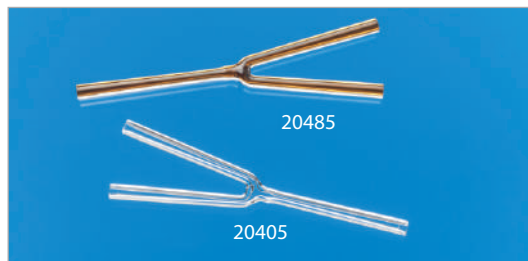
- Use 1/16-inch, two-hole ferrules with the 1/16-inch capillary inlet adaptor fitting kit (cat.# 27185).
- Use 1/8-inch, two-hole ferrules with the 1/8-inch capillary inlet adaptor fitting kit (cat.# 20645).



| Fitting Size | Ferrule ID | Fits Column ID | qty. | Vespe®/Graphite |
|--------------|------------|----------------|-------|-----------------|
| 1/16" | 0.4 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

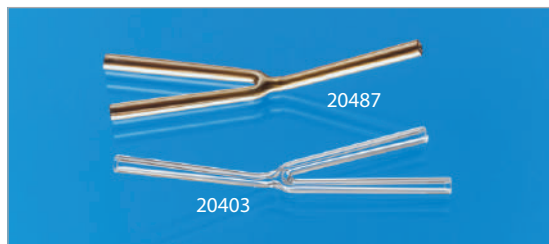
- Deactivated Press-Tight® connectors maintain complete inertness along the GC flow path.
- Siltek®-deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit 0.33–0.74 mm OD columns (Restek® 0.1–0.53 mm ID).



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.

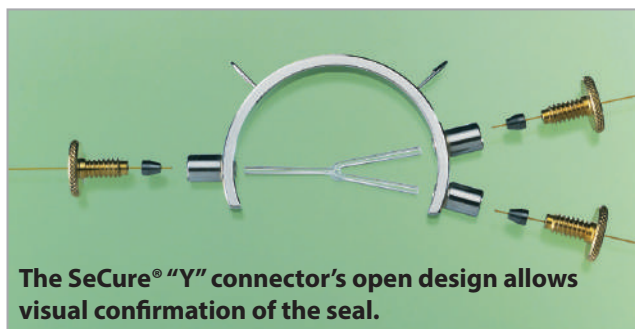
| Description | ea. | 3-pk. |
|--|-----------|-----------|
| Universal Angled “Y” Press-Tight Connector | 20403 | 20404 |
| Universal Angled “Y” Press-Tight Connector, Deactivated | 20403-261 | 20404-261 |
| Universal Angled “Y” Press-Tight Connector, Siltek Deactivated | 20487 | 20469 |

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 |



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.



| 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 |



20676



20675



23020

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

Longer life.

Model 108-BTEX has 33% more output than older models.

Lamps individually tested.

Variety of models.

Benefits

More for your money with each lamp.

Operate continuously at 1 ma and 250 °C for 6 months and still have better than 50% of the initial output.

Your lamp will work to specifications.

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", 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
- 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



22185

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



22184



22182

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



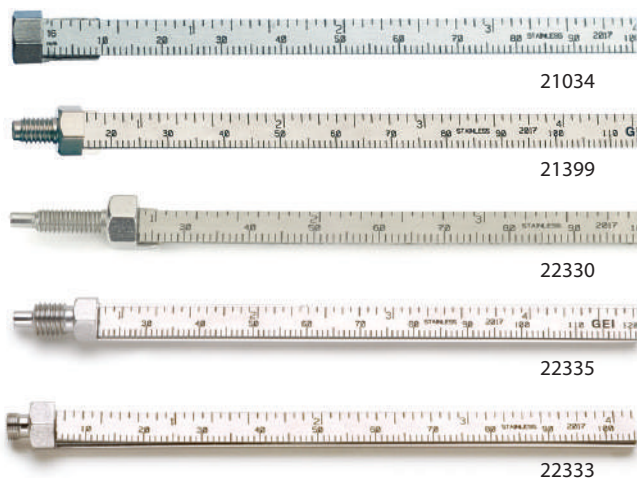
22183

| 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 |



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!

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 |

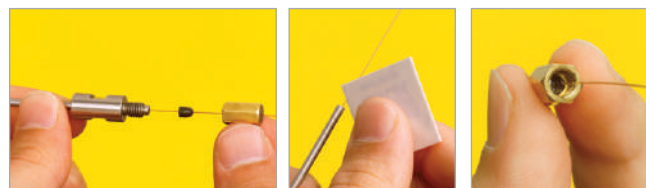
*For use with graphite ferrules only.

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 |



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...



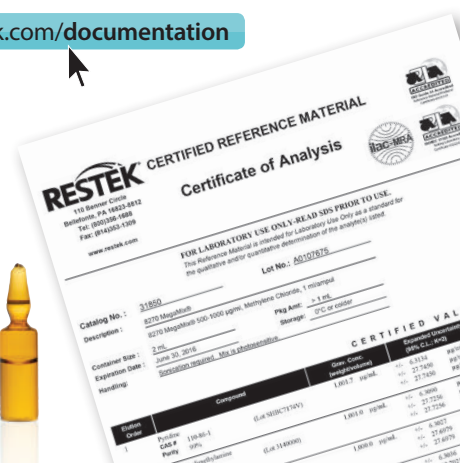
and just a tap leaves a clean, square end.

| 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.#

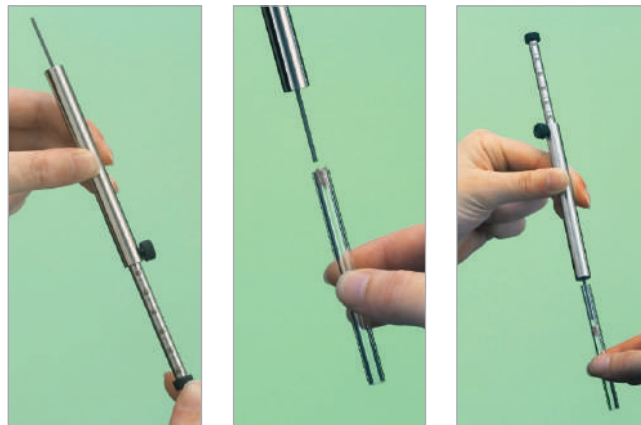
20181



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 |

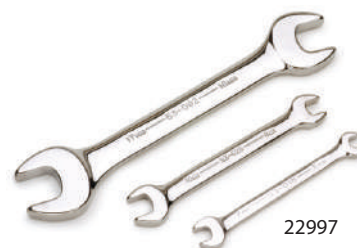


20110

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 |

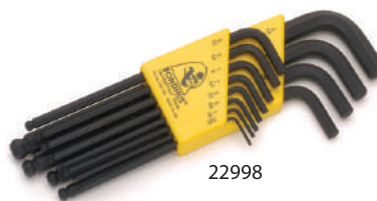


22999

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 |



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 ($\frac{3}{8}$ -, $\frac{3}{16}$ -, and $\frac{1}{4}$ -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 $\frac{1}{8}$ -, $\frac{3}{16}$ -, and $\frac{1}{4}$ -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 |

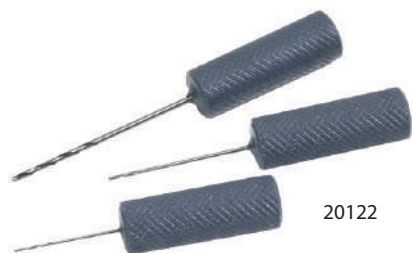


21601

MXT® Needle Files

Multi-purpose files especially useful for cutting Siltek® treated stainless steel columns.

| Description | qty. | cat.# |
|------------------|-------|-------|
| MXT Needle Files | 2-pk. | 21601 |



20122

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 |



20113

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 |



20124

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 |



22066



22187

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 |



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 |
| Gas Regulators..... | 301-303 |
| Gas Regulator Accessories..... | 304 |
| Gas Pressure System Accessories..... | 305-306 |
| Fittings | 307-311 |
| 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

RESTEK
Distributor

CHROMALYTICS

in AUSTRALIA : Contact +81 3 9762 2034

SHOPPE

85

www.chromalytic.net.au

e-mail : sales @ chromtech.net.au

Gas Management System, Leak Detector

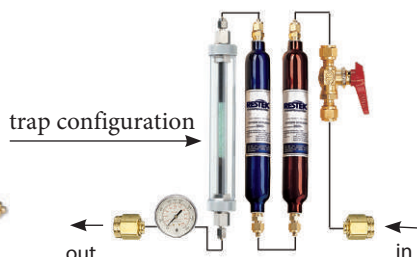
Restek® Gas Management System

- 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 |



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).



RESTEK

Distributor

CHROMALYTICs

in AUSTRALIA : Contact +81 3 9762 2034

SHOPPE

www.chromalytic.net.au

e-mail : sales @ chromtech.net.au

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 |

¹Removes hydrocarbons and moisture.²Removes 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 Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon triple gas filter | kit | 22019 |
| Fuel Gas Purification Kit Includes: mounting base plate, 1/8" inlet/outlet fittings, and hydrocarbon/moisture fuel gas filter | kit | 22021 |
| 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 Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon helium-specific filter | kit | 21983 |
| Replacement Helium-Specific Gas Filter (removes oxygen, moisture, and hydrocarbons) | ea. | 21982 |
| Gas Filter Bundle Kit Includes: one triple gas filter (cat.# 22020) and two fuel gas filters (cat.# 22022) | kit | 22031 |

**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.



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 | 5-pk. | 21833 |

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 1/4" to 1/8" 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.

| 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%.

See next page for more Click-On in-line Super Clean® products.

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 |



To prevent settling of dessicant, mount vertically, not horizontally.



Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

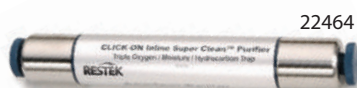
Click-On In-Line Super Clean® Indicator

- 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.

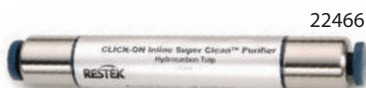


Click-On traps measure:
8 1/2" x 1 1/4" (21.6 x 3.2 cm)

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 |



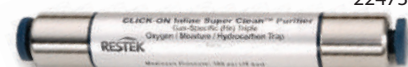
Accessories for In-Line Super Clean® Gas Traps and Connectors

| 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)

**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-

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.



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.



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 |



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)

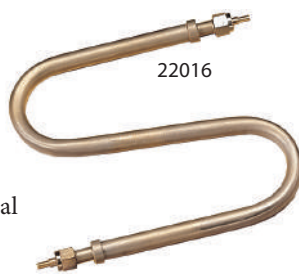
Refillable Hydrocarbon Trap

- 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.

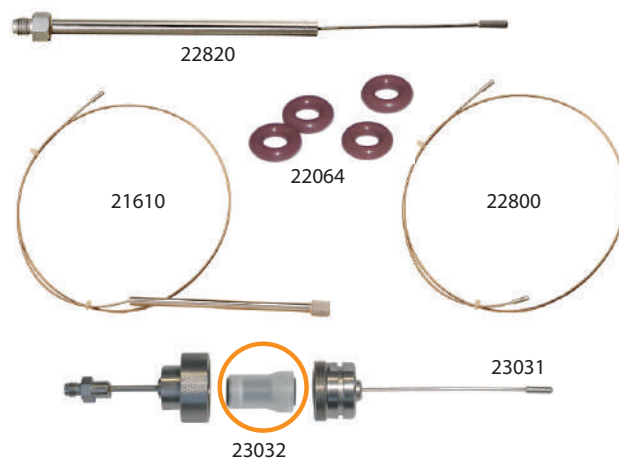
Gas Pressure Gauge Kit

- 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 | kit | 23071 |
| Includes: 1 deionizer cartridge, 1 water filter, 3 environmental filters, 1 water level sensor, 1 water pump, and 1 desiccant cartridge | | |

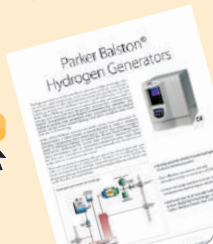
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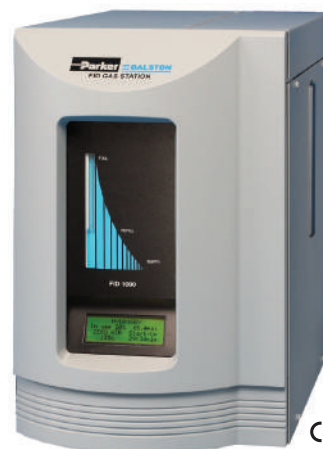


Parker Balston® Model FID-1000 and FID-2500 Gas Stations

- 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.



CE

**Produce zero air and pure hydrogen
from one unit!**

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 |
| Includes: 1 desiccant cartridge, 1 resin cartridge, 1 inline filter**, and 1 tube filter** | | | |

*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

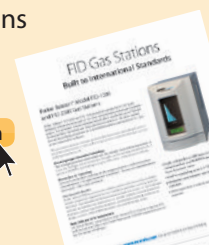
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20697

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: | 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. *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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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

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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.



| 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

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) |

| 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 | | | | |
| Includes: 1 prefilter and 1 sintered metal filter | for 75-83NA | | kit | 21646 |
| 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 |
| 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.

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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.



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

| 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.



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

| 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.



Inlet connections: 1/4" FPT
Outlet assembly: 1/4" FPT port

| 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 |

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.

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



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 _s) | 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 | | Stainless Steel | |
|------------------|------------------|---------------------|--------|-------|-----------------|-------|
| | | | qty. | cat.# | qty. | cat.# |
| Male Connector | 1/4" to 1/4" 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 pigtails (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

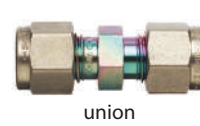
| Fitting Type | Size | Swagelok # | Brass | | 316 Grade Stainless Steel | |
|-------------------------------|-------------------|------------|--------|-------|---------------------------|-------|
| | | | qty. | cat.# | qty. | cat.# |
| Nut | 1/16" | 102-1 | 20-pk. | 23100 | 5-pk. | 23150 |
| | 1/8" | 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

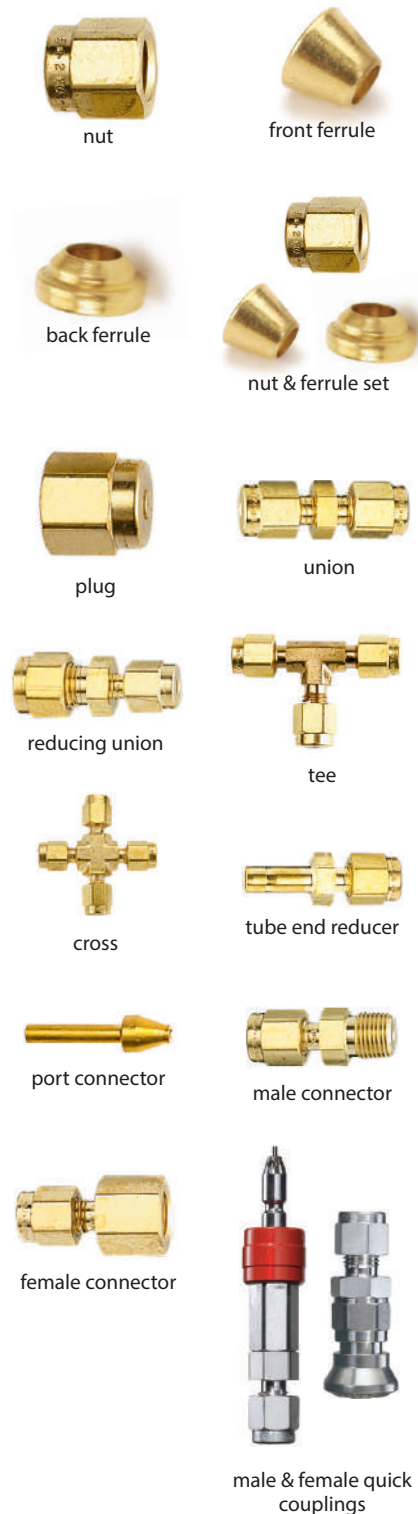


bulkhead union

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.

| 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



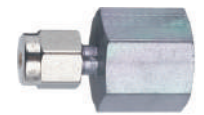
tube end reducer



port connector



male connector



female connector



plug valve, 2-way



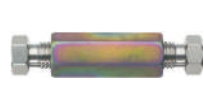
ball valve, 2-way

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?

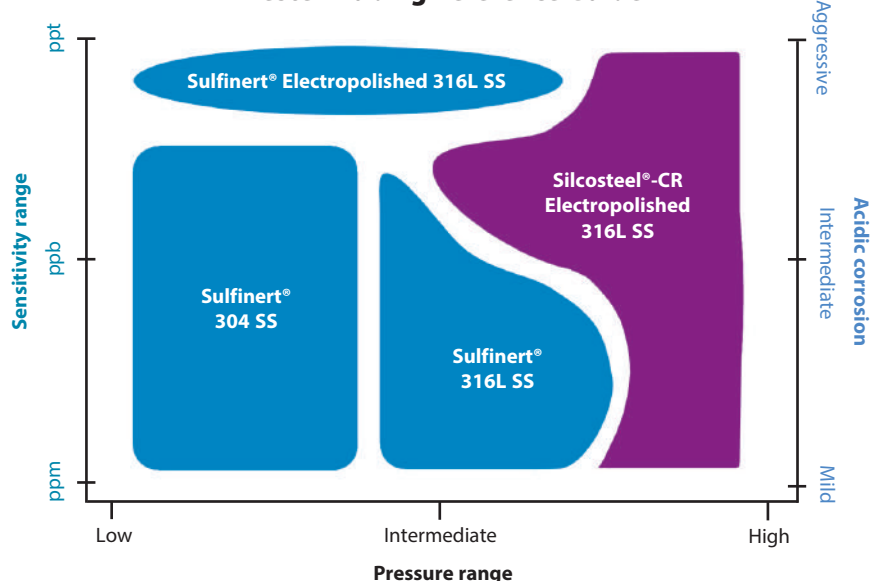
Siltek® is the name for the patented deposition process. When the Siltek® process was developed, the application that showed the greatest benefit was the storage and transfer of low ppb level active sulfur compounds, such as hydrogen sulfide and mercaptans. Because there was (and continues to be) demand 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.

Restek Tubing Reference Guide



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: req

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.

| | | | 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.#* |
| 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.

Zero bleed.

| 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) | | | | | | | | | | |
| 0.055" (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

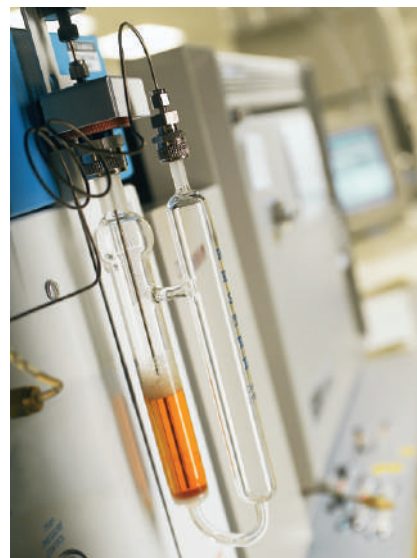
Required length in meters x 3.2808 = length in feet.

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.



Toggle valve



Ball valve



Plug valve

Shut-Off Gas Valves Swagelok®

| | 1/8" | 1/4" | 1/8" | 1/4" |
|------------|-------|-------|-----------------|-----------------|
| | Brass | Brass | Stainless Steel | Stainless Steel |
| Valve Type | cat.# | cat.# | cat.# | cat.# |
| Toggle | 23142 | 23143 | 23198 | 23199 |
| Ball | 23144 | 23145 | 23200 | 23201 |
| Plug | 23146 | 23147 | 23202 | 23203 |



23207



23209



23214



23211



23215

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) |

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



Toggle valve



Ball valve



Plug valve

Shut-Off Gas Valves Parker Balston®

| | 1/8" | 1/4" | 1/8" | 1/4" |
|------------|-------|-------|-----------------|-----------------|
| | Brass | Brass | Stainless Steel | Stainless Steel |
| Valve Type | cat.# | cat.# | cat.# | cat.# |
| Toggle | 22188 | 22189 | 22190 | 22191 |
| Ball | 22192 | 22193 | 22194 | 22195 |
| Plug | 22196 | 22197 | 22198 | 22199 |

| 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 |

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

RESTEK

Distributor

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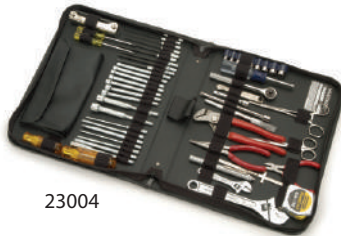


21325

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



20192

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 |



20193

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.



23011

| 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.



22356

| Description | qty. | cat.# |
|----------------------------|-------|-------|
| Hi-Duty Tubing Cutter | ea. | 22356 |
| Replacement Cutting Wheels | 2-pk. | 22357 |



23029

**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 |

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