

Column Installation



Top: Jason Martin, Buyer/Planner

Bottom: Scott Grossman and Amanda Rigdon,
Application Chemists

Restek Electronic Leak Detector

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

Improve GC Performance; Save Your Column!

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

Leaks can cause detector noise and baseline instability, waste carrier gas, and shorten column lifetimes, so leak checks should be a regular part of a GC maintenance program. The Restek Electronic Leak Detector responds in less than 2 seconds to leaks of gases with thermal conductivities different from air, indicating leaks with both an audible alarm and an LED readout. The leak detector detects minute gas leaks that can go undetected by liquid leak detectors. Liquid leak detectors should not be used on a capillary GC system; liquids drawn into the system through the leaks will contaminate the system.

How does the Restek Electronic Leak Detector work?

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



Small, compact unit—easy to hold and operate.

Leak Detector Facts

Detectable Gases:	helium, nitrogen, argon, and carbon dioxide
Battery:	Rechargeable Ni-MH, 7.2-volt
Operating Temperature Range:	32°-120°F (0°-48°C)
Humidity Range:	0-97%
CE Approved:	Yes



Easy-to-clean probe assembly

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

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

Leak Detector Accessory Kit

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



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



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



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

Flow Meter, Methane Cylinder Kit, Column Rinsing Kit



Soap Film Bubble Flowmeters

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

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



cat.# 20197

Methane Cylinder Kit

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). Measuring the linear velocity of your carrier gas is made easy by using our Methane Cylinder Kit. 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.

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



Column not included.

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 50mL 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

it's a fact

Restek On-The-Road training seminars are full-day courses presented in an engaging multimedia format. They are equally valuable to beginning chromatographers, those who have moderate experience and want a better understanding of the subject matter, and those interested in the "best practices" and latest technologies. **No sales pitch is presented**, just the facts on how to make your chromatography results better. The bulk of each course is lecture, but numerous demonstrations and problem-solving exercises facilitate and reinforce the understanding of important principles. See **page 11** for more information.

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

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 7/16" 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 7/16" 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
- 6mm x 7mm open end wrench
- 8mm x 10mm open end wrench
- 16mm x 17mm open end wrench

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

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

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

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



For Agilent GCs
(cat.# 22186)



For PerkinElmer GCs
(cat.# 22185)



For Shimadzu GCs
(cat.# 22182)



For Thermo Scientific GCs
(cat.# 22183)



For Varian GCs
(cat.# 22184)

Description	qty.	cat.#
MLE Capillary Tool Kit for Agilent GCs	kit	22186
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 Capillary Tool Kit for Varian GCs	kit	22184

did you know?

Make Life Easier!

MLE Tool Kits conveniently provide the tools that make it easier to install and maintain capillary columns!

restek
innovation!



Make clean,
square cuts!

Scoring Wafer with Handle

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



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



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



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

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



Ceramic Scoring Wafers

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



Exert just enough pressure to put a slight arc in the tubing. The tubing should fall off or break with a slight tap of the wafer.



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

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



Sapphire Scribe

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



One quick stroke...



...and just a tap leaves a clean, square end.

Description	qty.	cat.#
Sapphire Scribe	ea.	20182



cat.# 23027

cat.# 23026

Shortix® Capillary GC Column Cutter

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

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

Capillary Column Caps

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



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

Capillary Installation Gauge

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

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innovation!

Easily seat ferrules for consistent installations!



A) for Agilent-style fittings (compact ferrules)



B) for 1/16" fittings (1/16" ferrules)



C) for Thermo Scientific TRACE™ & Focus SSL (M4 ferrules)



D) for Varian GCs for use with 1/16" ferrules



E) for Shimadzu 17A, 2010, and 2014 GCs

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

*Recommended for use with graphite ferrules.

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.



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



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

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



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.



Gently push the liner removal tool onto the liner in the injection port, with a slight circular motion.



Slowly pull the liner out of the injection port.



Use the liner removal tool to place a new liner into the injection port, avoiding hot metal surfaces.

Description

Inlet Liner Removal Tool

qty.

3-pk.

cat.#

20181

Inlet Liner Packing Tool

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

Eliminates user variation!



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

Mini Wool Puller/Inserter

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



Description

Mini Wool Puller/Inserter

qty.

2-pk.

cat.#

20114

Rethreading Tool

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

Achieve a better seal!



cat.# 23018



damaged threads

Repeated installation, removal, and temperature changes cause wear and damage to threads on GC parts. This can cause a poor seal, and oxygen can enter the system, compromising analytical results and possibly destroying expensive analytical columns.



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



repaired threads

Description

Rethreading Tool for 1/16" compression fitting

qty.

ea.

cat.#

23016

Rethreading Tool for 1/8" compression fitting

ea.

23017

Rethreading Tool for 1/4" compression fittings (Agilent split/splitless injection ports)

ea.

23018

Rethreading Tool for 7/16" compression fitting (Varian injection ports)

ea.

23019

Rethreading Tool for 1/4" Varian-style capillary column fittings

ea.

21893

Injector Wrench for Agilent 5890/6890/6850 GCs

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



Use the smaller end to remove the septum nut.



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



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

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

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

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



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

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



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



Open-End Wrenches

High-quality wrenches for tightening capillary fittings.

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



Metric Wrench Set

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

Description	qty.	cat.#
Metric Wrench Set	set	22997



Metric 9 Piece Ball-Point Hex Key Set

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

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



12 Piece Ball-Point Hex Key Set

Includes 12 hex keys (Allen wrenches): .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



Column Installation Tools



Slide-Lock Tweezers and 15cm Compact Steel Ruler

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

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



High-Temperature String

- Withstands temperatures to 400°C.
- Use to restring capillary columns, attach column connectors to column cages, or hold a column in the GC oven.

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



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



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 (30cm) long.

Description	qty.	cat.#
Nylon Tube Brushes and Pipe Cleaner	4-piece set	20108



4" Tapered Needle Files

These files can be used for a multitude of 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



MXT™ Needle Files

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

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



Mini Hand Drill Set

Drill ferrules to the proper ID in seconds! Includes three drills, for use with 0.25, 0.32, and 0.53mm ID (0.4, 0.5, and 0.8mm OD) capillary columns.

Description	qty.	cat.#
Mini Hand Drill Set	3-piece set	20122



Stainless Steel Jet Reamers

A great tool for cleaning detector jets and other small orifices. Serrated design is optimal for removing silica deposits and other contaminants. Ideal for removing ferrules that have become stuck in fittings.

Description	qty.	cat.#
Stainless Steel Jet Reamers	6-piece set	20113



Pocket Magnifier

- Small and easy to handle.
- 10X magnification makes it easy to see the column end to verify a square cut.

Description	qty.	cat.#
Pocket Magnifier	ea.	20124

Temperature Measuring Stick

- Verify GC oven or polymer 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.#
Temperature Measuring Stick	ea.	22066



Flashlight with Swivel Head

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

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



FIX-IT Laboratory Swiss Army Knife

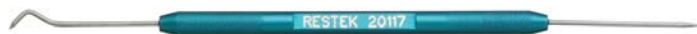
- 15-function tool includes inlet liner remover, screwdrivers, scissors, blade, and tweezers.
- Includes a magnifying glass to check column end cuts.
- Genuine Swiss Army quality with 5-year warranty.
- Every GC analyst should have one!

Description	qty.	cat.#
FIX-IT Laboratory Swiss Army Knife	ea.	23013



Septum Puller

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



Remove septum without damaging an expensive weldment.



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

Description	qty.	cat.#
Septum Puller	ea.	20117

save **money!**

You can save money on column installation tools by purchasing the new MLE Capillary Tool Kits described on **page 209**.

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

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

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



restek **innovation!**

Liner Cap Removing Tool for Thermo Scientific GCs:

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

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

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



GC Inlet and FID Maintenance Kits



Steve Kreiser
Director of Quality
11+ years of service!

Inlet and FID Maintenance Kits

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



Inlet Maintenance Kit for
Agilent 5890/6850/
6890/7890 GCs



FID Kit for Agilent 5890 GCs



FID Kit for Agilent
6850/6890/7890 GCs

Inlet kit includes:

- 0.4, 0.5, and 0.8mm ID graphite ferrules.
- Viton® O-rings.
- Capillary nuts.
- Inlet seals.
- Reducing nut.
- Scoring wafer.
- 11mm Thermolite® septa.
- 4.0mm single gooseneck liner.
- 4.0mm split liner with wool.
- Capillary column caps.
- 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.

FID kits include:

- 1/4", 0.4, 0.5, and 0.8mm 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.

also **available**

MLE Capillary Tool Kits.
See **page 209**.

new and improved!

Now with even more tools!

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

Vespel® Ferrules

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

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® ferrules

Vespel®/Graphite Ferrules

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

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

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

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



Encapsulated Ferrules—For 1/16-Inch Compression Fittings

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

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



Reusable!

Compact Ferrules—For Agilent 5890/6890/6850 GCs

Available in graphite or Vespel®/graphite.

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



*For micropacked columns.
**For 0.28mm MXT® columns.

