

GC Accessories

Gas Management

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Restek provides the following total gas system solution:

- Restek® gas purifiers provide cost-effective gas purity assurance.
- Restek stainless steel and copper tubing is precleaned and ready to use.
- Swagelok® and Parker A-Lok® tube fittings consistently deliver high-quality performance.
- Extensive line of hand tools, including Restek's electronic leak detector, to make your work easier and faster.
- Gas generators offer an uninterrupted supply of gas.
- Gas regulators ensure optimum line pressure control of all your chromatography gases.

Restek Technical Service (1-800-356-1688, ext. 4; 1-814-353-1300, ext. 4; or support@restek.com) or your Restek representative can answer your questions and provide system-design advice. From the gas source to your point of use, we offer the products and services that ensure the purity of your gas.

**Why do I need to use traps and where should I install them?**

Carrier gas must contain less than 1 ppm of oxygen, water vapor, or any other trace contaminant to prevent column degradation, shortened column lifetime, and increased stationary phase bleed. Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. The expense of using high-purity gases in combination with carrier gas purifiers will be offset by longer column lifetime and less instrument maintenance.

Moisture Removal

Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise (particularly with ECDs). As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines. Our favorite trap is the Super Clean® ultra-high capacity moisture filter (cat.# 22028, p. 287).

Hydrocarbon Removal

Use a hydrocarbon trap if your gas has a potential source of hydrocarbon contaminants (e.g., an oil pump in an air compressor) or if you suspect you are observing carrier gas ghost peaks. Install the hydrocarbon trap after the moisture trap to prevent moisture from degrading the hydrocarbon-trapping ability of the activated carbon in the hydrocarbon trap. We recommend the Super Clean® ultra-high capacity hydrocarbon filter (cat.# 22030, p. 287).

Oxygen Removal

Oxygen is a column killer and can enter the system at any connection that is leaking. It is present even in ultra-high purity gases, as minute leaks at fittings allow oxygen to influx against the concentration gradient. There are many choices for oxygen removal—the Super Clean® ultra-high capacity oxygen Filter (cat.# 22029, p. 287) is popular with Restek chemists. Because oxygen can enter a gas line at any fitting, the oxygen trap should be the last connection before the gas line enters the chromatograph.

Leak Checking

To prevent column degradation, increase column lifetime, and decrease stationary phase bleed, carrier gas should always contain <1 ppm oxygen. This can be monitored by continually leak checking all gas system connections using the Restek® electronic leak detector (cat.# 22655, p. 286).

for more info**Questions about which carrier gas purifier to use?**

Call Restek Technical Service at 1-814-353-1300, ext. 4, or contact your Restek representative to discuss your application.

Gas Management System, Leak Detector

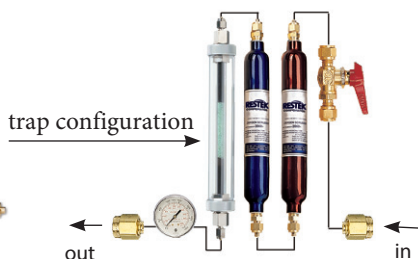


Dimensions:
12" x 14" x 3"
(30.5 x 35.6 x 7.6 cm)

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.



did you know?

The Restek® gas management system removes water vapor (to 10 ppb), hydrocarbons (to 0.1 ppm), and oxygen (to less than 0.1 ppm) with three traps housed in one unit.

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



22655



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



22658

Verify hard-to-reach leaks using the small probe adaptor (sold separately).



22652

22653

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.

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 10⁵/₈" x 1³/₄" (27 x 4.4 cm).
- Each base plate unit measures 4" x 4" x 1⁷/₈" (10.2 x 10.2 x 4.8 cm).



22022

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.

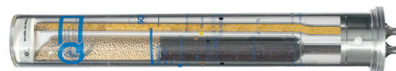
²Removes hydrocarbons, moisture, and oxygen.

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



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.



22026



22025



22027

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.



21984

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.



22023

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.



21833

Description	Brass		Stainless Steel	
	qty.	cat.#	qty.	cat.#
Tube End Reducer, 1/8" to 1/4"	5-pk.	21833	2-pk.	21933

Restek® Super Clean® Gas Trapping System for LC-MS

A Super Clean® quick-change cartridge system efficiently removes hydrocarbons from nitrogen!

- Designed for easy, hassle-free cartridge changes.
- Up to 20 L of hydrocarbon-free nitrogen per minute.
- Filters connected in parallel to handle high flows for LC-MS.

Super Clean® gas filters provide high-purity outlet gas

Type of filter:	Hydrocarbon (charcoal)
Max. Flow:	20 L/min
Outlet Gas Quality %:	99.9999%
Maximum Pressure:	11 bar/159 psi
Estimated Lifetime:	3 to 6 months

All traps measure:

10 5/8" x 1 3/4" (27 x 4.4 cm)

Each 2-position base plate unit measures:

8" x 4" x 1 7/8" (20.3 x 10.2 x 4.8 cm)

Standard base plate inlet/outlet fittings accept 1/4" tubing. To adapt to 1/8" tubing, order 1/4" 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) (<i>n</i> -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.

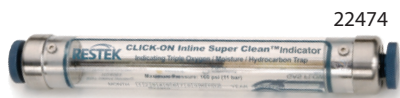
Restek Click-On In-Line Super Clean® Gas Traps and Connector Kits

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



itech tip

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



22474

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

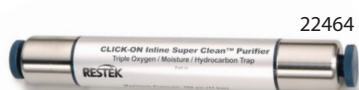
Click-On In-Line Super Clean® Indicator

- 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.



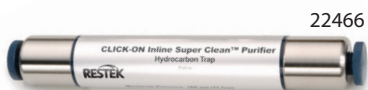
22464

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.



22466

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.



22477

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.



22479

Each double connector is 3" (8 cm) in length.

Description	qty.	cat.#
Click-On In-line Super Clean Double Connector, Stainless Steel	ea.	22479



22480



22481

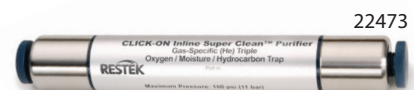
Accessories for In-Line Super Clean® Gas Traps and Connectors

Description	qty.	cat.#
Wall-Mounting Clamps for Click-On In-line Super Clean Gas Traps	4-pk.	22480
Replacement O-Rings for Click-On In-line Super Clean Connectors (includes 10 large and 10 small)	20-pk.	22481

Helium-Specific Click-On In-Line Super Clean® Gas Trap and Connector Kits

Helium-specific Click-On in-line Super Clean® gas trap and kits are designed specifically for purification of helium in GC-MS systems.

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



22473

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

Click-On In-Line Super Clean® Big Trap Filter Kits

- Largest-capacity traps available—run longer without replacing.
- “Quick connect” fittings with spring-loaded check valves allow filter replacement in seconds without tools or contamination.
- Stainless steel construction withstands pressures up to 1,000 psig.
- High-purity output ensures 99.9999% pure gas (maximum flow of 8 L/min).
- Triple gas trap is ideal for purifying carrier gas.
- Helium-specific triple gas trap is made for GC-MS—ready to use within 15 minutes of installation.
- Hydrocarbon trap removes hydrocarbon contamination from carrier gas to help eliminate ghost peaks.



Click-On In-Line Super Clean® Big Traps measure:

22" x 2 1/2" (55.9 x 6.4 cm)

Capacity:

Triple Gas Traps: 2.0 L oxygen; 30 g total hydrocarbons; 70 g water

Hydrocarbon Trap: 90 g total hydrocarbons



27201

Description	qty.	cat.#
Triple Helium Kit, 1/4"		
Includes: (2) 1/4" SS connectors, (1) oxygen/moisture/hydrocarbon helium-specific trap, and (2) wall-mounting clamps	kit	27201
Triple Helium Kit, 1/8"		
Includes: (2) 1/8" SS connectors, (1) oxygen/moisture/hydrocarbon helium-specific trap, and (2) wall-mounting clamps	kit	27202
Hydrocarbon Kit, 1/4"		
Includes: (2) 1/4" SS connectors, (1) oxygen/moisture/hydrocarbon trap, and (2) wall-mounting clamps	kit	27203

Click-On In-Line Super Clean® Big Trap Replacement Filters

Capacity:

Triple Gas Traps: 2.0 L oxygen; 30 g total hydrocarbons; 70 g water

Hydrocarbon Trap: 90 g total hydrocarbons



27205

Description	qty.	cat.#
Triple Helium Trap	ea.	27204
Triple Standard Trap	ea.	27205
Hydrocarbon Trap	ea.	27206

Note: Replacement filter only—fittings sold separately. See Click-On in-line Super Clean® Big Trap filter kits for more information.

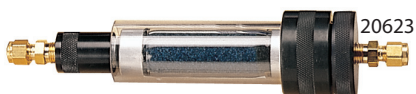
Click-On In-Line Super Clean® Big Trap Wall-Mounting Clamp Set

Description	qty.	cat.#
Click-On In-Line Super Clean Big Trap Wall-Mounting Clamp Set	2-pk.	27207



27207

Gas Traps



Dimensions: 9 1/4" x 2" (23.5 x 5.1 cm)



22081

High-Capacity Indicating Oxygen Trap

- Indicator changes from dark blue to black as oxygen and water are trapped.
- Lasts longer than three smaller traps.
- Use with all carrier gases.
- Ambient operating temperature, 100 psi (689 kPa) operating pressure.
- Built-in frit traps microparticles.
- Outlet gas purity:

O₂ < 0.1 ppm when inlet does not exceed 15 ppm.

H₂O < 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 µm frits at inlet and outlet.
- Optimal flow rate: < 150 mL/min.

Description	Fittings	qty.	cat.#
Indicating Oxygen Trap	1/8" Brass	ea.	22010
Indicating Oxygen Trap	1/4" Brass	ea.	22011



Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)

High-Capacity Oxygen Trap

- Removes up to 600 mg of oxygen or 2 g of water.
- Long life—typically purifies more than five 200 ft³ cylinders.
- Reduces oxygen to 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Flow: 3 L/min @ 32 psi (221 kPa).

Description	Fittings	qty.	cat.#
High-Capacity Oxygen Trap	1/8" Nickel-Plated Brass	ea.	20601
High-Capacity Oxygen Trap	1/4" Nickel-Plated Brass	ea.	20600

Molecular Sieve S-Trap

- Traps water vapor; increases column and oxygen trap lifetime.
- Reduces baseline noise from sensitive detectors such as ECDs and mass spectrometers.
- Activated and ready to use.
- Reduces water to less than 1 ppm.
- Maximum flow: 1 L/min.



20686

Dimensions:
6 3/4" x 5 5/8" (17.1 x 14.3 cm)

Description	Fittings	qty.	cat.#
Molecular Sieve S-Trap	1/8" Brass	ea.	20686

This trap can be regenerated by heating to 300 °C for three hours using a 50-70 mL flow of dry nitrogen.



21997

Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)
Moisture capacity: 16 g of water

High-Capacity Moisture Trap

- Purged with ultra-high-purity helium; ready to use with any carrier gas including hydrogen.
- Reduces water to less than 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Maximum flow: 1.25 L/min.

Description	Fittings	qty.	cat.#
High-Capacity Moisture Trap	1/8" Nickel-Plated Brass	ea.	21997
High-Capacity Moisture Trap	1/4" Nickel-Plated Brass	ea.	20638



22015

Dimensions: 13" x 2" (33 x 5.1 cm)
Moisture capacity: 6 g of water
Maximum flow: 1 L/min

Indicating Moisture Trap

- Reduces water to less than 10 ppb; indicator changes from yellowish-green to blue at 5% relative humidity.
- Prepurged for fast stabilization.
- Reduces noise from high-sensitivity detectors.
- Heavy-walled glass body prevents oxygen and water infusion.
- 10 µm 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)

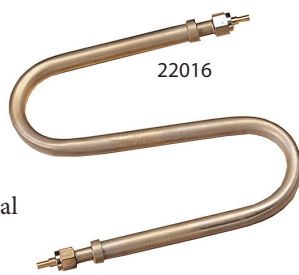
Refillable Hydrocarbon Trap

- 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

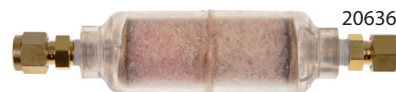
Hydrocarbon S-Trap

- 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

i tech tip

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.

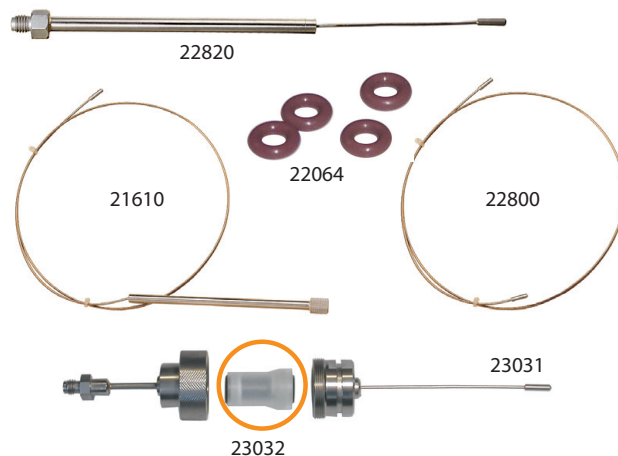
Gas Pressure Gauge Kit

- 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



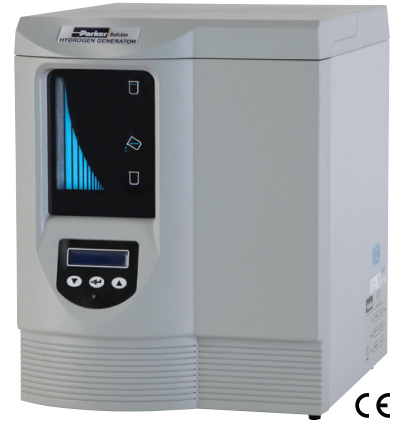
Replacement Chemical Traps and Parts for Agilent GCs

- 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 ± 0.5 psig (69-689 kPa ± 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		

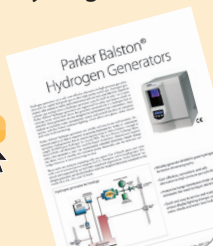
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Parker Balston® Hydrogen Generators

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- Handy probe storage for cleanliness and convenience.

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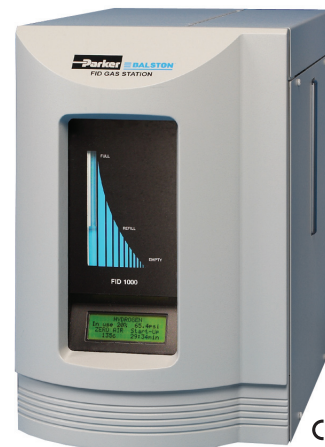


Parker Balston® Model FID-1000 and FID-2500 Gas Stations

- 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.



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 Includes: 1 desiccant cartridge, 1 resin cartridge, 1 inline filter**, and 1 tube filter**	ea.	24915

*Zero air inlet requires minimum of 40 psig (276 kPa) compressed air pressure.

** Filters should be changed every year; resin and desiccant cartridges can be replaced every 2 years.

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FID Gas Stations

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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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Gas Management Supplies for GC Labs

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lit. cat.# GNBR1758-UNV

Parker Balston® Nitrogen Gas Generators for LC-MS

- Turn compressed air into ultra-pure nitrogen (up to 99.5%).
- Flows from 1 to 44 L/min.
- Models N2-04, N2-14, N2-22, and N2-35 require no electricity.
- Safe, reliable, low maintenance.
- Maintenance kits include replacement filters.



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	N2-35A Model, 44 L/min max. flow	ea.	22134
Includes: Oxygen analyzer and audible alarm (monitors oxygen in nitrogen stream and signals high or low concentrations)			
Maintenance Kits	Model #	qty.	cat.#
Maintenance Kit	for NitroFlow Lab	kit	22156
Includes: carbon filter			
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	for HPZA-3500, HPZA-7000, HPZA-18000, HPZA-30000, and 75-80 (Zero Air); N2-04 (Nitrogen); and TOC-1250 (TOC)	kit	21647
Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter			

*The manufacturer recommends maintenance for this unit every 6 months.



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	
Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter					
Replacement Catalyst Towers	Model #	Capacity	qty.	cat. #	
Replacement Catalyst Tower	for 75-83NA	1,000 cc/min	ea.	22005	
Replacement Catalyst Tower	for HPZA-3500	3,500 cc/min	ea.	22004	
Replacement Catalyst Tower	for HPZA-7000	7,000 cc/min	ea.	22006	
Replacement Catalyst Tower	for HPZA-18000	18,000 cc/min	ea.	22007	
Replacement Catalyst Tower	for HPZA-30000	30,000 cc/min	ea.	22008	

*Parker Model 75-83NA (Restek cat. # 20684) is a wall-mount model, and its dimensions are 12" w x 10" h x 3" d.

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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, $\frac{1}{4}$ " 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, $\frac{1}{4}$ " 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: $\frac{1}{4}$ " FPT
Outlet assembly: $\frac{1}{4}$ " FPT port

Fitting	Outlet Pressure	Outlet Gauge	qty.	cat.#
$\frac{1}{4}$ " female NPT ports*	0–50 psig (0–345 kPa)	30", 0 to 100 psig (0–689 kPa)	ea.	21666
$\frac{1}{4}$ " female NPT ports*	0 to 150 psig (0–1,034 kPa)	30", 0 to 200 psig (0–1,379 kPa)	ea.	22452

*Order appropriate male connector, pipe-to-tube fittings.

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 ₂)	ea.	21337
CGA 590 Fitting (Air)	ea.	21338



23134



23179

Swagelok® Male Connector, Pipe-to-Tube Fittings

Fitting Type	Size (inches)	Similar to Swagelok	Brass		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

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.

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.



40%
savings



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)

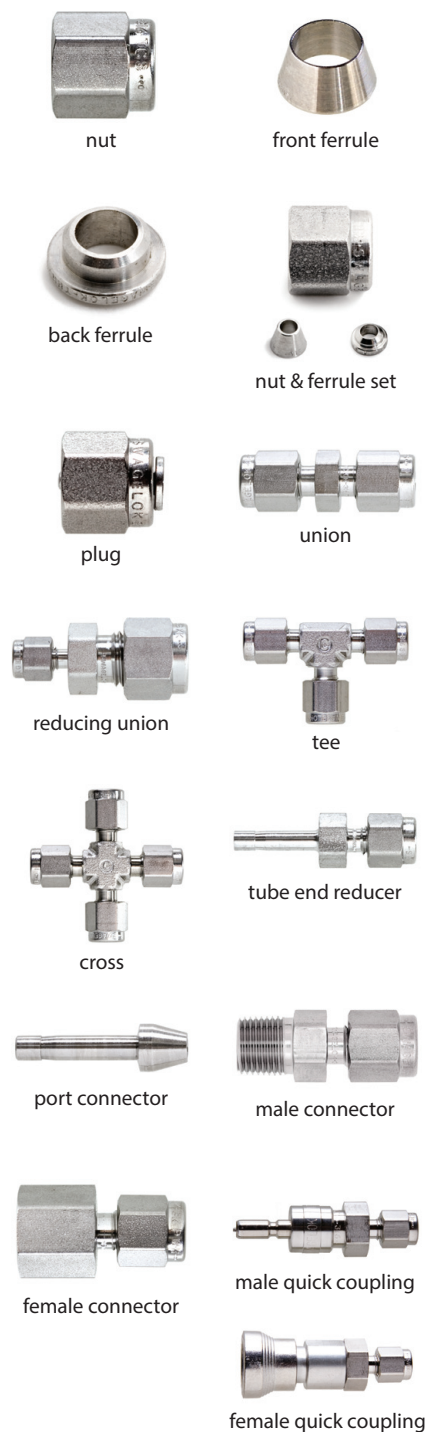
Swagelok # Description (qty included in kit)

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.



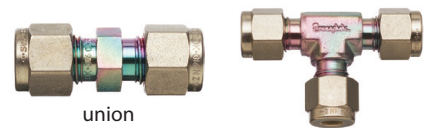
Fitting Type	Size	Swagelok #	Brass		316 Grade Stainless Steel	
			qty.	cat.#	qty.	cat.#
Nut	1/16"	102-1	20-pk.	23100	5-pk.	23150
	1/8"	202-1	40-pk.	23101	10-pk.	23151
	1/4"	402-1	40-pk.	23102	10-pk.	23152
Front Ferrule	1/16"	103-1	20-pk.	23103	10-pk.	23153
	1/8"	203-1	40-pk.	23104	20-pk.	23154
	1/4"	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
Female Connector	1/4" to 1/8" NPT	400-1-2	10-pk.	23137	2-pk.	23187
	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
Male & Female Quick Couplings	1/4" to 1/8" NPT	400-7-2	5-pk.	23140	2-pk.	23190
	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 shut-off 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



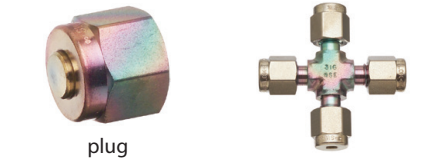
union

tee



reducing union

elbow



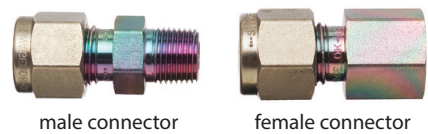
plug

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.

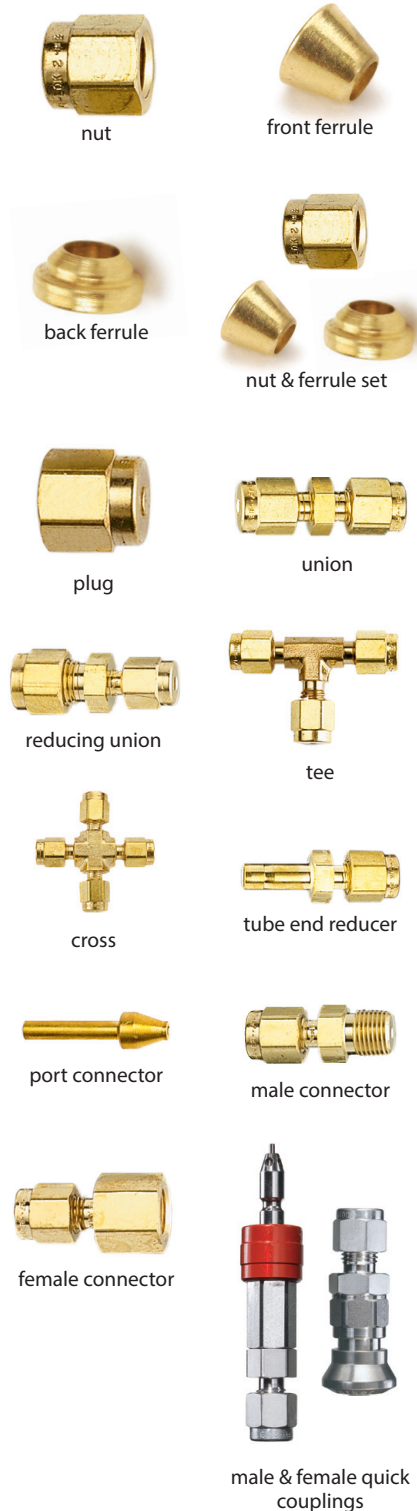
For more information on our custom coatings, see page 312.



Fittings

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
Female Connector	1/4" to 1/8" NPT	4 MSC 2N	10-pk.	21845	2-pk.	21945
	1/8" to 1/8" NPT	2 FSC 2N	5-pk.	21846	2-pk.	21946
	1/4" to 1/4" NPT	4 FSC 4N	5-pk.	21847	2-pk.	21947
	1/4" to 1/8" NPT	4 FSC 2N	5-pk.	21848	2-pk.	21948
Male & Female Quick Couplings	1/8" male*	2A-Q4VN	—	—	ea.	21957
	1/8" male	2A-Q4P	—	—	ea.	21958
	1/8" female*	2A-Q4CN	—	—	ea.	21959
	1/4" male*	4A-Q4VN	—	—	ea.	21960
	1/4" male	4A-Q4P	—	—	ea.	21961
	1/4" female*	4A-Q4CN	—	—	ea.	21962

*Includes self-sealing shut-off valve.

Parker® Fittings (Siltek®/Sulfinert® Treated & Silcosteel®-CR Treated)

A broad line of 1/16", 1/8" and 1/4" fittings are available with Siltek®/Sulfinert® or Silcosteel®-CR treatment. Because of expanding applications for these coatings, we have received many requests for a broader product offering. If you do not see everything you need, contact us for information on custom coating services.

Fitting Type	Size	Parker #	Siltek/Sulfinert Treated		Silcosteel-CR Treated	
			qty.	cat.#	qty.	cat.#
Union	1/16"	1 SC 1	ea.	22520	ea.	22863
	1/8"	2 SC 2	ea.	22521	ea.	22864
	1/4"	4 SC 4	ea.	22522	ea.	22865
Tee	1/16"	1 ET 1	ea.	22526	ea.	22866
	1/8"	2 ET 2	ea.	22527	ea.	22867
	1/4"	4 ET 4	ea.	22528	ea.	22868
Reducing Union	1/8" to 1/16"	2 RU 1	ea.	22523	ea.	22869
	1/4" to 1/16"	4 RU 1	ea.	22524	ea.	22870
	1/4" to 1/8"	4 RU 2	ea.	22525	ea.	22871
Elbow	1/8"	2 EE 2	ea.	22530	ea.	22875
	1/4"	4 EE 4	ea.	22531	ea.	22876
Plug	1/8"	2 BLP 2	ea.	21540	ea.	22878
	1/4"	4 BLP 4	ea.	21541	ea.	22879
Cross	1/8"	2 ECR 2	ea.	21542	ea.	22872
	1/4"	4 ECR 4	ea.	21543	ea.	22873
Tube End Reducer	1/8" to 1/16"	2 TUR 1	ea.	21544	ea.	22880
	1/4" to 1/16"	4 TUR 1	ea.	21545	ea.	22881
	1/8" to 1/4"	2 TUR 4	ea.	21546	ea.	22882
	1/4" to 1/8"	4 TUR 2	ea.	21547	ea.	22883
Port Connector	1/8"	2 PC 2	ea.	21548	ea.	22884
	1/4"	4 PC 4	ea.	21549	ea.	22885
	1/8" to 1/4"	2 PC 4	ea.	21550	ea.	22886
Male Connector	1/8" to 1/8" NPT	2 MSC 2N	ea.	21551	ea.	22887
	1/4" to 1/4" NPT	4 MSC 4N	ea.	21552	—	—
	1/16" to 1/8" NPT	1 MSC 2N	ea.	21553	ea.	22889
	1/8" to 1/4" NPT	2 MSC 4N	ea.	21554	ea.	22890
	1/4" to 1/8" NPT	4 MSC 2N	ea.	21555	ea.	22891
Female Connector	1/8" to 1/8" NPT	2 FSC 2N	ea.	21556	ea.	22892
	1/4" to 1/4" NPT	4 FSC 4N	ea.	21557	ea.	22893
	1/4" to 1/8" NPT	4 FSC 2N	ea.	21558	ea.	22894
	1/8" to 1/4" NPT	2 FSC 4N	ea.	21559	—	—
Plug Valve, 2-Way	1/8"	2A PR4 VT SS	ea.	21586	—	—
	1/4"	4A PR4 VT SS	ea.	21587	—	—
Ball Valve, 2-Way	1/8"	2A B2LJ2 SSP	ea.	21588	—	—
	1/4"	4A B2LJ2 SSP	ea.	21589	—	—

Please note: Nuts and ferrules are not treated unless requested (custom parts). Nuts and ferrules normally are not in contact with sample pathway, and thus do not require coating.

Ball and plug valves are also available in brass and stainless steel. See [page 316](#).



union



tee



reducing union



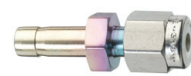
elbow



plug



cross



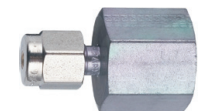
tube end reducer



port connector



male connector



female connector



plug valve, 2-way



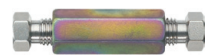
ball valve, 2-way

Valco® Fittings (Siltek®/Sulfinert® Treated)

Fitting Type	Size	Siltek/Sulfinert Treated	
		qty.	cat.#
Zero Dead Volume Tee	1/16"	ea.	22534
	1/8"	ea.	22535
Zero Dead Volume Union	1/16"	ea.	22532
	1/8"	ea.	22533



zero dead volume tee



zero dead volume union

Tubing and Available Coatings

Restek sets the standard in tubing for analytical and process applications. Complete your system with precleaned or treated tubing and treated fittings and valves for an inert, corrosion-resistant pathway.

Available tubing coatings include:

- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater.
- **Sulfinert®**—A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds.

Frequently Asked Questions

1. Can treated tubing be bent?

Treated tubing can be bent into curves with a bend radius greater than 1 inch for 1/16-inch OD tubing, 2 inches for 1/8-inch OD tubing, or 4 inches for 1/4-inch OD tubing. The treatment layer will remain intact as long as the tubing isn't stretched dramatically. If tight bends are necessary, use a treated elbow union or bend untreated tubing and send it to Restek for custom treatment.

2. Can compression fittings be used without crushing the treatment layer?

Yes. The layer is thin and permeates the surface. It compresses with minimal damage.

3. Is welding possible after treatment?

Yes. The coating does not interfere with the welding of two coated components. The coating is lost at the weld and in the heat affected zones approximately 2 to 5 mm on either side of the weld.

4. Is any additional chemical deactivation necessary?

A Sulfinert® or Silcosteel® layer leaves few exposed active sites, so there usually is no need for additional treatment. Chemical deactivation is useful in chromatographic applications in which water will be vaporized on the Silcosteel®-treated surface, but is not necessary for Sulfinert®-treated surfaces. Parts used in high-temperature applications (>400 °C) cannot be chemically deactivated.

5. What are the temperature constraints of these surface treatments?

On stainless steel, a Silcosteel® layer is stable to 600 °C. Parts treated with a secondary polymeric layer are limited to temperatures of 400 °C in inert atmospheres and 250 °C when oxygen is present, the temperature maximums for the polymer. Temperatures above 600 °C can be used under certain conditions—please contact us for information.

6. Why use Sulfinert® or Silcosteel® treatment instead of PTFE coating?

Three reasons: 1) Sulfinert® and Silcosteel® layers are nonpolymeric, so they do not exhibit the problems associated with gas permeability. 2) PTFE coating often flakes off the surface, while the Sulfinert® or Silcosteel® layer is tightly integrated into the substrate lattice. 3) PTFE coating is limited to 280 °C, while Silcosteel®-treated stainless steel tubing and fittings can be used to 600 °C.

7. Why use Sulfinert®-treated tubing for transfer lines?

Sulfinert®-treated stainless steel tubing offers all of the advantages of glass or fused silica tubing for the transfer of active compounds (e.g., sulfurs), but is far more durable and flexible.

8. Is treated tubing similar to glass-lined tubing (GLT)?

No. Sulfinert® or Silcosteel®-treated tubing is flexible and can be bent without heating. Also, the Sulfinert® or Silcosteel® layer is highly inert, unlike impure glass.

9. How can I clean the surface of a treated part after use?

Most often, a mild organic solvent (methylene chloride, methanol, hexane) or water is sufficient. Mild sonication may assist and accelerate the process. Do not use caustic, abrasive, or high pH (pH>8) cleaners, as they will damage or dissolve the layer. Steam cleaning in the presence of oxygen or air could create surface activity, and also should be avoided.

10. What materials should I avoid using with Silcosteel®-treated parts?

The Silcosteel® coating is silicon-based and is prone to attack by hydrofluoric acid or by basic compounds. The surface should not be exposed to media with pH>8.

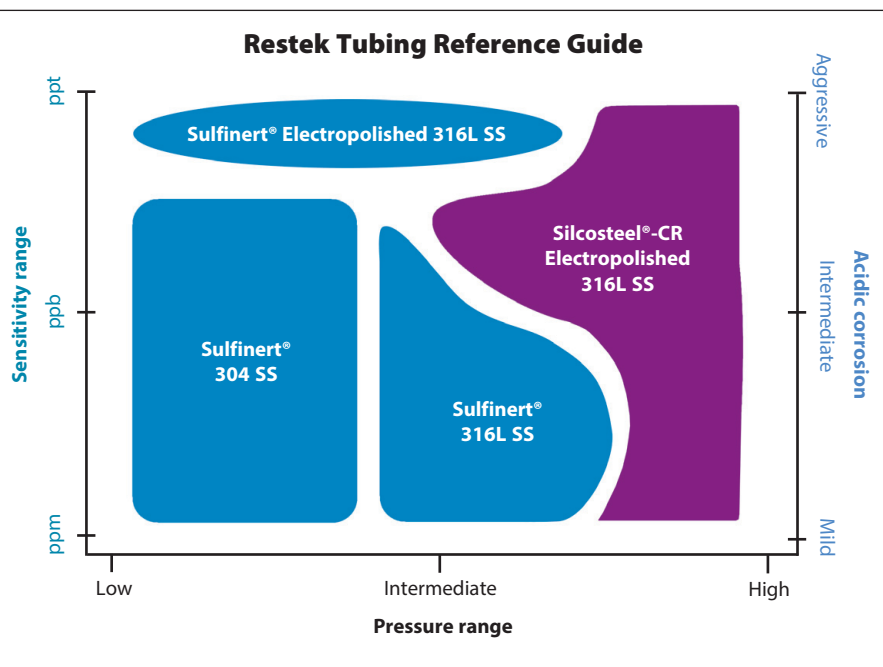
11. Siltek® and Sulfinert®: What's the Difference?

Siltek® is the name for the patented deposition process. When the Siltek® process was developed, the application that showed the greatest benefit was the storage and transfer of low ppb level active sulfur compounds, such as hydrogen sulfide and mercaptans. Because there was (and continues to be) demand for a reliable surface treatment for this application, the name Sulfinert® is used to describe Siltek®-treated products created specifically for this purpose.

frequently asked question

Which treated tubing should I use?

This chart will help you determine the tubing best suited to your application with respect to pressure, sensitivity of your analysis, and acidic environment exposure.



Rinsed and Cleaned 304 Stainless Steel Tubing

Use for providing carrier, fuel, make-up, or auxiliary gases to laboratory instruments.

ID (in.)	OD (in.)	Length							
		6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat.#*
0.01"	1/16"	29000	29001	29002	29003	21500	29004	29005	21502
0.02"	1/16"	29006	29007	29008	29009	21503	29010	29011	21505
0.03"	1/16"	29012	29013	29014	29015	21506	29017	29018	21508
0.04"	1/16"	29019	29020	29021	29022	21509	29023	29024	21511
0.085"	1/8"	29025	29026	29027	29028	21512	29029	29030	21514
0.21"	1/4"	29031	29032	29033	29034	21515	29035	29036	21517

*The availability of long lengths is subject to inventory constraints. Lead times may vary depending on the continuous length needed. Please inquire before ordering. Maximum continuous lengths are: 2,000 ft (cat.# 21502, 21505, 21508, 21511), 1,500 ft (cat.# 21514), and 750 ft (cat.#21517). Pricing for lengths of 101 ft or more is on a per foot basis.



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

Copper Tubing

- Use for plumbing GC systems.
- Cleaned to remove residual organics.

ID	OD	Wall	Max Operating Pressure	qty.	cat.#
0.065"	1/8"	0.030"	2,800 psig	50 ft	22628
0.190"	1/4"	0.030"	1,000 psig	50 ft	22629

Minimum Bend Radius for Coated Tubing

OD	Min. Bend Radius
1/16"	1" (2.5 cm)
1/8"	2" (5.1 cm)
1/4"	4" (10.2 cm)
3/8"	6" (15.2 cm)

ordering note

Required length in meters x 3.2808 = length in feet.

did you know?

A smoother internal surface is less adsorptive.



Top: electropolished finish, surface roughness average number: 10-15.

Bottom: conventional finish, surface roughness average number: approx. 23-27.

Treated Seamless Electropolished 316L Grade Stainless Steel Tubing

Our highest performing tubing. Recommended for:

- Demanding/corrosive environments.
- High temperatures.
- Ultimate inertness.

ID	OD	Wall Thickness	Length							
			6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#*	>100 Feet cat.#*
Silcosteel®-CR Treated (Coiled)										
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29037	29038	29039	29040	29041	29042	—	29043
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29044	29045	29046	29047	29048	29049	29050	29051
Sulfinert Treated (Coiled)										
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29052	29053	29054	29055	29056	29057	—	29058
0.180" (4.57 mm)	1/4" (6.35 mm)	0.035"	29059	29060	29061	29062	29063	29064	29065	29066

*1/8" OD: 95 ft in one continuous coil; 1/4" OD: 300 ft in one continuous coil. Longer lengths will be more than one coil. Pricing for lengths of 101 ft or more is on a per foot basis.

Note: required length in meters x 3.2808 = length in feet.

did you know?

Other lengths and diameters of treated tubing are available on a custom basis.

Call for availability of lengths greater than 1,000 ft.

An extra charge is applied for cutting Sulfinert® or Silcosteel®-CR tubing. The charge is calculated from the total number of pieces produced for each line item

Treated Welded/Drawn 304 Grade Stainless Steel Tubing

Our most popular grade of tubing. Recommended for:

- Chromatography applications.
- Gas delivery systems.
- Lower pressures.
- Inert applications.

Maximum temperature of 450 °C in an inert atmosphere.

ID	OD	Wall Thickness	Length							
			6 Feet cat.#	10 Feet cat.#	15 Feet cat.#	20 Feet cat.#	25 Feet cat.#	50 Feet cat.#	100 Feet cat.#	>100 Feet cat.#*
Sulfinert® Treated (Coiled)										
0.011" (0.28 mm)	0.022" (0.56 mm)		29194	29195	29196	29197	29198	29199	29200	29201
0.021" (0.53 mm)	0.029" (0.74 mm)		29202	29203	29204	29205	29206	29207	29208	29209
0.010" (0.25 mm)	1/16" (1.59 mm)		29210	29211	29212	29213	29214	29215	29216	29217
0.020" (0.51 mm)	1/16" (1.59 mm)		29218	29219	29220	29221	29222	29223	29224	29225
0.030" (0.76 mm)	1/16" (1.59 mm)		29226	29227	29228	29229	29230	29231	29232	29233
0.040" (1.02 mm)	1/16" (1.59 mm)		29234	29235	29236	29237	29238	29239	29240	29241
0.085" (2.16 mm)	1/8" (3.18 mm)	0.020"	29242	29243	29244	29245	29246	29247	29248	29249
0.210" (5.33 mm)	1/4" (6.35 mm)	0.020"	29250	29251	29252	29253	29254	29255	29256	29257

*The availability of long lengths is subject to inventory constraints. Lead times may vary depending on the continuous length needed. Please inquire before ordering. Maximum continuous lengths are: 200** ft (cat.# 29201, 29209), 2,000 ft (cat.# 29217, 29225, 29233, 29241), 1,150 ft (cat.# 29249), and 750 ft (cat.# 29257). Pricing for lengths of 101 ft or more is on a per foot basis.

**Contact us if longer length is needed for cat.# 29201 or 29209.

Treated Seamless 316L Grade Stainless Steel Tubing

High durability tubing. Recommended for:

- Inert applications.
- High temperatures.
- High pressures.
- Corrosive environments.
- Zero bleed.

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



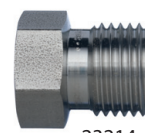
Plug valve



23207



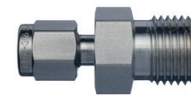
23209



23214



23211



23215

Shut-Off Gas Valves Swagelok®

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

Metering Gas Valves Swagelok®



23206

Description	qty.	cat.#
1/8" Chrome-Plated Brass Metering Valve, straight	ea.	23148
1/4" Chrome-Plated Brass Metering Valve, straight	ea.	23149
1/8" Stainless Steel Metering Valve, straight	ea.	23204
1/4" Stainless Steel Metering Valve, straight	ea.	23205
Vernier Knob for Metering Valve	ea.	23206



23204

VCO® O-Ring Face Seal Fittings

(Stainless Steel & Treated) Swagelok®

- Unique design allows easy installation where space is limited.
- Assemblies can be used from high pressure to critical vacuum across a wide range of temperatures.
- Smooth finish on gland face ensures positive seal.
- Sealing is accomplished with a captive O-ring in the body component.

Swagelok® VCO® o-ring face seal fittings are designed for rapid assembly in pipe, tube, and welded systems.



Specifications:

Pressure Ratings	Up to 15,400 psig (1,061 bar)
Temperature Ratings	Up to 400 °F (204 °C)



Toggle valve



Ball valve



Plug valve

Shut-Off Gas Valves Parker Balston®

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

Metering Gas Valves Parker Balston®



22209

Description	qty.	cat.#
1/8" Nickel-Plated Brass Metering, straight	ea.	22200
1/4" Nickel-Plated Brass Metering, straight	ea.	22201
1/8" Stainless Steel Metering, straight	ea.	22204
1/4" Stainless Steel Metering, straight	ea.	22205
Vernier Knob for Metering Valve	ea.	22209



22200

Description	Material	qty.	cat.#
1/4" VCO to 1/4" Tube Adaptor	Stainless Steel	2-pk.	23207
1/4" VCO to 1/4" Tube Adaptor	Siltek Treated	2-pk.	23209
1/4" VCO to 1/4" Tube Fitting	Siltek Treated	ea.	23211
1/4" VCO to 1/8" Tube Fitting	Stainless Steel	2-pk.	23215
1/4" VCO Body Blind	Stainless Steel	2-pk.	23214
Replacement O-Ring, 70 Durometer Fluorocarbon FKM, VCO 1/4", Size 010		10-pk.	23208

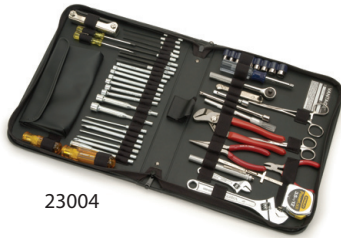


21325

GC Installation Kit

This kit contains the tubing and fittings needed to add an additional GC to your lab bench. Kit includes: tubing cutter, one 1/8-inch x 1/4-inch reamer, one 1/4-inch x 1/8-inch brass tube end reducer, one 7/16-inch wrench, one 1/2-inch wrench, four 1/8-inch brass tees, ten 1/8-inch brass nuts, ten brass front and back ferrules, and 50 feet (15.2 meters) of our instrument-grade cleaned 1/8-inch copper tubing.

Description	qty.	cat.#
GC Installation Kit	kit	21325



23004

54-Piece Tool Kit

Set comes with screwdrivers, pliers, wrenches, sockets, scissors, clamps, and more. Durable, zippered, notebook-style carrying case for easy transport.

Description	qty.	cat.#
Tool Kit	kit	23004

Plier Set

Includes 6-inch nose/side cutter, 6-inch wire cutter, and 6-inch adjusting pliers.

Description	qty.	cat.#
Plier Set	set	23033

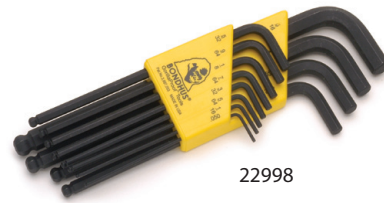


22999

Metric 9-Piece, Ball-Point Hex Key Set

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

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



22998

12-Piece, Ball-Point Hex Key Set

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

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



23034

Torx® Screwdriver Set

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

Description	qty.	cat.#
Torx Screwdriver Set	set	23034

Torx® is a registered trademark of Textron Inc.



23002

5-in-1 Magnetic Screwdriver

Magnetic power tip holds bits and screws securely.

Description	qty.	cat.#
5-in-1 Magnetic Screwdriver	set	23002



23001

Wrench Set

Includes 4-inch, 6-inch, and 8-inch adjustable wrenches.

Description	qty.	cat.#
Wrench Set	set	23001

Tubing Tools



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



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



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



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

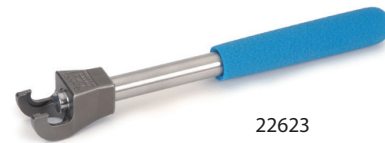


23009

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



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

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.



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