

Silcosteel® Regulators

Single and dual stage regulators are now available with Silcosteel® surface treatment. This proprietary passivation process, developed by SilcoTek™, 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, 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.

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

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

| Description | qty. | cat.# | price |
|--|------|----------|-------|
| Single-Stage Regulator | | | |
| CGA 330 (H ₂ S and other reduced sulfurs) | ea. | 21361-5 | |
| CGA 350 (H ₂ , P ₂) | 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 ₂) | ea. | 21360-7 | |
| CGA 660 (NO, NO ₂ , SO ₂) | ea. | 21360-12 | |

For other CGA fittings, please contact your local Restek representative.



also available

Regulators for use
with gas standards.

See **pages 433-434**.



Overview of Restek's 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 shut-off. 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.



Inlet gauge: 0 to 4,000psig (0-27,579kPa)
 Outlet assembly: diaphragm valve, 1/4" tube fitting

| Fitting | Outlet Pressure | Outlet Gauge | qty. | cat.# | price |
|--|-------------------------|--------------------------------|------|-------|-------|
| CGA 580 (N ₂ , He, Ar) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 21667 | |
| CGA 350 (H ₂ , P ₂) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 21668 | |
| CGA 590 (Air) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 21669 | |

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.



Inlet gauge: 0 to 4,000psig (0-27,579kPa)
 Outlet assembly: diaphragm valve, 1/4" tube fitting

| Fitting | Outlet Pressure | Outlet Gauge | qty. | cat.# | price |
|--|-------------------------|--------------------------------|------|-------|-------|
| CGA 580 (N ₂ , He, Ar) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 20646 | |
| CGA 350 (H ₂ , P ₂) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 20647 | |
| CGA 590 (Air) | 0 to 100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 20648 | |

Ultra-High Purity Chrome-Plated Brass Line Gas Regulator

- Oxidation-resistant, chrome-plated.
- Use where you need to reduce the line pressure by 20 psig (138 kPa) or more.
- Same purity protection as high-pressure cylinder regulators.



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

| Fitting | Outlet Pressure | Outlet Gauge | qty. | cat.# | price |
|------------------------|----------------------|--------------------------------|------|-------|-------|
| 1/4" female NPT ports* | 0-50psig (0-345kPa) | 30" - 0 to 100psig (0-689kPa) | ea. | 21666 | |
| 1/4" female NPT ports* | 0-100psig (0-689kPa) | 30" - 0 to 200psig (0-1379kPa) | ea. | 22452 | |

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

Swagelok® Male Connector, Pipe-to-Tube Fittings



| Fitting Type | Size (inches) | Similar to Swagelok | Brass | | | Stainless Steel | | |
|------------------|------------------|---------------------|--------|-------|-------|-----------------|-------|-------|
| | | | qty. | cat.# | price | qty. | cat.# | price |
| Male Connector | 1/4" to 1/2" NPT | 400-1-4 | 10-pk. | 23134 | \$44 | 2-pk. | 23184 | |
| Male Connector | 1/8" to 1/4" NPT | 200-1-4 | 10-pk. | 23136 | \$50 | 2-pk. | 23186 | |
| Tube End Reducer | 1/4" to 1/8" | 200-R-4 | 5-pk. | 23129 | \$29 | 2-pk. | 23179 | |

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.

Inlet gauge: 0 to 4,000psig (0-27,579kPa)
Outlet assembly: diaphragm valve, 1/4" tube fitting

| Fitting | Outlet Pressure | Outlet Gauge | qty. | cat.# | price |
|--|-------------------------|--------------------------------|------|-------|-------|
| CGA 580 (N ₂ , He, Ar) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20662 | |
| CGA 350 (H ₂ , P ₂) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20663 | |
| CGA 590 (Air) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20664 | |



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.

Inlet gauge: 0 to 4,000psig (0-27,579kPa)
Outlet assembly: diaphragm valve, 1/4" tube fitting

| Fitting | Outlet Pressure | Outlet Gauge | qty. | cat.# | price |
|--|-------------------------|--------------------------------|------|-------|-------|
| CGA 580 (N ₂ , He, Ar) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20665 | |
| CGA 350 (H ₂ , P ₂) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20666 | |
| CGA 590 (Air) | 0 to 100psig (0-689kPa) | 30" – 0 to 200psig (0-1379kPa) | ea. | 20667 | |



Flexible Stainless Steel Hoses

| Description | Length | Fittings | qty. | cat.# | price |
|-------------------------------|--------|-------------------------|------|-------|-------|
| Flexible Stainless Steel Hose | 36" | 1/4" Female NPT | ea. | 21339 | |
| Flexible Stainless Steel Hose | 18" | 1/4" Female NPT | ea. | 21340 | |
| Flexible Stainless Steel Hose | 36" | Stainless Steel CGA 580 | ea. | 21344 | |



Flammable Gas Flash Arrestor—Factory Mutual Approved*

- Gas flow shuts off in the event of a flashback.
- Flame extinguished—flame front prevented from reaching the gas supply.
- No gas flow restriction under normal operating conditions.

| Description | qty. | cat.# | price |
|--|------|-------|-------|
| Flammable Gas Flash Arrestor, Brass Body | ea. | 21334 | |

*Approved for brass body servicing hydrogen, acetylene, propane, or natural gas only.



21334

CGA Fittings

CGA-specified nuts and nipples with internal frit, 1/4-inch NPT nickel-plated brass.

| Description | qty. | cat.# | price |
|---|------|-------|-------|
| CGA 580 Fitting, (N ₂ , He, Ar) | ea. | 21336 | |
| CGA 350 Fitting, (H ₂ , P ₂) | ea. | 21337 | |
| CGA 590 Fitting, (Air) | ea. | 21338 | |



21336

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 | |



Critical Purity Automatic Switchover System for Noncorrosive Gases

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: 200psig/170psig (1379/1172kPa)
Inlet connections: flexible SS pigtailed (36")
Line regulator: 0 to 100psig (0-689kPa)

Brass Automatic Switchover System with Line Regulator

| | qty. | cat.# | price |
|--|------|----------|-------|
| CGA 580 (N ₂ , He, Ar) | ea. | 20668580 | |
| CGA 350 (H ₂ , P ₂) | ea. | 20668350 | |
| CGA 590 (Air) | ea. | 20668590 | |

Stainless Steel Automatic Switchover System with Line Regulator

| | qty. | cat.# | price |
|-----------------------------------|------|----------|-------|
| 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.# | price |
|--|------|-------|-------|
| CGA 580 (N ₂ , He, Ar) | ea. | 21347 | |
| CGA 350 (H ₂ , P ₂) | ea. | 21348 | |
| CGA 590 (Air) | ea. | 21349 | |
| Stainless Steel Protocol Station* | qty. | cat.# | price |
| CGA 580 (N ₂ , He, Ar) | ea. | 21327 | |

*Pressure regulator not included. Order separately.



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.# | price |
|-----------------------|------|-------|-------|
| Cylinder Valve Wrench | ea. | 21321 | |



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.# | price |
|---------------------------|------|-------|-------|
| Universal Cylinder Wrench | ea. | 21322 | |



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.# | price |
|----------------------------|------|-------|-------|
| Backpressure Gas Regulator | ea. | 20635 | |

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 | qty. | cat.# | price |
|-------------------|---------------|------|-------|-------|
| MINICYL Regulator | 1/8" Fittings | ea. | 20610 | |
| MINICYL Regulator | 1/4" Fittings | ea. | 20611 | |



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.# | price |
|-------------------------------|--------|------|-------|-------|
| 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 | |



For these cylinders:

Scotty® (Air Liquide) 14

Contents: 14 liters
 Pressure: 240 psig (17 bar)
 Outlet Fitting: CGA 160
 Weight: 1.5 lbs/0.7 kg
 Dimensions: 3" diameter x
 11" height (7.6 x 28 cm)
 DOT Specifications: 4B240



Scotty® (Air Liquide) 48

Contents: 48 liters
 Pressure: 300 psig (21 bar)
 Outlet Fitting: CGA 165
 Weight: 1.75 lbs/0.8 kg
 Dimensions: 4" diameter x
 16 1/4" height (10.2 x 41 cm)
 DOT Specifications: 39 NRC



Use these regulators:

Regulators

for use with 14-liter and 48-liter Scott (Air Liquide) Transportable Gases

Specifications:

Maximum Inlet Pressure: 300 psig
 Outlet Pressure Range: 2–10 psig
 Maximum Delivery Pressure: 25 psig
 Operating Temperature Range:
 35 °F to 150 °F (2 °C to 65 °C)
 Outlet Connection: 1/4" female NPT

Materials of Construction:

Body: Brass
 Diaphragm: Viton®
 Seat: Acetal
 Seal: Viton®

Use the CGA 160 inlet connection with 14-liter Scott/Air Liquide Transportable Gases. Use the CGA 165 inlet connection with 48-liter Scott/Air Liquide Transportable Gases.



| Description | qty. | cat.# | price |
|-------------------------------------|------|-------|-------|
| Regulator, CGA 160 Inlet Connection | ea. | 22690 | |
| Regulator, CGA 165 Inlet Connection | ea. | 22691 | |



Syringe Adapter Kit for Single-Stage VOC Regulator

Use to withdraw sample from a high-pressure cylinder after pressure reduction through the high-purity VOC single-stage regulator.

Kit contains one nickel-plated brass 1/4" NPT to female luer fitting, which can be used with an A-2 Luer syringe (cat.# 20162 or 20163, see page 385), and one stainless steel 1/4" NPT x 1/8" compression fitting with septum (can be used with any syringe needle).

| Description | qty. | cat.# | price |
|---------------------|------|-------|-------|
| Syringe Adapter Kit | kit | 21118 | |

also available

Single-Stage and Dual-Stage
 Ultra-High Purity Gas Regulators
 See pages 309–311.



Gas Regulators for Transportable Cylinders

For this cylinder:

DCG Partnership Cylinders:
Size: 7.6 x 24 cm
CGA-170/110 connection.
US DOT Specs: DOT-4B-240ET
Please note: This cylinder is not approved for use in Canada.



Use this regulator:

Mini-Regulator for natural gas and refinery gas standards

- 0–300 psig inlet pressure range.
- 0–15 psig outlet pressure range.
- Supplied with 0–15 psig outlet pressure gauge, brass CGA 170 nut and nipple.



22032

| Description | qty. | cat.# | price |
|----------------|------|-------|-------|
| Mini-Regulator | ea. | 22032 | |

For these cylinders:

Spectra (Linde) 104L:
 Aluminum construction
 Size: 8 x 24 cm
 Volume/Pressure:
 104 liters of gas
 @ 1,800 psi
 CGA-180 outlet fitting.
 Weight: 1.5 lbs/0.7 kg



Scotty® (Air Liquide) 110L (Pi-marked Cylinders for EU Regulations):
 Aluminum construction
 Size: 8.3 x 29.5 cm
 Volume/Pressure:
 110 liters of gas @ 1,800 psi
 CGA-180 outlet fitting.
 Weight: 2.2 lbs/1 kg
 DOT Specifications: 3AL2216



Use these regulators:

Spectra Gas 7621 High-Purity VOC Regulator

- Single-stage, stainless steel.
- Two pressure gauges and CGA-180 fitting.
- 3,000 psig maximum inlet pressure.
- Stainless steel diaphragm and Kel-F® seat.
- 1/8-inch tube compression outlet.
- Low internal volume: 3.03 cc.
- Accurate pressure control even at low flow rates.
- Individually tested for leaks and impurities.



21572

| Description | qty. | cat.# | price |
|---------------------------------|------|------------|-------|
| 0–30psig outlet pressure gauge | ea. | 21572 | |
| 0–100psig outlet pressure gauge | ea. | 21572-R100 | |

See next page for a syringe adapter kit.

Continued on next page.