

Specialty Gases & Equipment

ISO 9001: 2008 CERTIFIED

A Division of Norco, Inc.

NorLAB

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Located in Boise Idaho, Norlab has been producing and distributing calibration gas mixtures and specialty gases in refillable and non-refillable cylinders since the late 1970s. We offer a complete line of specialty gas products including environmental, industrial hygiene, medical and special application mixes, as well as multi-component hydrocarbon mixtures, pure gases up to 99.9999%, and all related gas control equipment. Norlab has what you need.

Our gas blending capabilities include EPA protocol mixes, primary standards produced gravimetrically with accuracies to $\pm 0.02\%$ absolute, as well as certified and unanalyzed mixes produced to less stringent tolerances. NIST traceability certification can be provided.

Our complete line of gas control equipment includes fixed flow, multi-flow, demand flow, and pressure reducing regulators. Accessories include cases, stands, cylinder transport bags, gas sample bags, and tubing. Norlab also offers manifolds, filters, fine metering valves and cylinder changeover systems.

With over 100 years of combined industry experience, our highly trained staff understands the unique requirements of the specialty gas user. You can trust in Norlab products as our quality program is ISO 9001:2008 certified.

Please contact us for more information or to find your nearest Norlab distributor.



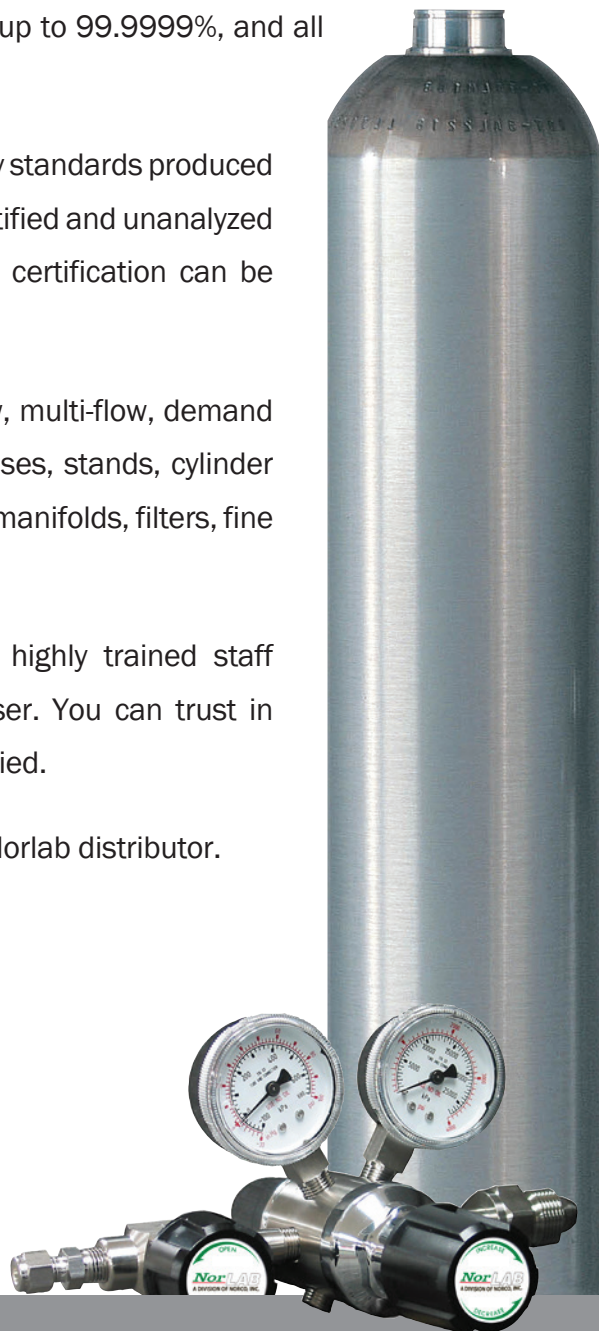
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Non-Refillable Steel Cylinders

The Convenient and Cost-Effective Way to Handle Calibration Gas Mixtures

These smaller, convenient and portable steel cylinders, recommended for non-reactive gas mixtures and pure gases such as argon, helium and nitrogen, don't require a deposit or have a monthly rental charge. With a wide range of capacities for any field calibration requirement, they eliminate over-purchasing when small quantities are needed. They are easy to handle, less expensive to ship and occupy very little space.



17 Liter Cylinder (P)

Contents: 17 liters (0.6 cu. ft.)
Pressure: 240 PSIG
Outlet: CGA 600
Weight: 1.1 lbs.
Dimensions: 3" x 10 3/4"
D.O.T. Specs: 39NRC
Regulator: 400 Series



34 Liter Cylinder (H)

Contents: 34 liters (1.2 cu. ft.)
Pressure: 500 PSIG
Outlet: CGA 600
Weight: 1.4 lbs
Dimensions: 3" x 10 3/4"
D.O.T. Specs: 39 NRC
Regulator: 400 Series



103 Liter Cylinder (J)

Contents: 103 liters (3.6 cu. ft.)
Pressure: 1000 PSIG
Outlet: C-10 5/8" - 18 UNF
Weight: 2.3 lbs.
Dimensions: 3 1/4" x 13 2/3"
D.O.T. Specs: 39 NRC
Regulator: 500 Series
6000 Series
8000 Series



550 Liter Cylinder (E)

Contents: 550 liters (19.5 cu. ft.)
Pressure: 2200 PSIG
Outlet: Varies with the gas
Weight: 12.9 lbs.
Dimensions: 4 1/8" x 20 1/2"
D.O.T. Specs: E8990 NRC
Regulator: 6000 Series
900 Series
HP Series



221 Liter Cylinder (M)

Contents: 221 liters (7.5 cu. ft.)
Pressure: 260 PSIG
Outlet: CGA 165
(1/4" SAE flare 45°)
Weight: 6.3 lbs.
Dimensions: 9" x 16 1/2"
D.O.T. specs: 39 NRC
Regulator: 700 Series

Portable Reactive Gas Cylinders

Mixture Stability in a Lightweight, Portable Package

We recommend these compact, lightweight aluminum cylinders for gas mixtures that are not stable in steel cylinders. Typical gas blends for these cylinders include ammonia, chlorine, hydrogen sulfide, nitric oxide, nitrogen dioxide and sulfur dioxide. They are available in capacities from 11 liters (0.4 cu. ft.) to 116 liters (4.0 cu. ft.) and can be transported in a Norlab carrying case or bag.



34 Liter - Select (F)

Contents: 34 liters (1.2 cu. ft.)
Pressure: 580 PSIG
Outlet: C-10 $\frac{5}{8}$ " -18 UNF
Weight: 1.2 lbs.
Dimensions: 2 $\frac{7}{8}$ " x 11 $\frac{1}{2}$ "
D.O.T. Specs: ISO 7866
Regulator: 500 series
6000 series
8000 series



58 Liter - Select (G)

Contents: 58 liters (2.0 cu. ft.)
Pressure: 1000 PSIG
Outlet: C-10 $\frac{5}{8}$ " -18 UNF
Weight: 1.2 lbs.
Dimensions: 2 $\frac{7}{8}$ " x 11 $\frac{1}{2}$ "
D.O.T. Specs: ISO 7866
Regulator: 500 series
6000 series
8000 series



Bump Gas Cylinder

Contents: 11 liters (.4 cu. ft.) (A)
Pressure: 140 PSIG
Outlet: Trigger-style aerosol
Weight: 0.3 lbs
Dimensions: 2 $\frac{7}{8}$ " x 12"
D.O.T. specs: 39 NRC



58 Liter - Select (Z)

Contents: 58 liters (2 cu. ft.)
Pressure: 500 PSIG
Outlet: C-10 $\frac{5}{8}$ " -18 UNF
Weight: 2.2 lbs.
Dimensions: 14 $\frac{1}{4}$ " x 3 $\frac{5}{8}$ "
D.O.T. Specs: 3AL 1000
Regulator: 500 Series
6000 Series
8000 Series



116 Liter - Select (U)

Contents: 116 liters (4 cu. ft.)
Pressure: 1000 PSIG
Outlet: C-10 $\frac{5}{8}$ " -18 UNF
Weight: 2.2 lbs.
Dimensions: 14 $\frac{1}{4}$ " x 3 $\frac{5}{8}$ "
D.O.T. Specs: 3AL 1000
Regulator: 500 Series
6000 Series
8000 Series



SELECT SERIES Cylinders with SGS technology

We bring innovation to the disposable cylinder customer.

- Our **dependable** cylinders and valves are manufactured using high grade alloys and components ensuring greater gas stability over the life of the mix.
- Two **versatile** cylinders available that cover all current sizes from 34 liter through 116 liter. We also offer several valve options depending on the gas standard required.
- 100% **recyclable** and refillable with no deposits or daily rental fees, these cylinders are returnable or can be recycled locally.

To find out more about our **Select Series** cylinders, contact Norlab customer service at 800.657.6672 or send us an email us at norlabcs@norco-inc.com.

Refillable Specialty Gas Cylinders & Devalving Tools

Aluminum and Steel Refillable Cylinders

Our refillable cylinders are available in multiple sizes and can be filled with a variety of custom, pure and calibration standard mixes. These refillable steel and aluminum cylinders could be just the perfect solution you need to optimize your gas yield.

Steel Cylinder (K)

Contents: 200 cu. ft.
Pressure: 2000
Outlet: CGA - Various
Weight: 114 lbs
Dimensions: 9" x 51"
D.O.T. Specs: 3AA2015
Regulator: Various

Aluminium Cylinder (ALQ)

Contents: 80 cu. ft.
Pressure: 2000
Outlet: CGA
Weight: 31 lbs
Dimensions: 7" x 33"
D.O.T. Specs: DOT3AL/TC3ALM
Regulator: Various

Aluminium Cylinder (30A)

Contents: 30 cu. ft.
Pressure: 2000
Outlet: CGA
Weight: 15 lbs
Dimensions: 7" x 16"
D.O.T. Specs: DOT3AL/TC3ALM
Regulator: Various

Aluminium Cylinder (ALS)

Contents: 140 cu. ft.
Pressure: 2000
Outlet: CGA
Weight: 51 lbs
Dimensions: 8" x 48"
D.O.T. Specs: DOT3AL/TC3ALM
Regulator: Various



Pressure Reducing Regulators

These regulators are intended for primary pressure control of non-corrosive, high purity gases for applications requiring constant pressure control and delivery regardless of supply pressure variations.



Specifications

Body: Brass bar stock
Diaphragm: 316L stainless steel
Seat: PTFE Teflon
Seals: PTFE Teflon

Delivery Ranges

0-15 PSIG 0-125 PSIG
0-50 PSIG 0-250 PSIG
0-500 PSIG

These regulators are intended for primary pressure control of ultra-high purity or corrosive gases for applications requiring constant pressure control and delivery regardless of supply pressure variations.



Specifications

Body: 316L stainless steel bar stock
Diaphragm: 316L stainless steel
Seat: PTFE Teflon
Seals: PTFE Teflon

Delivery Ranges

0-15 PSIG 0-125 PSIG
0-50 PSIG 0-250 PSIG
0-500 PSIG

Regulators & Accessories

Calibration Kits and Cases

Norlab has custom calibration cases for portable cylinders. Our two, three, or four-bottle cases provide a safe and convenient way to transport and store your Norlab calibration standards. Add a fixed-flow, multi-flow or pressure reduction regulator to complete your kit. We also have a hands-free, two cylinder carrying bag that you can belt around your waist or carry over your shoulder.



500A	Hard Case: holds 4 ea. 17 liter or 34 liter cylinders	500F	Hard Case: with pick and pluck foam
500B	Hard Case: holds 1 ea. 58/103/116 liter cylinder and 2 ea. 17/34 liter cylinders	505	Hard Case: holds 2 ea. 58/103/116 liter cylinders
500C	Hard Case: holds 3 ea. 58/103/116 liter cylinders	CTB100	Transport Bag: holds 2 cylinders
500D	Hard Case: holds 2 ea. 17 liter or 34 liter cylinders	FEP	Teflon FEP tubing (for chlorine)
500E	Hard Case: holds 4 ea. 58/103/116 cylinders	TY2002	Tygon tubing

Multiflow Regulators

Use the 6000 Series regulators with 58, 103 and 116 liter non-refillable cylinders with a C-10 (5/8"-18 UNF) inlet connection. They are also configured for use on returnable cylinders with pressures to 2400 PSIG. With eight flow settings from 0.1 LPM to 7 LPM, they are compatible with non-reactive and reactive gas mixtures. Use 1000 PSI gauges for non-refillable and 3000 PSI gauges for refillable cylinders.

Part Numbers	Gauge Material & Pressure	Inlet Fitting
NLB-6-CGA*	Brass 3000 PSI	CGA 590, 580, 350
NLB-6-CGA*	S.S. 3000 PSI	CGA 660, 330
NLB-6-C10	0-1200 PSI	C-10

**The appropriate Compressed Gas Association valve number will be determined by the specific pure gas or gas mixture (e.g. 6-330 for mixtures containing hydrogen sulfide).*



The 8000 Series regulators are used for calibration of instruments that draw the gas mixture with an internal pump. Constructed of stainless steel and aluminum, they are compatible with reactive and non-reactive gas mixtures. They supply flows of 0.1 LPM to 3.0 LPM, and are suitable for use with high pressure refillable cylinders as well as non-refillables.



Part Numbers	Inlet Fitting	Cylinder
8C10	C-10	34/58/103/116 liter
8580	CGA 580	Refillable
8590	CGA 590	Refillable
8330	CGA 330	Refillable
8660	CGA 660	Refillable



Part Number	4903
Inlet Fitting	C-10
Cylinder	34/58/103/116 liter
New, smaller size. Compatible with reactive and non-reactive gases.	

Regulators & Accessories

Preset Flow Regulators

Flow Control and Pressure Reducing Regulators

400 Series single-stage, piston-style regulators are designed to deliver a preset flow of non-corrosive gases in the 17 liter or 34 liter non-refillable cylinders with CGA 600 inlets. Each regulator comes with a cylinder pressure gauge.



Part Numbers

Flow Rate

NLB 411	1.5 LPM
NLB 413	0.25 LPM
NLB 414	0.3 LPM
NLB 417	0.5 LPM
NLB 418	1.0 LPM

Specifications

Maximum inlet pressure:	500 PSIG
Inlet fitting:	CGA 600
Outlet fitting:	$\frac{3}{16}$ " hose barb
Temperature operating range:	0-140°F

Norlab's trigger control regulator allows both bump and calibration testing and controlled or continuous delivery. The 517TR series regulators are available in several flow rates.



Part Numbers

Flow Rate

NLB 513 TR	0.25 LPM
NLB 517 TR	0.5 LPM

Specifications

Maximum inlet pressure:	1000 PSIG
Inlet fitting:	$\frac{5}{8}$ " - 18 UNF (C-10)
Outlet fitting:	$\frac{3}{16}$ " connection
Temperature operating range:	0-140°F

The 500 Series regulators are single-stage, piston-style, regulators designed to deliver a preset flow of non-reactive and low-level reactive (less than 100 PPM)* gas mixtures from 34, 58, 103 and 116 liter non-refillable cylinders having a 5/8"-18 UNF (C-10) inlet connection.



Part Numbers

Flow Rate

NLB 511	1.5 LPM
NLB 512	2.5 LPM
NLB 513	0.25 LPM
NLB 516	0.3 LPM
NLB 517	0.5 LPM
NLB 518	1.0 LPM

Specifications

Maximum inlet pressure:	1000 PSIG
Inlet fitting:	$\frac{5}{8}$ " - 18 UNF (C-10)
Outlet fitting:	$\frac{3}{16}$ " hose barb
Temperature operating range:	0-140°F

**Low-level reactive gases slowly react with the "wetted" brass parts of the 500 Series regulators. In order to minimize loss of calibration accuracy, the regulator must be removed from the cylinder after each use. Norlab's 6000 Series regulator is recommended for extended use with reactive calibration gas mixtures.*

Pressure Reducing Regulator

The lightweight construction and small size of the 700 Series regulators make them ideal for our 221 liter cylinders.



Specifications

Maximum inlet pressure:	400 PSIG
Operating temperature range:	35°F-150°F
Inlet fitting:	CGA 165
Outlet fitting:	$\frac{1}{4}$ " NPTF
Delivery pressure range:	0-25 PSIG

Material of Construction

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

Cylinder Devalving Tools



CGA 600: Fits on 17 or 34 liter steel cylinders.
Part Number.....NLB 600DV



CGA C-10: Fits on 34, 58, 103, or 116 liter disposable cylinders.
Part Number.....NLB C10DV



**gases for any
application**

Pure and Rare Gases

- Air, Ultrapure, HCF, Zero
- Argon, 99.998% - 99.9999%
- Helium, 99.995% - 99.9999%
- Hydrogen, 99.99% - 99.9999%
- Krypton, 99.9985+%
- Methane, 99.0% - 99.99%
- Neon, 99.9988+%
- Nitrogen, 99.998% - 99.9999%
- Oxygen, 99.99% - 99.999%
- Sulfur Hexafluoride, 99.9%
- Xenon, 99.9985%

Special Application Mixtures

- Laser Mixes
- Flame Ionization Mixes
- Nuclear Counter Mixes (P-10)
- Electron Capture Mixes (P-5)
- Leak Detection Mixes
- Boiler Efficiency Mixes

Industrial Hygiene Mixtures

Non-Reactive

- Carbon Dioxide in Nitrogen
- Carbon Monoxide in Air
- Hexane in Air or Nitrogen
- HCFCs in Air or Nitrogen
- Isobutylene in Air
- Methane in Air
- Methane, Carbon Monoxide in Air
- Oxygen in Nitrogen

Reactive

- Ammonia in Air or Nitrogen
- Chlorine in Nitrogen
- Ethylene Oxide in Nitrogen
- Hydrogen Sulfide Quad Mixtures
- Nitric Oxide in Nitrogen
- Nitrogen Dioxide in Air or Nitrogen
- Sulfur Dioxide in Air or Nitrogen

Hydrocarbon Mixtures

- Natural Gas Standards
- Transformer Oil Standards
- Butane Standards
- Ethylene Standards
- 1,3 Butadiene Standards

Medical Mixtures

- Blood Gas Mixtures
- Lung Diffusion Mixtures
- Anaerobic Mixtures
- Sterilant Gas Mixtures
- Helium/Oxygen Mixtures

Environmental Mixtures

EPA Protocols

- Carbon Dioxide in Air or Nitrogen
- Carbon Monoxide in Air or Nitrogen
- Nitric Oxide in Nitrogen
- Sulfur Dioxide, Nitric Oxide in Nitrogen

VOC Mixtures

- Acetone in Nitrogen
- Benzene in Nitrogen
- BTEX Mixes
- Carbon Tetrachloride in Nitrogen
- MEK in Nitrogen
- Styrene in Nitrogen
- Toluene in Nitrogen
- Xylene in Nitrogen



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