Airgas Healthcare
an Air Liquide company

Gas, Equipment and Services Guide

Always *There*

Airgas Healthcare is much more than a medical gas supplier. As part of Air Liquide, we are always there and are committed to empowering healthcare facilities of all sizes to operate safely, efficiently, and sustainably. We understand the complex challenges of delivering exceptional patient care and improving patient outcomes, and we're here to support you every step of the way.

With Airgas Healthcare, you can have confidence in your medical gas supply and services. With our reliable supply, seamless gas management, and technologies served in a sustainable way, you can remain focused on patient care.

RELIABLE supply, no matter what

We are always there for healthcare providers, bringing them peace of mind by making medical gases accessible in times of calm and crisis.

SIMPLIFY gas management

Airgas Healthcare will safely manage your gas supply and use. The best technology and services, like INTELLI-OX+™, Total Gas Management™ and EZ-GAZ™ digital monitoring of gas pressure, ensure continuous gas supply.

REACHING carbon neutrality

From production to use, Airgas Healthcare is always there to help abate carbon emissions of liquid bulk oxygen and nitrogen gas.

Whether you're working with a hospital, a long-term care facility, a private medical practice, or a veterinary clinic, Airgas Healthcare has the medical gas expertise and resources to meet your unique needs. This catalog is your guide to the complete Airgas Healthcare solution. Inside, you'll discover our full range of medical gases and innovative technologies, along with essential gas handling equipment and personal protective equipment (PPE). We've also included a collection of reference materials, technical specifications, and regulatory information to support your decision-making and compliance efforts.

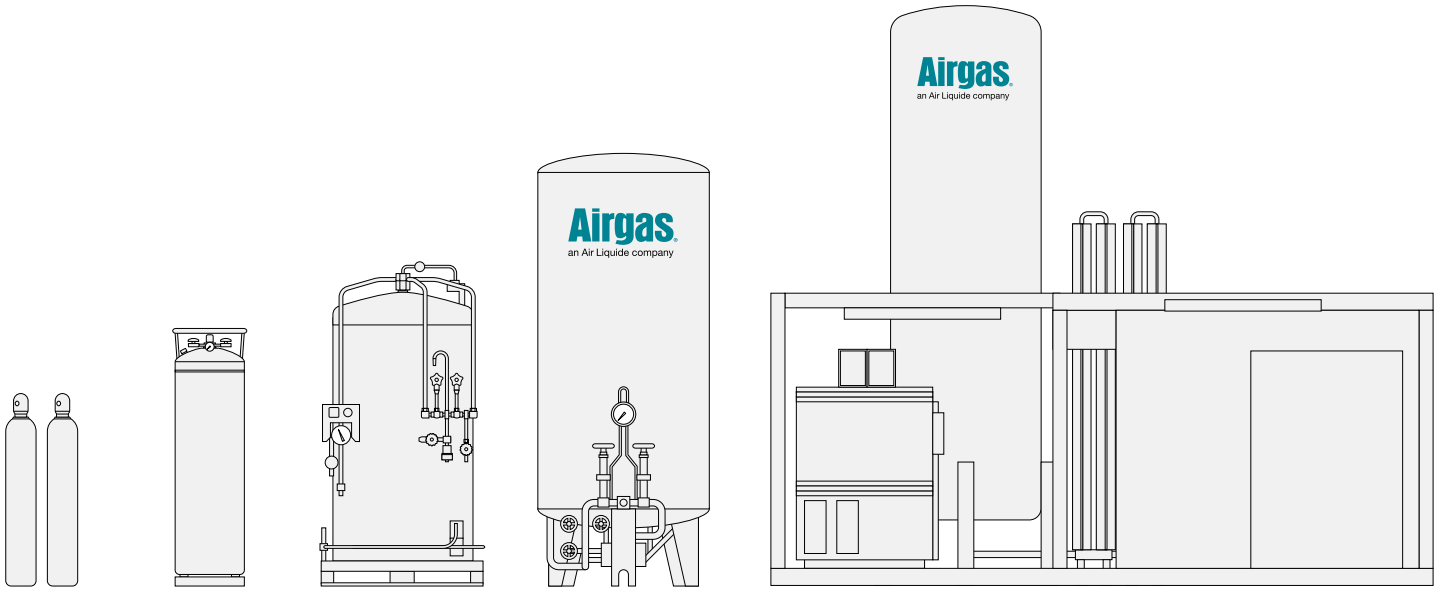
Table of Contents

Our Offer

Airgas Healthcare is a leading supplier of the most comprehensive range of gases in a variety of packaging options, gas delivery systems, and related products and services in the U.S. Our goal is to support you in your mission to improve lives with one-stop access to products and capabilities that help you provide safe and effective treatment for your patients. Contact us today to start the conversation.

Medical Gases

Airgas has created a variety of supply modes designed to grow with your patient portfolio.



Cylinders **Liquid Dewar** **MicroBulk** **Bulk** **FLOXAL™** On-site Gas Generation

More Products and Services

Gas handling equipment designed to safely deliver your medical gases

Supply chain solutions to help simplify inventory management, including online ordering and invoicing

Safety products and PPE to keep your team and your patients safe

Over 1400 locations backed by one of the largest truck fleets in the industry

Support and installation for complete piping systems that comply with NFPA® 99 code

Always *There*

Mobile Oxygen USP

Oxygen Properties

SDS ID: 001043 (Airgas.com)
Color Code: Green
Hazards: Oxidizer and High Pressure
Toxicity: Nontoxic
Boiling Point: -297.4ºF

Molecular Weight: 32.00
Specific Gravity: 1.105
Critical Temperature: -181.15ºF
Critical Pressure: 731.4 psi
Specific Volume: 12.1 cf/lb

DOT Designation
Name: Oxygen, Compressed
Label: Yellow Oxidizer
Hazard Classification: 2.2
UN Number: 1072

Purity Specifications

Purity: Oxygen ≥99.2%
Odor: None

Carbon Monoxide: ≤10 ppm
Carbon Dioxide: ≤300 ppm

Medical Applications

- Respiratory Support: For patients with respiratory conditions and during surgery to maintain adequate oxygen levels
- Emergency Situations: Examples include cardiac arrest or trauma to ensure sufficient oxygenation of vital organs
- Anesthesia: In combination with anesthetic agents during surgeries to ensure the patient receives enough oxygen
- Hyperbaric Oxygen Therapy (HBOT): To treat conditions like decompression sickness, carbon monoxide poisoning, and non-healing wounds by increasing oxygen delivery to tissues
- Critical Care or Neonatal Care: For those who require mechanical ventilation or high levels of oxygen or those in respiratory distress

Mobile Oxygen USP (cont'd.)

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶OX USPM4	M4	USP Oxygen, Aluminum	2,216	113	4	0.3	3.2	9	870
❶OX USPM6	M6	USP Oxygen, Aluminum	2,216	170	6	0.5	3.2	11.8	870
❶OX USPML6	ML6	USP Oxygen, Aluminum	2,015	170	6	0.5	2.9	7.9	870
❶OX USPM9	M9	USP Oxygen, Aluminum	2,015	250	9	0.8	4.4	9.1	870
❶OX USPD	D	USP Oxygen, Steel	2,015	427	15	1.3	4.4	16.7	870
❶OX USPDA	D	USP Oxygen, Aluminum	2,015	425	15	1.3	4.4	16.5	870
❶OX USPDAWBDS	DA WOB	USP Oxygen, Walk-O_2-Bout™	2,015	425	15	1.3	4.4	16.5	VIPR
❶OX USPDAWBDSEMS	DA WOB	USP Oxygen, Walk-O_2-Bout	2,015	425	15	1.3	4.4	16.5	VIPR
❶OX USPDAWBSPLUS	DA WOB	USP Oxygen, Walk-O_2-Bout MR Compliant	2,015	425	15	1.3	4.4	16.5	VIPR
❶OX USPE	E	USP Oxygen, Steel	2,015	697	25	2.0	4.1	25.7	870
❶OX USPEA	EA	USP Oxygen, Aluminum	2,015	679	24	2.0	4.4	25.6	870
❶OX USPEAMRI	EA	USP Oxygen, Aluminum MR Compliant	2,015	679	24	2.0	4.4	25.6	870
❶OX USPEAWBDS	EA WOB	USP Oxygen, Walk-O_2-Bout	2,015	679	24	2.0	4.4	28	VIPR
❶OX USPEAWBDSEMS	EA WOB	USP Oxygen, Walk-O_2-Bout	2015	679	24	2.0	4.4	28	VIPR
❶OX USPEAWBPLUS	EA WOB	USP Oxygen, Walk-O_2-Bout MR Compliant	2,015	679	24	2.0	4.4	28	VIPR
❶OX USPEAWBSPLUS	EA WOB	USP Oxygen, Walk-O_2-Bout MR Compliant	2,015	679	24	2.0	4.4	28	VIPR
❶OX USPEAIOXPLUS	EA IOX	USP Oxygen, INTELLI-OX+™ MR Compliant	2,015	679	24	2.0	4.4	28	VIPR

Regulator Recommendations

❶Y11HC8702550-AG
❶Y11HC870650-AG
❶Y11HC870T2550-AG
❶Y11HC870T650-AG
❶Y11HC870SL15-AG
❶Y11HC870P50-AG

⚠ ❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

INTELLI-OX+™

INTELLI-OX+ is an innovative solution that combines our patented digital gauge with a lightweight aluminum cylinder, integrated valve and regulator, clear product labeling, and ergonomic handle to provide one of the healthcare industry's safest and most reliable mobile oxygen USP delivery systems. In addition, INTELLI-OX+ displays accurate time remaining for oxygen in the cylinder so caregivers don't have to interpret pressure data—simplifying gas management and reducing gas waste—so you can focus on patient care instead.

Increase patient safety

- Clear display of the remaining time and volume available indicates precisely when the cylinder needs to be replaced
- Repeating visual and audible alerts are triggered when there is 25% content remaining and when the remaining time is at least 15 minutes at the selected flow rate. The 15-minute alert will repeat every 15 seconds until the cylinder is empty or turned off*
- Automatic calculation of time remaining allows caregivers to focus on patient safety

Optimize time

INTELLI-OX+ provides fast and easy medical oxygen setup for patients

- Integrated valve and regulator assembly means no more time is wasted hooking up a regulator
- Caregivers can quickly select a cylinder that meets their requirements the first time

Improve efficiency

INTELLI-OX+ gives caregivers clear information to better manage medical oxygen

- Caregivers can safely use more medical oxygen from each cylinder.
- With proper utilization, facilities can reduce the frequency of cylinder turnover and associated costs, including time spent on cylinder management, handling, transportation, and order management.

LITERS
BEFORE USE

Display indicates THE REMAINING VOLUME

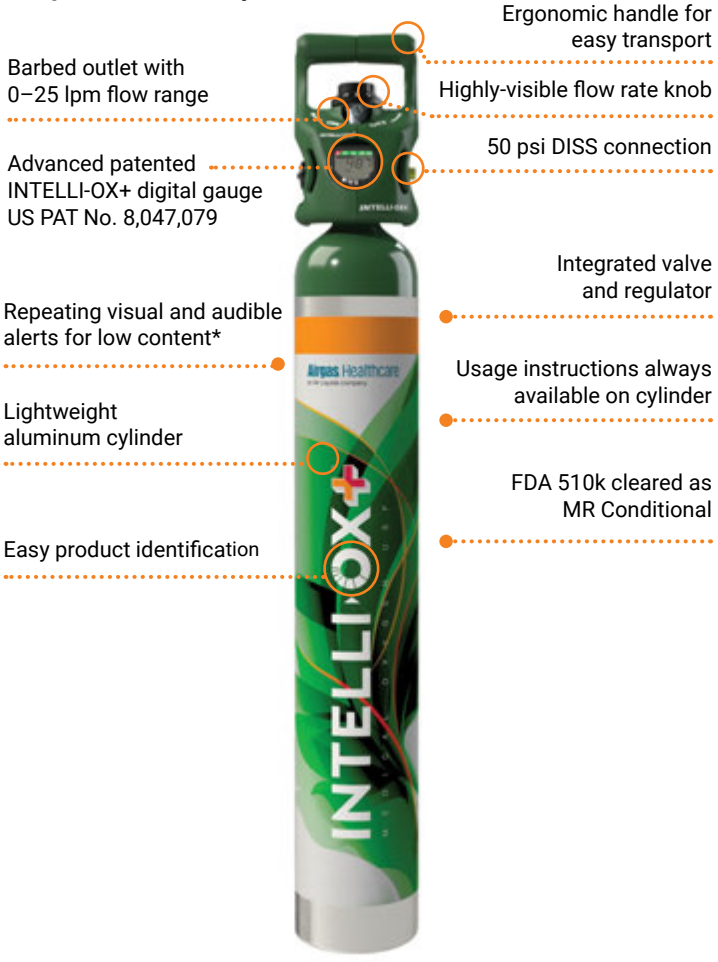
One alert at ¼ content and repeating alert when only 15 minutes remain*

TIME
DURING USE

Display indicates THE REMAINING TIME (hours: minutes)

*Please note that ambient and background noise may affect the alert's audibility. Hearing impairments may also affect an individual's ability to detect the alert. The visual display on the digital gauge (rather than the sound alert) which is set at particular intervals, provides the primary and real-time method to determine the amount of medical oxygen remaining by displaying: (1) the pressure bar graph, (2) the volume of gas in liters and (3) the time-remaining calculation when the cylinder is in use.

An innovative mobile cylinder with enhanced features and proven reliability



Walk-O_2-Bout+™

The Walk-O_2-Bout+ (WOB+™) family of products from Airgas Healthcare provides an innovative solution to problems that first responders and healthcare practitioners face when providing respiratory care to their patients.

Each WOB+ mobile gas cylinder includes innovative valve technology in one integrated, easy-to-use unit that is FDA 510k cleared as MR Conditional. In addition, these mobile gas cylinders help simplify gas management and reduce gas waste. WOB+ mobile medical gases are perfect for the following healthcare settings:

- Dental practices
- Medical practices
- Emergency Medical Services (EMS)
- Nursing homes
- Hospitals
- Surgery centers

Increase patient safety

- WOB+ is FDA 510(k) cleared as MR Conditional
- With leading-edge DISS connection capability that outputs 200 lpm, WOB+ meets many ventilator requirements

Simplify care giving

- The integrated valve and regulator assembly saves time.
- The durable, soft handle permits caregivers to comfortably carry the cylinder.
- A large knob with an arrow indicator on top indicates flow direction and helps caregivers easily turn on the cylinder to a precise flow rate.
- Caregivers can trust that WOB+ helps ensure continuity of gas supply while reducing waste—with our easy to read gauge, caregivers always know how much gas they have left.

- FDA 510k cleared as MR Conditional
- Integrated valve and regulator
- WOB+ is available for medical-grade oxygen, medical-grade air and HELIOX

Stationary Oxygen USP

Oxygen Properties

SDS ID: 001043 (Airgas.com)
Color Code: Green
Hazards: Oxidizer and High Pressure
Toxicity: Nontoxic
Boiling Point: -297.4ºF

Molecular Weight: 32.00
Specific Gravity: 1.105
Critical Temperature: -181.15ºF
Critical Pressure: 731.4 psia
Specific Volume: 12.1 cf/lb

DOT Designation
Name: Oxygen, Compressed
Label: Yellow Oxidizer
Hazard Classification: 2.2
UN Number: 1072

Purity Specifications

Purity: Oxygen ≥99.2%
Odor: None

Carbon Monoxide: ≤10 ppm
Carbon Dioxide: ≤300 ppm

Medical Applications

- Respiratory Support: For patients with respiratory conditions and during surgeries to maintain adequate oxygen levels
- Emergency Situations: Used for events like cardiac arrest or trauma to ensure sufficient oxygenation of vital organs
- Anesthesia: In combination with anesthesia during surgery to ensure the patient receives enough oxygen
- Hyperbaric Oxygen Therapy (HBOT): To treat conditions like decompression sickness, carbon monoxide poisoning, and non-healing wounds by increasing oxygen delivery to tissues
- Critical Care or Neonatal Care: For patients who require mechanical ventilation or high levels of oxygen or those in respiratory distress

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶OX USP20	20	USP Oxygen, Steel	2,015	534	19	1.6	5.2	13.7	540
❶OX USP40	40	USP Oxygen, Steel	2,015	1,161	41	3.5	7.0	17.4	540
❶OX USP60	60	USP Oxygen, Steel	2,015	1,614	57	4.7	7.0	22.6	540
❶OX USP80	80	USP Oxygen, Steel	2,015	2,452	87	7.2	7.0	32.3	540
❶OX USP125	125	USP Oxygen, Steel	2,215	3,540	127	10.5	7.0	43.0	540
❶OX USP125A	125A	USP Oxygen, Aluminum	2,216	3,454	127	10.5	8.0	36.3	540
❶OX USP150A	150A	USP Oxygen, Aluminum	2,015	4,333	153	13.0	7.3	46.5	540
❶OX USP200	200	USP Oxygen, Steel	2,215	7,100	251	20.5	9.0	51.0	540
❶OX USP250	250	USP Oxygen, Steel	2,265	7,960	281	23.3	9.0	51.0	540
❶OX USP300	300	USP Oxygen, Steel	2,400	9,540	337	27.9	9.3	55.0	540

Regulator Recommendations

❶Y11HC5402550-AG
❶Y11HC540650-AG
❶Y11HC540T2550-AG
❶Y11HC540T650-AG
❶Y11HC540P50-AG
❶Y11HC540V650-AG
❶Y11HC540VP80-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Nitrous Oxide USP

Nitrous Oxide Properties

SDS ID: 001042 (Airgas.com)
Color Code: Blue
Hazards: Oxidizer and High Pressure
Toxicity: Nontoxic
Boiling Point: -127.3°F

Molecular Weight: 44.01
Specific Gravity: 1.53
Critical Temperature: 97.7°F
Critical Pressure: 1052.2 psia
Specific Volume: 8.7 cf/lb

DOT Designation
Name: Nitrous Oxide
Label: Nonflammable Gas, Oxidizer
Hazard Classification: 2.2
UN Number: 1070

Purity Specifications

Purity: Nitrous Oxide ≥99.2%
Carbon Dioxide: ≤300 ppm
Nitric Oxide: ≤1 ppm
Nitrogen Dioxide: ≤1 ppm

Water: ≤87 ppm
Ammonia: ≤25 ppm
Carbon Monoxide: ≤10 ppm
Halogens: ≤1 ppm

Medical Applications

- Anesthesia: In combination with oxygen and sometimes with other aesthetic agents to enhance effects and reduce dosage, making it safer for patients
- Analgesia: Provides pain relief and is frequently used in obstetrics and emergency departments for procedures that require short-term pain management
- Sedation: Utilized for conscious sedation, where patients remain awake but relaxed and free of pain
- Anxiolysis: Helps reduce anxiety and induce relaxation in patients undergoing medical or dental procedures

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶NS USPD	D	USP Nitrous Oxide, Steel	745	991	35	4.0	4.1	16.7	910
❶NS USPE	E	USP Nitrous Oxide, Steel	745	1,728	61	5.1	4.1	25.7	910
❶NS USPEA	EA	USP Nitrous Oxide, Aluminum	745	1,728	61	5.1	4.1	25.7	910
❶NS USP10	10	USP Nitrous Oxide, Steel	745	2,466	87	10.0	7.0	17.4	326
❶NS USP20	20	USP Nitrous Oxide, Steel	745	4,930	174	20.0	7.0	32.3	326
❶NS USP35	35	USP Nitrous Oxide, Steel	745	8,524	301	35.0	7.3	46.5	326
❶NS USP50	50	USP Nitrous Oxide, Steel	745	12,300	436	50.0	8.5	51.0	326
❶NS USP56	200	USP Nitrous Oxide, Steel	745	13,800	488	56.0	9.0	51.0	326
❶NS USP64	200	USP Nitrous Oxide, Steel	745	15,800	558	64.0	9.0	51.0	326
❶NS USP73	300	USP Nitrous Oxide, Steel	745	18,578	637	73.0	9.3	55.0	326

Regulator Recommendations

❶Y11HC910VP80-AG
❶Y11HC326VP80-AG
❶Y11HC326V650-AG
❶Y11HC580HP50-AG

⚠ ❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Carbon Dioxide USP

Carbon Dioxide Properties

SDS ID: 001013 (Airgas.com)
Color Code: Gray
Hazards: High Pressure, Asphyxiation
Toxicity: Nontoxic, TLV: 5000 ppm
Boiling Point: -109.1°F

Molecular Weight: 44.01
Specific Gravity: 1.522
Critical Temperature: 87.8°F
Critical Pressure: 1070.6 psia
Specific Volume: 8.76 cf/lb

DOT Designation
Name: Carbon Dioxide
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1013

Purity Specifications

Purity: Carbon Dioxide ≥99.2%
Hydrogen Sulfide: ≤1 ppm
Nitric Oxide: ≤2.5 ppm

Nitrogen Dioxide: ≤2.5 ppm
Water: ≤87 ppm
Ammonia: ≤25 ppm

Carbon Monoxide: ≤10 ppm
Sulfur Dioxide: ≤5 ppm

Medical Applications

- Insufflation: During laparoscopic and endoscopic procedures, used to inflate and maintain pneumoperitoneum during minimally invasive surgeries, providing better visualization and access to the surgical area
- Cryotherapy: Employed as a cryogenic agent in the treatment of certain skin conditions, such as warts and skin tags, by freezing tissue
- Inhalation Therapy: Administered to help stimulate respiration in patients with respiratory depression or apnea
- Medical Imaging: Used as a contrast agent in some diagnostic imaging procedures, such as angiography, to improve the visibility of blood vessels
- pH Regulation in Blood: Occasionally used in medical settings to help regulate the acid-base balance in the blood during surgeries or in the ICU

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶CD USPD	D	USP Carbon Dioxide, Steel	830	991	35	4	4.1	16.7	940
❶CD USPE	E	USP Carbon Dioxide, Steel	830	1,473	52	6	4.1	25.7	940
❶CD USPEA	EA	USP Carbon Dioxide, Aluminum	830	1,728	61	7	4.4	25.6	940
❶CD USP20	20	USP Carbon Dioxide, Steel	830	4,967	175	20	7.0	17.4	320
❶CD USP35	35	USP Carbon Dioxide, Steel	830	8,693	307	35	7.3	46.5	320
❶CD USP50	200	USP Carbon Dioxide, Steel	830	12,418	439	50	8.5	51.0	320
❶CD USP64	200	USP Carbon Dioxide, Steel	830	15,895	561	64	9.0	51.0	320
❶CD USP75	300	USP Carbon Dioxide, Steel	830	18,131	640	73	9.3	55.0	320

Regulator Recommendations

❶Y11HC940VP80-AG
❶Y11HC320VP80-AG
❶Y11HC320V650-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Helium USP

Helium Properties

SDS ID: 001025 (Airgas.com)
Color Code: Brown
Hazards: High Pressure, Asphyxiation
Toxicity: Nontoxic
Boiling Point: -452.1°F

Molecular Weight: 4.00
Specific Gravity: 0.138
Critical Temperature: -450.4°F
Critical Pressure: 33.2 psia
Specific Volume: 96.6 cf/lb

DOT Designation
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1046

Purity Specifications

Purity: Helium ≥99.2%

Odor: None

Carbon Monoxide: ≤10 ppm

Medical Applications

- Respiratory Therapy: Mixed with oxygen to create Heliox mixtures which can be used to treat patients with obstructive airway conditions such as asthma, bronchitis, and bronchiolitis
- Medical Imaging: Utilized as a cooling agent in MRI machines to maintain the superconducting magnets at very low temperatures
- Pulmonary Function Testing: Utilized in certain diagnostics tests to measure lung volumes and diffusion capacity to diagnose and monitor lung diseases
- Anesthesia Delivery: Employed as a carrier gas in the administration of anesthetics, particularly in cases where nitrogen or nitrous oxide might pose a risk
- Hyperbaric Oxygen Therapy (HBOT): Occasionally used in hyperbaric medicine, especially in divers suffering from decompression sickness, as part of breathing gas mixtures to facilitate the elimination of inert gases from the body

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶HE USPM4	M4	USP Helium, Aluminum	2,216	85	3	< 0.1	3.2	9.0	930
❶HE USPM6	M6	USP Helium, Aluminum	2,216	142	5	0.1	3.2	11.8	930
❶HE USPM9	M9	USP Helium, Aluminum	2,015	227	8	0.1	4.4	10.9	930
❶HE USPD	D	USP Helium, Steel	2,015	396	14	0.1	4.1	16.7	930
❶HE USPDA	DA	USP Helium, Aluminum	2,015	368	13	0.1	4.4	16.5	930
❶HE USPE	E	USP Helium, Steel	2,015	623	22	0.2	4.1	25.7	930
❶HE USPEA	EA	USP Helium, Aluminum	2,015	623	22	0.2	4.4	25.6	930
❶HE USP40	40	USP Helium, Steel	2,015	1,020	36	0.4	7.0	17.4	580
❶HE USP80	80	USP Helium, Steel	2,015	2,424	75	0.8	7.0	32.3	580
❶HE USP125	125	USP Helium, Steel	2,015	3,144	111	1.1	7.0	43.0	580
❶HE USP200	200	USP Helium, Steel	2,015	6,202	219	2.3	9.0	51.0	580
❶HE USP250	250	USP Helium, Steel	2,265	8,269	244	2.5	9.0	51.0	580
❶HE USP300	300	USP Helium, Steel	2,400	8,269	292	3.0	9.3	55.0	580

Regulator Recommendations

❶Y11HC930VP80-AG
❶Y11HC580HP50-AG
❶Y11HC580HVP80-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Nitrogen NF

Nitrogen Properties

SDS ID: 001040 (Airgas.com)
Color Code: Black
Hazards: High Pressure, Asphyxiation
Toxicity: Nontoxic
Boiling Point: -320.4°F

Molecular Weight: 28.01
Specific Gravity: 0.97
Critical Temperature: -237.8°F
Critical Pressure: 492.2 psia
Specific Volume: 13.8 cf/lb

DOT Designation
Name: Nitrogen, Compressed
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1066

Purity Specifications

Purity: Nitrogen ≥99.2%

Odor: None

Carbon Monoxide: ≤10 ppm

Medical Applications

- Medical Device Manufacturing: Used in the manufacturing and packaging of medical devices to create an inert atmosphere that prevents oxidation and maintains sterility
- Pharmaceutical Production: Applied in the production of pharmaceuticals to purge air from containers, thereby preventing oxidation and contamination of the product
- Gas Mixtures for Medical Use: Mixed with other gases to create specific gas mixtures used in respiratory therapy and anesthesia
- Medical Equipment: Used to test the integrity of medical equipment, thus ensuring devices such as catheters and tubing can withstand high pressures without leaking; as well as powering pneumatic devices

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶NI NFD	D	NF Nitrogen, Steel	2,215	396	14	1.0	4.1	16.7	960
❶NI NFE	E	NF Nitrogen, Steel	2,215	638	23	1.7	4.1	25.7	960
❶NI NFEA	EA	NF Nitrogen, Aluminum	2,215	651	23	1.7	4.4	25.6	960
❶NI NF80	80	NF Nitrogen, Steel	2,215	2,237	79	5.7	7.0	32.3	580
❶NI NF80A	80A	NF Nitrogen, Aluminum	2,216	2,350	83	6.1	7.0	33.0	580
❶NI NF125	125	NF Nitrogen, Steel	2,215	3,285	116	8.4	7.0	43.0	580
❶NI NF150	150	NF Nitrogen, Steel	2,215	4,050	143	10.3	7.3	46.5	580
❶NI NF150A	150A	NF Nitrogen, Aluminum	2,015	4,021	142	10.3	8.0	48.0	580
❶NI NF200	200	NF Nitrogen, Steel	2,215	6,513	230	16.6	9.0	51.0	580
❶NI NF250	250	NF Nitrogen, Steel	2,265	7,250	256	18.5	9.0	51.0	580
❶NI NF300	300	NF Nitrogen, Steel	2,400	8,610	304	22.3	9.3	55.0	580

Regulator Recommendations

❶Y11HC960VP80-AG
❶Y11HC580VP80-AG
❶Y11HC580P50-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Air USP

Air Properties

SDS ID: 001002 (Airgas.com)
Color Code: Yellow
Hazards: High Pressure
Toxicity: Nontoxic
Boiling Point: -317.8°F

Molecular Weight: 28.96
Critical Temperature: -221.1°F
Critical Pressure: 546.85 psia
Specific Volume: 13.3 cf/lb

DOT Designation
Name: Air, Compressed
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1002

Purity Specifications

Purity: Oxygen 19.5%–23.5% Balance Nitrogen
Odor: None
Water and Oil: None
Nitric Oxide/Nitrogen Dioxide: ≤2.5 ppm

Sulfur Dioxide: ≤5 ppm
Carbon Dioxide: ≤500 ppm
Carbon Monoxide: ≤10 ppm

Medical

- Respiratory Support: Used in ventilators and other respiratory support devices to provide patients with breathable air, especially when pure oxygen is not necessary or could be harmful
- Anesthesia Delivery: Mixed with anesthetic gases to maintain the patient's breathing
- Nebulization: Used as a carrier gas in nebulizers to deliver aerosolized medications to patients with respiratory conditions such as asthma and COPD
- Pulmonary Function Testing: Used in various pulmonary function tests to assess lung capacity and function
- Medical Equipment: Used for pneumatic powered devices used in procedures

Part Number	Size	Type	Nominal Pressure (psig) at 70°F	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶AI USPD	D	USP Air, Steel	2,015	396	14	1.0	4.1	16.7	950
❶AI USPDA	DA	USP Air, Aluminum	2,015	396	14	1.0	4.4	16.5	950
❶AI USPE	E	USP Air, Steel	2,015	651	23	1.8	4.1	25.7	950
❶AI USPEA	EA	USP Air, Aluminum	2,015	651	23	1.8	4.4	25.6	950
❶AI USPEAMRI	EA	USP Air, Aluminum	2,015	651	23	1.8	4.4	25.6	950
❶AI USPEAWBPLUS	EA WOB	USP Air, Walk-O_2-Bout™ MR Compliant	2,015	651	23	1.8	4.4	25.6	VIPR
❶AI USP125	125	USP Air, Steel	2,015	3,370	119	8.9	7.0	43.0	346
❶AI USP200	200	USP Air, Steel	2,015	6,684	236	17.6	9.0	51.0	346
❶AI USP300	300	USP Air, Steel	2,400	8,836	312	23.3	9.3	55.0	346

Regulator Recommendations

❶Y11HC9502550-AG ❶Y11HC950VP80-AG ❶Y11HC3460650-AG ❶Y11HC346T650-AG ❶Y11HC346V650-AG
❶Y11HC9500650-AG ❶Y11HC3462550-AG ❶Y11HC346T2550-AG ❶Y11HC346P50-AG ❶Y11HC346VP80-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Pure Liquid Gases

Airgas Healthcare offers a comprehensive line of medical gas to help meet varying application and volume requirements so you can provide optimal care for your patients. In addition to reliable supply, we offer a wide range of high-quality liquid cylinder sizes designed for cryogenic gas storage to deliver the right amount of carbon dioxide, nitrogen, oxygen, and helium gases.

See the individual Pure Gas listings in this section for detailed specifications, including volume capacity, pressure ratings, and dimensions.

Please note: Due to their cryogenic nature, liquid gas cylinders require specialized handling procedures, including using Personal Protective Equipment (PPE) designed for cryogenic use. Safety information and training resources are available to ensure proper use and prevent incidents. Please contact us for more information.

Cryogenic Liquid Oxygen USP

Cryogenic Liquid Oxygen Properties

SDS ID: 001190 (Airgas.com)
Hazards: Cryogenic Burns, Oxidizer
Toxicity: Nontoxic
Boiling Point: -297.4°F
Molecular Weight: 32.00

Specific Gravity: 1.105
Critical Temperature: -181.15°F
Critical Pressure: 731.4 psia
Specific Volume: 12.1 cf/lb

DOT Designation
Name: Oxygen, Refrigerated Liquid
Label: Yellow Oxidizer
Hazard Classification: 2.2 (5.1)
UN Number: 1073

Purity Specifications

Purity: Oxygen ≥99.2%
Odor: None

Carbon Monoxide: ≤10 ppm
Carbon Dioxide: ≤300 ppm

Medical Applications

- Respiratory Support: For patients with respiratory conditions and during surgery to maintain adequate oxygen levels
- Emergency Situations: Used during critical events, cardiac arrest or trauma to ensure sufficient oxygenation of vital organs
- Anesthesia: Used in combination with anesthetic agents during surgeries to ensure the patient receives enough oxygen
- Hyperbaric Oxygen Therapy (HBOT): Used to treat conditions like decompression sickness, carbon monoxide poisoning, and non-healing wounds by increasing oxygen delivery to tissues
- Critical Care or Neonatal Care: Administered to patients who require mechanical ventilation or high levels of oxygen or those in respiratory distress

Cryogenic Liquid Oxygen USP (cont'd.)

Part Number	Size (liter)	Type	PRD (psi)	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	Gas CGA	Liquid CGA
❶OX USP80LT230	80	Liquid USP Oxygen	230	62,587	2,210	183	20	39.5	540	440
❶OX USP120LT22	120	Liquid USP Oxygen	22	93,031	3,285	272	20	39.5	540	440
❶OX USP120LT230	120	Liquid USP Oxygen	230	88,585	3,128	259	20	39.5	540	440
❶OX USP160LT22	160	Liquid USP Oxygen	22	126,902	4,481	371	20	60.0	540	440
❶OX USP160LT230	160	Liquid USP Oxygen	230	129,649	4,578	379	20	60.0	540	440
❶OX USP160LT350	160	Liquid USP Oxygen	350	123,135	4,348	360	20	60.0	540	440
❶OX USP180LT22	180	Liquid USP Oxygen	22	144,687	5,109	423	20	63.5	540	440
❶OX USP180LT230	180	Liquid USP Oxygen	230	142,280	5,024	416	20	63.5	540	440
❶OX USP180LT350	180	Liquid USP Oxygen	350	131,688	4,650	385	20	63.5	540	440
❶OX USP180LT500	180	Liquid USP Oxygen	500	128,601	4,541	376	20	63.5	540	440
❶OX USP200LT22	200	Liquid USP Oxygen	22	162,132	5,725	474	20	66.6	540	440
❶OX USP200LT230	200	Liquid USP Oxygen	230	148,793	5,254	435	20	66.6	540	440
❶OX USP200LT350	200	Liquid USP Oxygen	350	145,706	5,145	426	20	66.6	540	440
❶OX USP200LT500	200	Liquid USP Oxygen	500	136,814	4,831	400	20	66.6	540	440
❶OX USP230LT22	230	Liquid USP Oxygen	22	186,062	6,570	544	26	52.8	540	440
❶OX USP230LT230	230	Liquid USP Oxygen	230	176,830	6,244	517	26	52.8	540	440
❶OX USP230LT350	230	Liquid USP Oxygen	350	167,938	5,930	491	26	52.8	540	440

Regulator Recommendations

❶Y11HC5402550-AG
❶Y11HC540T2550-AG
❶Y11HC540P50-AG
❶Y11HC540VP80-AG
❶Y11HC540650-AG
❶Y11HC540T650-AG
❶Y11HC540V650-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Cryogenic Liquid Nitrous Oxide USP

Cryogenic Liquid Nitrous Oxide Properties

SDS ID: 001189 (Airgas.com)
Hazards: Cryogenic Burns, Oxidizer
Toxicity: Nontoxic
Boiling Point: -127.3°F
Molecular Weight: 44.01
Specific Gravity: 1.53
Critical Temperature: 97.7°F
Critical Pressure: 1052.2 psia
Specific Volume: 8.7 cf/lb

DOT Designation
Name: Nitrous Oxide, Refrigerated Liquid
Label: Nonflammable Gas, Oxidizer
Hazard Classification: 2.2
UN Number: 1070

Purity Specifications

Purity: Nitrous Oxide ≥99.2%
Carbon Dioxide: ≤300 ppm
Nitric Oxide: ≤1 ppm
Nitrogen Dioxide: ≤1ppm
Water: ≤87 ppm
Ammonia: ≤25 ppm
Carbon Monoxide: ≤10 ppm
Halogens: ≤1 ppm

Medical Applications

- Anesthesia: In combination with oxygen and sometimes with other aesthetic agents to enhance effects and reduce dosage, making it safer for patients
- Analgesia: Provides pain relief and is frequently used in obstetrics and emergency departments for procedures that require short-term pain management
- Sedation: Used for conscious sedation, where patients remain awake but relaxed and free of pain
- Anxiolysis: Helps reduce anxiety and induce relaxation in patients undergoing medical or dental procedures

Part Number	Size (liter)	Type	PRD (psi)	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	Gas CGA	Liquid CGA
❶NS USP160LT230	160	Liquid USP Nitrous Oxide	230	90,879	3,209	368	20	60.0	326	624
❶NS USP180LT230	180	Liquid USP Nitrous Oxide	230	100,989	3,566	409	20	63.5	326	624
❶NS USP200LT230	200	Liquid USP Nitrous Oxide	230	107,899	3,810	437	20	66.6	326	624
❶NS USP230LT230	230	Liquid USP Nitrous Oxide	230	124,212	4,386	503	26	52.8	326	624

Regulator Recommendations

❶Y11HC326V650-AG
❶Y11HC326VP80-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Cryogenic Liquid Carbon Dioxide USP

Cryogenic Liquid Carbon Dioxide Properties

SDS ID: 001181 (Airgas.com)
Hazards: Cryogenic Burns, Asphyxiation
Toxicity: Nontoxic, TLV: 5000 ppm
Boiling Point: -109.1°F
Molecular Weight: 44.01

Specific Gravity: 1.522
Critical Temperature: 87.8°F
Critical Pressure: 1070.6 psia
Specific Volume: 8.76 cf/lb

DOT Designation
Name: Carbon Dioxide, Refrigerated Liquid
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 2187

Purity Specifications

Purity: Carbon Dioxide ≥99.2%
Hydrogen Sulfide: ≤1 ppm
Nitric Oxide: ≤2.5 ppm

Nitrogen Dioxide: ≤2.5 ppm
Water: ≤87 ppm
Ammonia: ≤25 ppm

Carbon Monoxide: ≤10 ppm
Sulfur Dioxide: ≤5 ppm

Medical Applications

- Insufflation for laparoscopic and endoscopic procedures: Used to inflate and maintain pneumoperitoneum during minimally invasive surgeries, providing better visualization and access to the surgical area
- Cryotherapy: Employed as a cryogenic agent in the treatment of certain skin conditions, such as warts and skin tags
- Inhalation Therapy: Administered to help stimulate respiration in patients with respiratory depression or apnea
- Medical Imaging: Used as a contrast agent in some diagnostic imaging procedures, such as angiography, to improve the visibility of blood vessels
- pH Regulation in Blood: Occasionally used in medical settings to help regulate the acid-base balance in the blood during surgeries or in the ICU

Part Number	Size (liter)	Type	PRD (psi)	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	Gas CGA	Liquid CGA
❶CD USP160LT350	160	Liquid USP Carbon Dioxide	350	96,118	3,394	387	20	60.0	320	622
❶CD USP180LT350	180	Liquid USP Carbon Dioxide	350	102,830	3,631	414	20	63.5	320	622
❶CD USP200LT350	200	Liquid USP Carbon Dioxide	350	113,988	4,025	459	20	66.6	320	622
❶CD USP230LT350	230	Liquid USP Carbon Dioxide	350	131,150	4,631	528	26	52.8	320	622

Regulator Recommendations

❶Y11HC320VP80-AG
❶Y11HC320V650-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Cryogenic Liquid Nitrogen NF

Cryogenic Liquid Nitrogen Properties

SDS ID: 001188 (Airgas.com)
Hazards: High Pressure, Asphyxiation
Toxicity: Nontoxic
Boiling Point: -320.4°F
Molecular Weight: 28.01

Specific Gravity: 0.97
Critical Temperature: -237.8°F
Critical Pressure: 492.2 psia
Specific Volume: 13.8 cf/lb

DOT Designation
Name: Nitrogen, Compressed
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1066

Purity Specifications

Purity: Nitrogen ≥99.2%

Odor: None

Medical Applications

- Cryopreservation: Employed as a cryogenic agent to preserve biological samples such as blood, reproductive cells and tissue
- Cryosurgery: Used in cryosurgical procedures to remove abnormal tissue, such as warts, skin tags, and certain types of tumors
- Medical Device Manufacturing: Used in the manufacturing and packaging of medical devices to create an inert atmosphere that prevents oxidation and maintains sterility
- Pharmaceutical Production: Applied in the production of pharmaceuticals to purge air from containers, thereby preventing oxidation and contamination of the product
- Gas Mixtures for Medical Use: Mixed with other gases to create specific gas mixtures used in respiratory therapy and anesthesia
- Medical Equipment: Used to test the integrity of medical equipment ensuring that devices such as catheters and tubing can withstand high pressures without leaking; also used to power pneumatic devices

Cryogenic Liquid Nitrogen NF (cont'd.)

SDS ID: 001188 (Airgas.com)

Part Number	Size (liter)	Type	PRD (psi)	Gaseous Liters	SCF	Product Weight (lb)	Diameter (in)	Length (in)	Gas CGA	Liquid CGA
❶NI NF80LT22	80	Liquid NF Nitrogen	22	52,760	1,863	135	20	39.5	580	295
❶NI NF80LT230	80	Liquid NF Nitrogen	230	50,437	1,781	129	20	39.5	580	295
❶NI NF160LT22	160	Liquid NF Nitrogen	22	101,244	3,575	259	20	60.0	580	295
❶NI NF160LT230	160	Liquid NF Nitrogen	230	104,359	3,685	267	20	60.0	580	295
❶NI NF160LT350	160	Liquid NF Nitrogen	350	98,497	3,478	252	20	60.0	580	295
❶NI NF180LT22	180	Liquid NF Nitrogen	22	115,716	4,086	296	20	63.5	580	295
❶NI NF180LT230	180	Liquid NF Nitrogen	230	114,526	4,044	293	20	63.5	580	295
❶NI NF180LT350	180	Liquid NF Nitrogen	350	105,152	3,713	269	20	63.5	580	295
❶NI NF180LT500	180	Liquid NF Nitrogen	500	98,497	3,478	252	20	63.5	580	295
❶NI NF200LT22	200	Liquid NF Nitrogen	22	129,394	4,569	331	20	66.6	580	295
❶NI NF200LT230	200	Liquid NF Nitrogen	230	120,388	4,251	308	20	66.6	580	295
❶NI NF200LT350	200	Liquid NF Nitrogen	350	116,480	4,113	298	20	66.6	580	295
❶NI NF200LT500	200	Liquid NF Nitrogen	500	104,756	3,699	268	20	66.6	580	295
❶NI NF230LT22	230	Liquid NF Nitrogen	22	148,538	5,245	380	26	52.8	580	295
❶NI NF230LT230	230	Liquid NF Nitrogen	230	142,280	5,024	364	26	52.8	580	295
❶NI NF230LT350	230	Liquid NF Nitrogen	350	134,463	4,748	344	26	52.8	580	295

Regulator Recommendations

❶Y11HC580VP80-AG
❶Y11HC580P50-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Liquid Nitrogen Dewar Refills

Liquid Nitrogen Dewar Properties

SDS ID: 001188 (Airgas.com)
Hazards: Cryogenic Burns, Asphyxiation
Toxicity: Nontoxic
Boiling Point: -320.4°F
Molecular Weight: 28.01

Specific Gravity: 0.97
Critical Temperature: -237.8°F
Critical Pressure: 492.2 psia
Specific Volume: 13.8 cf/lb

DOT Designation
Name: Nitrogen, Compressed
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1066

Purity Specifications

Purity: Nitrogen ≥99.0%

Odor: None

Medical Applications

- Cryopreservation: Employed as a cryogenic agent to preserve biological samples such as blood, reproductive cells, and tissue
- Cryosurgery: Used in cryosurgical procedures to remove abnormal tissue, such as warts, skin tags, and certain types of tumors

Part Number	Liquid Liters	Description	Product Weight (lb)
❶NI GMPDEWARFILL5L	5	Nitrogen GMP Dewar Refill	8.9
❶NI GMPDEWARFILL10L	10	Nitrogen GMP Dewar Refill	17.8
❶NI GMPDEWARFILL15L	15	Nitrogen GMP Dewar Refill	26.7
❶NI GMPDEWARFILL20L	20	Nitrogen GMP Dewar Refill	35.6
❶NI GMPDEWARFILL25L	25	Nitrogen GMP Dewar Refill	44.6
❶NI GMPDEWARFILL30L	30	Nitrogen GMP Dewar Refill	53.5
❶NI GMPDEWARFILL40L	40	Nitrogen GMP Dewar Refill	71.3
❶NI GMPDEWARFILL50L	50	Nitrogen GMP Dewar Refill	89.1
❶NI GMPDEWARFILL60L	60	Nitrogen GMP Dewar Refill	106.9
❶NI GMPDEWARFILL70L	70	Nitrogen GMP Dewar Refill	124.7
❶NI GMPDEWARFILL80L	80	Nitrogen GMP Dewar Refill	142.6
❶NI GMPDEWARFILL90L	90	Nitrogen GMP Dewar Refill	160.4
❶NI GMPDEWARFILL100	100	Nitrogen GMP Dewar Refill	178.2

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Liquid Helium

Liquid Helium Properties

SDS ID: 001184 (Airgas.com)
Hazards: Cryogenic Burns, Asphyxiation
Toxicity: Nontoxic
Boiling Point: -452.1ºF
Freezing Point: 459.7ºF

Molecular Weight: 4.003
Vapor Density: 0.14
Critical Temperature: -450.2ºF
Specific Volume: 96.15 cf/lb

DOT Designation
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number:1963

Purity Specifications

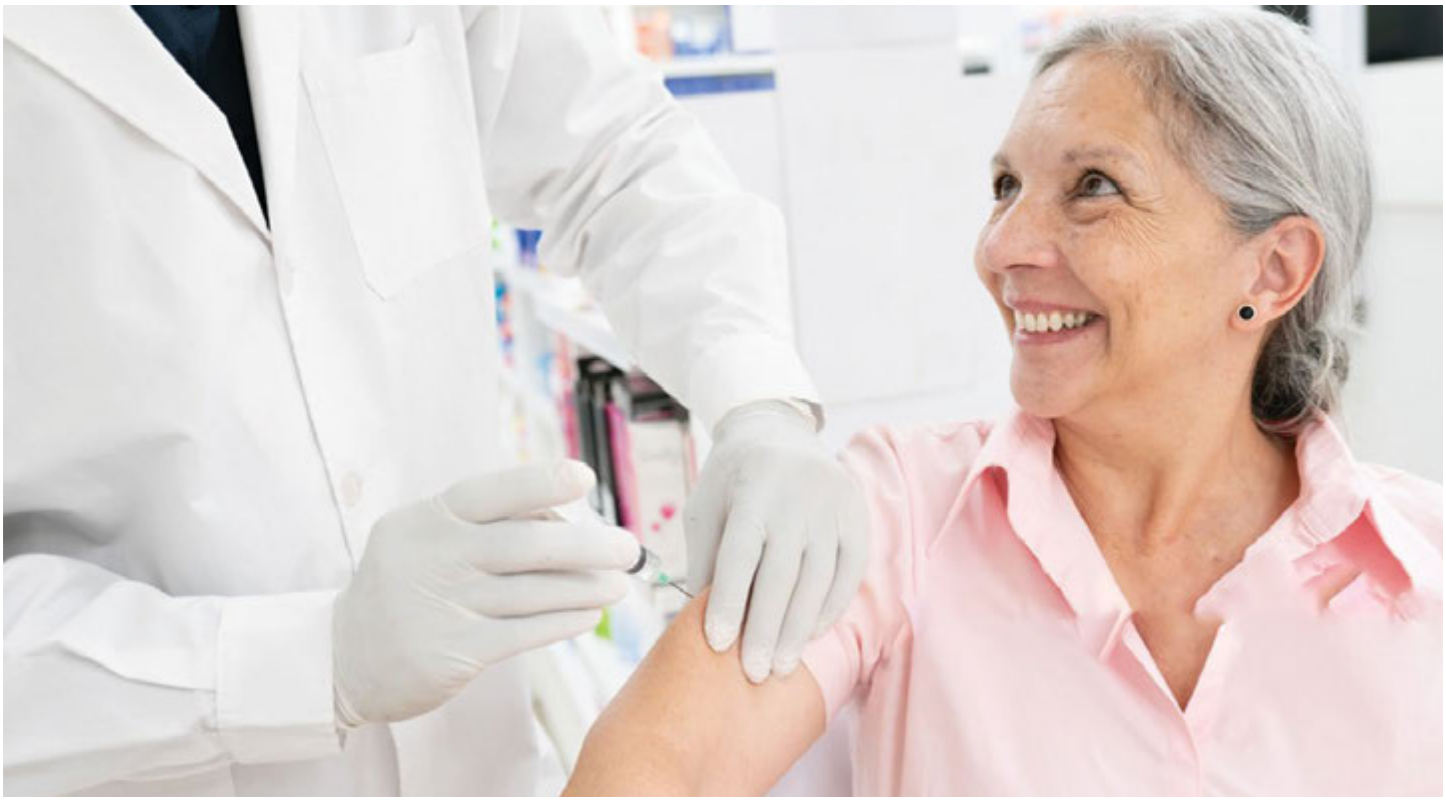
Purity: Helium ≥99.2%
Odor: None

Medical Applications

- Magnetic Resonance Imaging (MRI) Machines: Used as a coolant for the superconducting magnets in MRI scanners. These magnets need to be kept at temperatures close to absolute zero to maintain their superconductivity, which is crucial for creating the strong magnetic fields needed for high-resolution imaging
- Magnetoencephalography (MEG) Scanners: Cool superconducting magnets that map brain activity, particularly useful in planning brain surgeries

Part Number	Size (liter)	Type	Product Weight (lb)	Diameter (in)	Length (in)	Liquid Connection Adapter (in)	Vent Connection FNPT (in)
❶HE 30LT	30	Liquid Helium	8.3	20	48	3/8	1/2
❶HE 60LT	60	Liquid Helium	16.6	24	51	3/8	1/2
❶HE 100LT	100	Liquid Helium	27.5	24	59	3/8	1/2
❶HE 250LT	250	Liquid Helium	68.9	32	70	5/8	1/2
❶HE 350LT	350	Liquid Helium	96.4	32	74	5/8	1/2
❶HE 500LT	500	Liquid Helium	137.7	42	75	5/8	1/2

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov



Dry Ice from Airgas

Dry ice plays a vital role in preserving biological samples

- Specially formulated for specimen storage and shipping from pharmaceutical lab applications to DNA research
- Available in large and small volumes (50 lb. or less)
- See page 22 for our full dry ice product offering

Dry ice Coolers

- Swivel casters for convenient mobility
- One-piece seamless hinged lid
- Tamper-resistant padlock for security
- Dimensions: 43" w x 27.5" d x 40" h

Holds **500+ lbs** of pellets or **2,000 lbs** of blocks

Dry Ice Safety

With over 40 QSSP- and OSHA 30-certified Safety Specialists, we are ready to help you take safety beyond products. Count on us to help select the appropriate safety products and Personal Protective Equipment (PPE) to minimize risks and protect your team.

- Gas detection
- Head, face and eye protection
- Hand protection
- Protective clothing

Not sure how much you need?

Contact us at 800.329.0010; we can help you determine the right quantity to fit your needs.

THERE ARE HAZARDS ASSOCIATED WITH THE STORAGE, MOVEMENT, HANDLING, TRANSPORTATION AND USE OF DRY ICE, AND IT IS YOUR RESPONSIBILITY TO WARN AND PROTECT ALL THOSE EXPOSED TO SUCH HAZARDS. DRY ICE MUST BE USED, HANDLED, TRANSPORTED, AND STORED IN A SAFE AND PROFESSIONAL MANNER AND IN ACCORDANCE WITH ALL APPLICABLE LAWS. FOR MORE INFORMATION REGARDING THE SAFE HANDLING, TRANSPORT AND USE OF DRY ICE, PLEASE SCAN OR CLICK THE QR CODE FOR THE SAFETY DATA SHEET AND VISIT WWW.CGANET.COM FOR THE COMPRESSED GAS ASSOCIATION GUIDELINES.

Dry Ice (cont'd.)

Part Number	Dry Ice Type	Size	Packaged
❶CD ICEP-1/4	Pellets	1/4"	0–500 lbs
❶CD ICEP-11	Pellets	1/2"–3/4"	HR-11 Box (~ 500–600 lb)
❶CD ICEP3BL	Blasting Pellets	Standard 2.9 mm	Varies
❶CD ICECB4	Block	5 lb (~ 5" x 10" x 2")	With or without red warning label
❶CD ICEP2	Rice Pellets	1/4"	Varies
❶CD ICEPBG40	Pellets	1/2"–3/4"	40 lb Bag
❶CD ICEP3S	Non-blasting Pellets	Standard 2.9 mm	Varies
❶CD ICEP3S-11	Non-blasting Pellets	Standard 2.9 mm	HR-11 Box (~ 500–600 lb)
❶CD ICEPB-11	Pellets	1/2"–3/4"	HR-11 Bagged or boxed (~ 500–600 lb)
❶CD ICEP3BL-11	Blasting Pellets	Standard 2.9 mm	HR-11 Box (~ 500–600 lb)
❶CD ICEPBG30	Pellets	1/2"–3/4"	Bagged or boxed (40 lb)
❶CD ICECB3-27	Block	10 lb (~ 10" x 10" x 2")	HR-27 Box (~ 2,000 lb) with or without red warning label
❶CD ICECB5	Block	3 lb (~ 5" x 5" x 5/8")	With or without red warning label
❶CD ICECB8	Custom Cut Block	Custom sizing	Plant by plant
❶CD ICECB3-11	Block	10 lb (~ 10" x 10" x 2")	HR-11 Box (~ 500–600 lb) with or without red warning label
❶CD ICECB30	Block	(3) 10 lb (~ 10" x 10" x 2")	30 lb custom (bagged or boxed) with or without red warning label
❶CD ICEP-27	Pellets	1/2"–3/4"	HR-27 Box (~ 1,100–1,300 lb)

It's easy to get started

New Customers

Please have the following information for pricing and new customer setup.

- Contact phone and email address
- Quantity needed
- Payment method
- Desired delivery day (Mon–Fri)
- Receiving hours
- Delivery location
- Delivery dock at location?
- Storage box needed?

Existing Customers

Please provide your customer number when calling.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Medical Gas Mixtures

Discover our comprehensive selection of medical gas mixtures, which are carefully formulated to meet the stringent demands of healthcare environments and backed by reliable supply from over 1400 locations. These precise blends ensure accurate gas delivery for optimal outcomes. We offer a diverse range of mixtures tailored to specific medical applications, including anesthesia, diagnostic, and therapeutic uses. Each mixture undergoes rigorous analysis to ensure it meets your standards of purity, consistency, and safety.

For specialized needs, we also offer custom blends tailored to the unique requirements of various medical procedures, research projects, or therapeutic interventions. To provide detailed information on each mixture, Certificates of Conformance and Certificates of Analysis are available upon request. This section serves as an overview of our medical gas mixture offerings and includes detailed specifications, applications, and ordering information.

AcuGrav™

Airgas offers the widest variety of precise specialty gas blends through the largest network of laboratories in the U.S. Whether you need common two-component mixtures or custom mixtures of multiple components, you'll find it with Airgas.

Our breakthrough AcuGrav technology totally computerizes and automates the multi-component specialty gas filling process. By removing the human element, AcuGrav achieves an astonishing level of quality every time.

With the most ISO 9001:2008 registered and ISO/IEC 17025:2005 accredited specialty gas labs in the country, Airgas provides gas mixture consistency, precision, and peace of mind.

Breakthrough technology. Precision and consistency.

- A patented, fully automated, and computerized system that programmatically executes Airgas-specific SOPs
- Mixes with unprecedented consistency and accuracy
- Consistent quality by batch and plant location
- Completely modular, featuring state-of-the art technology
- Real-time embedded control system to handle I/O and time-critical routines
- Largest network of laboratories in the U.S.

USP Drug Mixtures

Our range of USP-grade drug mixtures is precisely formulated to meet the standards of the United States Pharmacopeia (USP). These mixtures are essential components in a variety of healthcare uses. For example, they ensure accurate and reliable delivery of gases in operating rooms for safe and effective surgical procedures. In intensive care units, these gases provide critical respiratory support through precisely blended therapeutic gas mixtures. In emergency departments, they enable life-saving interventions with readily available mixtures for patients in respiratory distress.

This catalog features commonly used USP drug mixtures, with custom formulations available upon request to meet specific therapeutic needs or research applications. Our healthcare experts are always there to assist you in selecting the right solutions for your requirements.

Refer to individual product listings for complete details on composition, concentration, intended use, and available packaging options.

Heliox

80/20 Heliox Properties

SDS ID: 015561 (Airgas.com)
Color Code: Brown/Green
Hazards: High Pressure
Toxicity: Nontoxic
Odor: None
Critical Temperature: -450.2°F

DOT Designation
Name: Compressed Gas, N.O.S. (HELIUM, OXYGEN)
Label: Nonflammable Gas
Hazard Classification: 2.2
UN Number: 1956

70/30 Heliox Properties

SDS ID: 012957 (Airgas.com)
Color Code: Brown/Green
Hazards: High Pressure
Toxicity: Nontoxic
Odor: None
Critical Temperature: -450.2°F

DOT Designation
Name: Compressed Gas, Oxidizing N.O.S. (OXYGEN, HELIUM)
Label: Nonflammable Gas
Hazard Classification: 2.2 (5.1)
UN Number: 3156

Specification

Nominal Percent O_2 Requested	Acceptable Range of Analysis	
	Minimum	Maximum
20	20.0	22.0
30	28.5	31.5
40	38.0	42.0

Helium: Positive ID

Raw materials meet impurity requirements

Medical Applications

- Respiratory Therapy: Used to manage airway obstructions in conditions such as asthma, COPD, croup, bronchiolitis, and upper airway obstructions. The lower density of helium compared to nitrogen reduces airway resistance and the work of breathing, facilitating easier airflow through constricted airways
- Acute Respiratory Distress Syndrome (ARDS): Helps to improve ventilation and oxygenation in patients with ARDS, where traditional ventilation methods are challenging
- Post-Extubation Stridor: Used to reduce stridor and associated respiratory distress after the removal of a breathing tube
- Mechanical Ventilation: Administered via mechanical ventilators to patients with severe respiratory conditions, improving gas exchange and reducing the effort of breathing
- Diagnostic Procedures: Used in some pulmonary function tests to assess the severity of airway obstruction and responsiveness to bronchodilators

Heliox (cont'd.)

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶Z02HE8012003042	200	USP 20% Oxygen/Helium	5,670	197	5.2	9.0	51.0	280
❶Z02HE8012003019	200	USP 20% Oxygen/Helium	5,670	197	5.2	9.0	51.0	280
❶Z02HE8011900109	200	USP 20% Oxygen/Helium	5,670	167	4.6	8.5	51.0	280
❶Z02HE801ME3042	E	USP 20% Oxygen/Helium	630	18	0.4	4.1	25.7	890
❶Z02HE801E0001	E	USP 20% Oxygen/Helium	630	21	0.5	4.1	25.7	890
❶Z02HE801EAC507	WOB	USP 20% Oxygen/Helium, Walk-O_2-Bout™	630	21	0.5	4.38	25.4	VIPR
❶Z02HE7012003041	200	30% Oxygen/Helium	5,670	203	3.0	9.0	51.0	280
❶Z02HE701E0RM7	E	30% Oxygen/Helium	630	22	0.2	4.1	25.7	890
❶Z02HE701EAC509	WOB	30% Oxygen/Helium, Walk-He-Bout	630	21	0.7	4.38	25.4	VIPR

Regulator Recommendations

❶Y11HC2802550-AG
❶Y11HC8902550-AG
❶Y11HC280P50-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Carb-OX

Carb-OX Properties

SDS ID: 002032 (Airgas.com)
Color Code: Gray/Green
Hazards: High Pressure, Oxidizer
Toxicity: Nontoxic
Odor: None
Critical Temperature: -180.7ºF

DOT Designation
Name: Compressed Gas, Oxidizing N.O.S. (OXYGEN, CARBON DIOXIDE)
Label: Nonflammable Gas
Hazard Classification: 2.2 (5.1)
UN Number: 3156

Specifications

Nominal Percent O_2 Requested	Acceptable Range of Analysis	
	Minimum	Maximum
20	20.0	22.0
30	28.5	31.5
40	38.0	42.0

Medical Applications

- Respiratory Stimulation: Used in patients with conditions such as respiratory depression or apnea, particularly in neonates
- Pulmonary Function Testing: Used to assess lung function and diffusion capacity, helping diagnose and monitor respiratory diseases
- Therapeutic Procedures: Used in certain therapeutic procedures to regulate the acid-base balance in the blood
- CPR Training: Used in training simulators to mimic physiological conditions, helping healthcare professionals practice and refine their resuscitation techniques
- Hypercapnia Testing: Controlled amounts of carbon dioxide are administered to evaluate the body's response, which can provide diagnostic information about the respiratory control system. These applications take advantage of the physiological effects of carbon dioxide to stimulate respiratory drive, assess lung function, and manage specific clinical conditions

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA
❶Z02OX9512000000	200	USP 5% Carbon Dioxide/Oxygen	6,000	212.0	19.8	9.0	51.0	280
❶Z02OX9512000033	200	USP 5% Carbon Dioxide/Oxygen 1900 psig	6,000	212.0	19.7	9.0	51.0	280
❶Z02OX951ME0039	E	USP 5% Carbon Dioxide/Oxygen	660	23.3	2.2	4.1	25.7	880

Regulator Recommendations

❶Y11HC880VP80-AG
❶Y11HC280VP80-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Medical Device Mixtures

Why Choose Medical Device Mixtures from Airgas Healthcare?

Purity and Safety: Airgas Healthcare medical device mixtures are manufactured under strict quality control protocols. All our protocols comply with all relevant regulatory standards.

Consistency: Each batch of gas mixture is meticulously blended and tested to guarantee consistent performance, providing healthcare providers with the confidence they need in critical situations.

Advanced Technology: Airgas Healthcare uses state-of-the-art blending and filling technologies, ensuring precise gas ratios that meet the exact specifications required for different medical applications.

Reliability: With a robust supply chain and rigorous quality assurance processes, our medical device gas mixtures are always available when you need them, ensuring uninterrupted patient care. Airgas Healthcare products facilitate accurate diagnostic tests with controlled gas mixtures tailored for specific procedures.

Customer Support and Services: Airgas Healthcare is committed to providing exceptional customer service to assist with your medical gas needs.

The common medical device mixtures are included in this catalog; however, custom mixtures are available upon request. Our experts are always there to help.

Grade Specifications and Tolerances

- Primary: Every cylinder is analyzed for each minor component. Gravimetrically calculated concentrations of each minor component are reported
- Certified: Every cylinder is analyzed for each minor component. Analytically determined concentrations of each minor component are reported
- Guaranteed: Each minor component of a required number of sample cylinders per lot is analyzed. The balance gas is verified and nominal concentrations are reported

Mixture Grade	Concentration Range of Minor Component(s)	Preparation Tolerance*	Certification Accuracy*
Primary	>2%–50% 1%–2% 0%–1%	1.0% Relative 1.0% Relative 1.0% Relative	±0.02% Absolute ±1.0% Component ±1.0% Component
Certified	>10% 5%–10% <5%	±5.0% Relative ±0.5% Absolute ±10.0% Relative	±2.0% Relative on minor components (all ranges)
Guaranteed	>25%–50% 1%–25%	±1.0% Relative ±0.5% Absolute	±2.0% of the component ±0.5% absolute ±1.0% Component
Special Requirements	Customer defined	Customer defined	Customer defined

*Preparation of tolerances and certification accuracies may vary depending on the chemical characteristics of the minor component. The accuracies of mixtures containing hydrogen or helium may vary because of the gases' low molecular weights.

Anaerobic Biological Atmosphere

Anaerobic Biological Atmosphere Properties

SDS ID: See table below (Airgas.com)

Color Code: Beige; dots affixed to shoulder indicate components: Gray: Carbon Dioxide; Red: Hydrogen; Black: Nitrogen

Hazards: High Pressure, Asphyxiation; mixtures containing >5.5% Hydrogen are flammable

Toxicity: Nontoxic

Odor: None

DOT Designation

Name: Compressed Gas N.O.S. (NITROGEN, CARBON DIOXIDE),

Compressed Gas, Flammable, N.O.S (HYDROGEN, NITROGEN)

Label: Nonflammable Gas or Flammable Gas

Hazard Classification: 2.2 or 2.1

Standard Grade: Guaranteed

UN Number: 1956 or 1954

Medical Applications

- Cell and Tissue Culture: Gas mixtures are used in incubators to maintain optimal conditions such as pH control for the growth and maintenance of cell cultures, tissues, and microorganisms
- In Vitro Fertilization (IVF): Controlled gas environments are crucial for the culture and development of embryos to mimic the natural environment of the fallopian tubes and uterus
- Anaerobic Cultures: Specific gas mixtures devoid of oxygen are used to maintain anaerobic environments
- Medical Research: Researchers use various gas mixtures to simulate different physiological and pathological conditions in experimental models, aiding in the study of disease mechanisms and the development of new treatments

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03NI9222000125	200	5% Carbon Dioxide/ 3% Hydrogen/Nitrogen	6,173	218	14.5	9	51	350	002064
❶Z03NI9022000008	200	5% Carbon Dioxide/ 5% Hydrogen/Nitrogen	5,862	207	14.7	9	51	350	002064
❶Z03NI90N2003194	200	5% Carbon Dioxide/ 5% Hydrogen/Nitrogen	6,142	217	15.4	9	51	350	002064
❶Z03NI8522003062	200	10% Carbon Dioxide/ 5% Hydrogen/Nitrogen	5,663	200	14.6	9	51	350	002064
❶Z03NI8522000017	200	5% Carbon Dioxide/ 10% Hydrogen/Nitrogen	5,862	207	14.0	9	51	350	002118
❶Z03NI85N2000PY4	200	5% Carbon Dioxide/ 10% Hydrogen/Nitrogen	6,088	215	16.0	9	51	350	002118
❶Z03NI8022000012	200	10% Carbon Dioxide/ 10% Hydrogen/Nitrogen	6,116	216	15.1	9	51	350	002118
❶Z03NI80N2000000	200	10% Carbon Dioxide/ 10% Hydrogen/Nitrogen	6,201	219	16.0	9	51	350	002118
❶Z02NI9522000022	200	5% Carbon Dioxide/Nitrogen	6,201	219	17.6	9	51	500	003017

Regulator Recommendations

❶Y12HC144SP350-AG

❶Y12HC144SP500-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Aerobic Biological Atmosphere

Aerobic Biological Atmosphere Properties

SDS ID: See table below (Airgas.com)

Color Code: Beige, dots affixed to shoulder indicate components: Gray: Carbon Dioxide; Green: Oxygen; Black: Nitrogen

Hazards: High Pressure, Asphyxiant and/or Oxidizer

Toxicity: Nontoxic

Odor: None

DOT Designation

Name: Compressed Gas N.O.S. (NITROGEN, CARBON DIOXIDE)

Label: Nonflammable Gas

Hazard Classification: 2.2

Standard Grade: Guaranteed

UN Number: 1956

Medical Applications

- Cell and Tissue Culture: Used in incubators to maintain optimal conditions such as pH control for the growth and maintenance of cell cultures, tissues, and microorganisms
- In Vitro Fertilization (IVF): Controlled gas environments are crucial for the culture and development of embryos to mimic the natural environment of the fallopian tubes and uterus
- Hyperbaric Oxygen Therapy (HBOT): Mixtures of oxygen and other gases are used in hyperbaric chambers to treat conditions such as decompression sickness, carbon monoxide poisoning, and chronic non-healing wounds by enhancing oxygen delivery to tissues
- Respiratory Therapy: Used for patients with obstructive airway conditions and respiratory stimulation
- Medical Research: Researchers use various gas mixtures to simulate different physiological and pathological conditions in experimental models, aiding in the study of disease mechanisms and the development of new treatments

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03NI7422000083	200	5.0% Carbon Dioxide/ 21.0% Oxygen/Nitrogen	6,286	222	18.4	9	51.0	500	002062
❶Z03NI742ME0082	E	5.0% Carbon Dioxide/ 21.0% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002062
❶Z03NI9022000033	200	5.0% Carbon Dioxide/ 5% Oxygen/Nitrogen	6,230	220	15.0	9	51.0	500	002061
❶Z03NI8922000290	200	6.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,230	220	15.1	9	51.0	500	002061
❶Z03NI8822002984	200	6.5% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,258	221	16.7	9	51.0	500	002061
❶Z03NI8822000117	200	7.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,258	221	15.9	9	51.0	500	002061
❶Z03NI8522000112	200	5.0% Carbon Dioxide/ 10.0% Oxygen/Nitrogen	6,230	220	15.1	9	51.0	500	002061
❶Z03NI6922000076	200	10.0% Carbon Dioxide/ 21.0% Oxygen/Nitrogen	6,428	227	15.7	9	51.0	500	002062
❶Z03NI6422000073	200	15.0% Carbon Dioxide/ 21.0% Oxygen/Nitrogen	6,570	232	16.2	9	51.0	500	002062
❶Z02OX9522000043	200	5.0% Carbon Dioxide/Oxygen	6,654	235	19.8	9	51.0	296	002032

Regulator Recommendations

❶Y12HC144SP500-AG ❶Y12HC144SP296-AG

❶Y12HC144SP973-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Certified Biological Atmosphere

Certified Biological Atmosphere Properties

SDS ID: See table on page 32 (Airgas.com)

Color Code: Beige, dots affixed to shoulder indicate components: Gray: Carbon Dioxide; Green: Oxygen; Black: Nitrogen; Red: Hydrogen

Hazards: High Pressure, Asphyxiant, Flammable and/or Oxidizer

Toxicity: Nontoxic

Odor: None

DOT Designation

Name: Compressed Gas N.O.S. (NITROGEN, CARBON DIOXIDE),

Compressed Gas, Flammable, N.O.S (HYDROGEN, NITROGEN)

Label: Nonflammable Gas

Hazard Classification: 2.2

Grade: Certified

UN Number: 1956, 1954, or 3156

Medical Applications

- Cell and Tissue Culture: Used in incubators to maintain optimal conditions such as pH control for the growth and maintenance of cell cultures, tissues, and microorganisms
- In Vitro Fertilization (IVF): Controlled gas environments are crucial for the culture and development of embryos to mimic the natural environment of the fallopian tubes and uterus
- Hyperbaric Oxygen Therapy (HBOT): Mixtures of oxygen and other gases are used in hyperbaric chambers to treat conditions such as decompression sickness, carbon monoxide poisoning, and chronic non-healing wounds by enhancing oxygen delivery to tissues
- Anaerobic Cultures: Specific gas mixtures devoid of oxygen are used to culture anaerobic bacteria
- Respiratory Therapy: Used for patients with obstructive airway conditions and respiratory stimulation
- Medical Research: Researchers use various gas mixtures to simulate different physiological and pathological conditions in experimental models, aiding in the study of disease mechanisms and the development of new treatments

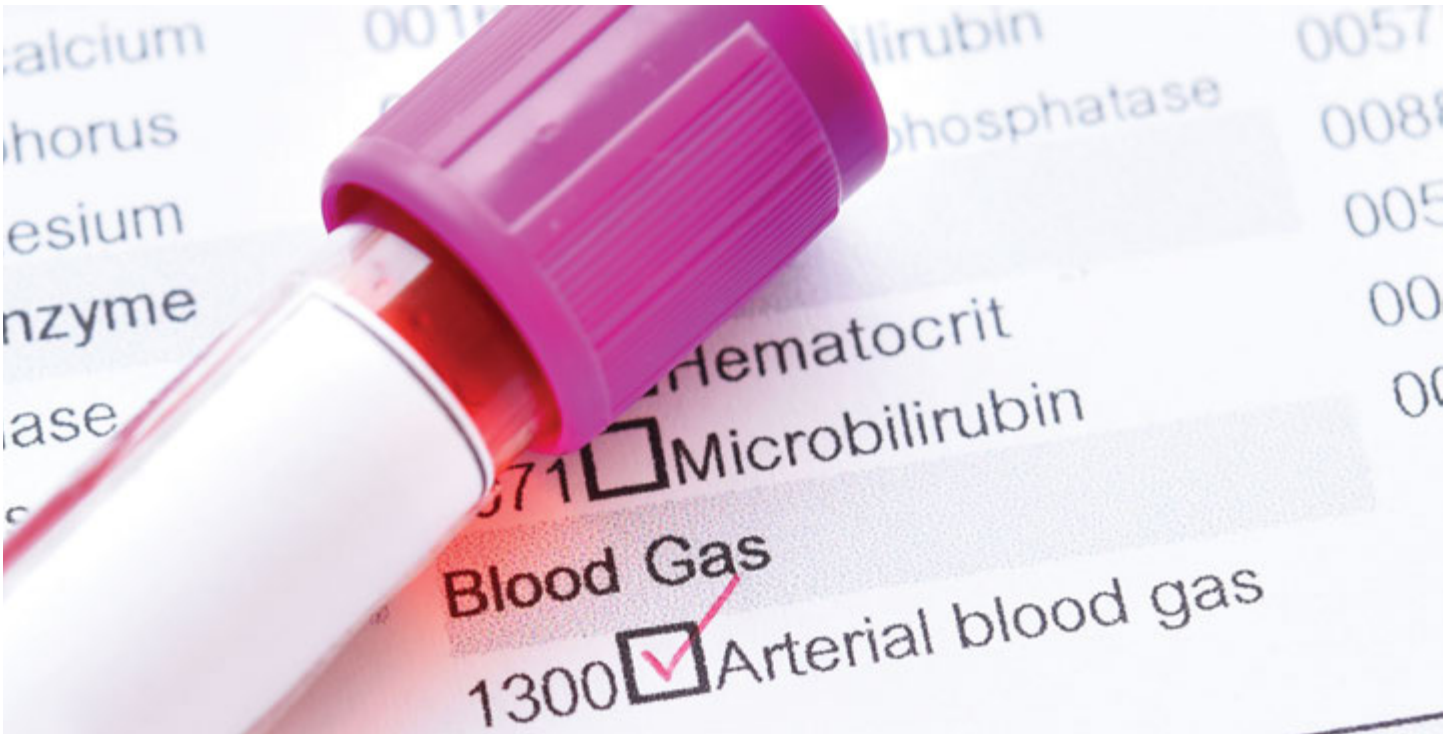
Certified Biological Atmosphere (cont'd.)

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03NI9032000041	200	5.0% Carbon Dioxide/ 5.0% Hydrogen/Nitrogen	5,947	210	14.9	9.0	51.0	500	002064
❶Z03NI8532000044	200	5.0% Carbon Dioxide/ 10.0% Hydrogen/Nitrogen	6,088	215	13.6	9.0	51.0	350	002118
❶Z03NI802ME0096	E	4.0% Carbon Dioxide/ 16.0% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002061
❶Z03NI8832002739	200	7.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,258	221	16.8	9.0	51.0	500	002061
❶Z03NI883200C000	200	7.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen (±0.2%)	6,258	221	16.8	9.0	51.0	500	002061
❶Z03NI903200CLS4	200	5.0% Carbon Dioxide/ 5.0% Oxygen/ Nitrogen (4.95–5.05%)	6,230	220	16.5	9.0	51.0	500	002061
❶Z03NI8932002227	200	6.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,230	220	15.1	9.0	51.0	500	002061
❶Z03NI893200C0Z4	200	6.0% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,230	220	16.6	9.0	51.0	500	002061
❶Z03NI8832002206	200	6.0% Carbon Dioxide/ 6.0% Oxygen/Nitrogen	6,258	221	16.7	9.0	51.0	500	002061
❶Z03NI882200CXJ1	E	6.5% Carbon Dioxide/ 5.0% Oxygen/Nitrogen	6,258	221	16.7	9.0	51.0	973	002061
❶Z03NI883200C001	200	6.5% Carbon Dioxide/ 5.0% Oxygen/Nitrogen (C of A)	6,258	221	17.0	9.0	51.0	500	002061
❶Z02OX9532000214	200	5.0% Carbon Dioxide/Oxygen	6,654	235	19.8	9.0	51.0	296	002032

Regulator Recommendations

❶Y12HC144SP500-AG
❶Y12HC144SP350-AG
❶Y12HC144SP973-AG
❶Y12HC144SP296-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov



Clinical Blood Gases

Clinical Blood Gas Properties

SDS ID: See table on page 34 (Airgas.com)
Color Code: Beige, dots affixed to shoulder indicate components: Gray: Carbon Dioxide; Green: Oxygen; Black: Nitrogen
Hazards: High Pressure, Asphyxiant
Toxicity: Nontoxic
Odor: None

DOT Designation
Name: Compressed Gas N.O.S. (NITROGEN, CARBON DIOXIDE)
Label: Nonflammable Gas
Hazard Classification: 2.2
Grade: Certified
UN Number: 1956

Medical Applications

- Cell and Tissue Culture: Used in incubators to maintain optimal conditions such as pH control for the growth and maintenance of cell cultures, tissues, and microorganisms
- In Vitro Fertilization (IVF): Controlled gas environments are crucial for the culture and development of embryos to mimic the natural environment of the fallopian tubes and uterus
- Hyperbaric Oxygen Therapy (HBOT): Mixtures of oxygen and other gases are used in hyperbaric chambers to treat conditions such as decompression sickness, carbon monoxide poisoning, and chronic non-healing wounds by enhancing oxygen delivery to tissues
- Anaerobic Cultures: Specific gas mixtures devoid of oxygen are used to culture anaerobic bacteria
- Respiratory Therapy: Used for patients with obstructive airway conditions and respiratory stimulation
- Medical Research: Researchers use various gas mixtures to simulate different physiological and pathological conditions in experimental models, aiding in the study of disease mechanisms and the development of new treatments

Clinical Blood Gases (cont'd.)

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03NI9322000399	200	3% Carbon Dioxide/4% Oxygen/Nitrogen	5,947	210	15.6	9.0	51	500	002061
❶Z03NI8042003065	200	4% Carbon Dioxide/16% Oxygen/Nitrogen	6,032	213	16.1	9.0	51	500	002061
❶Z03NI804ME3065	E	4% Carbon Dioxide/16% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002061
❶Z03NI9042000254	200	5% Carbon Dioxide/5% Oxygen/Nitrogen	6,230	220	15.0	9.0	51	500	002061
❶Z03NI904ME0034	E	5% Carbon Dioxide/5% Oxygen/Nitrogen	595	21	1.6	4.1	25.7	973	002061
❶Z03NI894200X182	200	5% Oxygen/6% Carbon Dioxide/Nitrogen	5,947	210	15.8	9.0	51	500	002061
❶Z03NI8942000119	200	5% Oxygen/6% Carbon Dioxide/Nitrogen	6,230	220	16.6	9.0	51	500	002061
❶Z03NI8842003242	200	5% Oxygen/6.5% Carbon Dioxide/Nitrogen	6,258	221	16.7	9.0	51	500	002061
❶Z03NI8842003510	200	5% Oxygen/7% Carbon Dioxide/Nitrogen	6,258	221	15.2	9.0	51	500	002061
❶Z03NI8542000024	200	5% Carbon Dioxide/10% Oxygen/Nitrogen	6,230	220	15.1	9.0	51	500	002061
❶Z03NI8342003066	200	5% Carbon Dioxide/12% Oxygen/Nitrogen	6,258	221	15.0	9.0	51	500	002061
❶Z03NI834ME3066	E	5% Carbon Dioxide/12% Oxygen/Nitrogen	680	24	1.8	4.1	25.7	973	002061
❶Z03NI834E3084	E	5% Carbon Dioxide/12% Oxygen/Nitrogen	680	24	1.8	4.1	25.7	973	002061
❶Z03NI7442000074	200	5% Carbon Dioxide/21% Oxygen/Nitrogen	6,286	222	15.3	9.0	51	500	002061
❶Z02NI9542003071	200	5% Carbon Dioxide/Nitrogen	6,201	219	19.1	9.0	51	500	003017
❶Z03NI8042000019	200	5% Carbon Dioxide/15% Oxygen/Nitrogen	6,258	221	16.0	9.0	51	500	002061
❶Z03NI804ME0014	E	5% Carbon Dioxide/15% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002061
❶Z03NI808EDC006	E	5% Carbon Dioxide/15% Oxygen/Nitrogen	566	20	2.0	4.1	25.7	973	002061
❶Z03NI798EDC003	E	5% Carbon Dioxide/16% Oxygen/Nitrogen	566	20	2.0	4.1	25.7	973	002061
❶Z03NI7542003033	200	5% Carbon Dioxide/20% Oxygen/Nitrogen	6286	222	18.4	9.0	51	500	002061
❶Z03NI6942000032	200	10% Carbon Dioxide/21% Oxygen/Nitrogen	6,428	227	16.5	9.0	51	500	002061
❶Z02NI8542003432	200	15% Oxygen/Nitrogen	6145	217	14.8	9.0	51	500	002018
❶Z02NI9042003034	200	10% Carbon Dioxide/Nitrogen	6,315	223	17.1	9.0	51	500	003017
❶Z02NI8842000000	200	12% Carbon Dioxide/Nitrogen	5,947	210	17.0	9.0	51	500	003017
❶Z02NI7042004BC1	200	30% Carbon Dioxide/Nitrogen	6,853	242	18.3	9.0	51	500	003017
❶Z02NI744ME0017	E	26% Carbon Dioxide/Nitrogen	674	23.8	1.8	4.1	25.7	973	002074

Regulator Recommendations

❶Y12HC144SP500-AG
❶Y12HC144SP973-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Pulmonary Function

Pulmonary Function Properties

SDS ID: See table below (Airgas.com)
Color Code: Beige, dots affixed to shoulder indicate components:
Gray: Carbon Dioxide; Green: Oxygen; Black: Nitrogen
Hazards: High Pressure
Toxicity: Nontoxic
Odor: None
Critical Temperature: NA

DOT Designation
Name: Compressed Gas N.O.S. (NITROGEN, OXYGEN)
Label: Nonflammable Gas
Hazard Classification: 2.2
Grade: Certified
UN Number: 1956 or 3156

Medical Applications

- Spirometry: Test lung volumes and capacities
- Diagnosis of Respiratory Conditions: Diagnose conditions like asthma, COPD, and restrictive lung diseases
- Diffusion Capacity Tests (DLCO): Measure how effectively gases are transferred from the lungs to the bloodstream to diagnose and monitor diseases like pulmonary fibrosis and emphysema
- Lung Volume Measurements: Measure total lung capacity and residual volume
- Bronchial Provocation Testing: Assess airway responsiveness by inhaling methacholine or histamine in conjunction with the gas mixture to provoke a mild airway reaction to diagnose asthma
- Calibration of Pulmonary Function Equipment: The American Thoracic Society and the CDC recommend calibrating spirometers daily
- Oxygen Desaturation Testing: During exercise tests assess how exercise impacts lung function and oxygen saturation in patients with respiratory or cardiovascular conditions

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03NI80FME0326	E	4% Carbon Dioxide/ 16% Oxygen/Nitrogen	623	22	1.7	4.1	25.7	973	002061
❶Z02NI85FMEC5A8	E	15% Oxygen/Nitrogen	651	23	1.7	4.1	25.7	973	002018

Regulator Recommendation

❶Y12HC144SP973-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Medical Laser

Medical Laser Properties

SDS ID: See table below (Airgas.com)
Color Code: Beige, dots affixed to shoulder indicate components:
Gray: Carbon Dioxide,
Black: Nitrogen, Brown: Helium

Hazards: High Pressure
Toxicity: Nontoxic
Odor: None
Critical Temperature: NA

DOT Designation
Name: Compressed Gas N.O.S. (HELIUM, CARBON DIOXIDE)
Label: Nonflammable Gas
Hazard Classification: 2.2
Grade: Certified
UN Number: 1956

Medical Applications

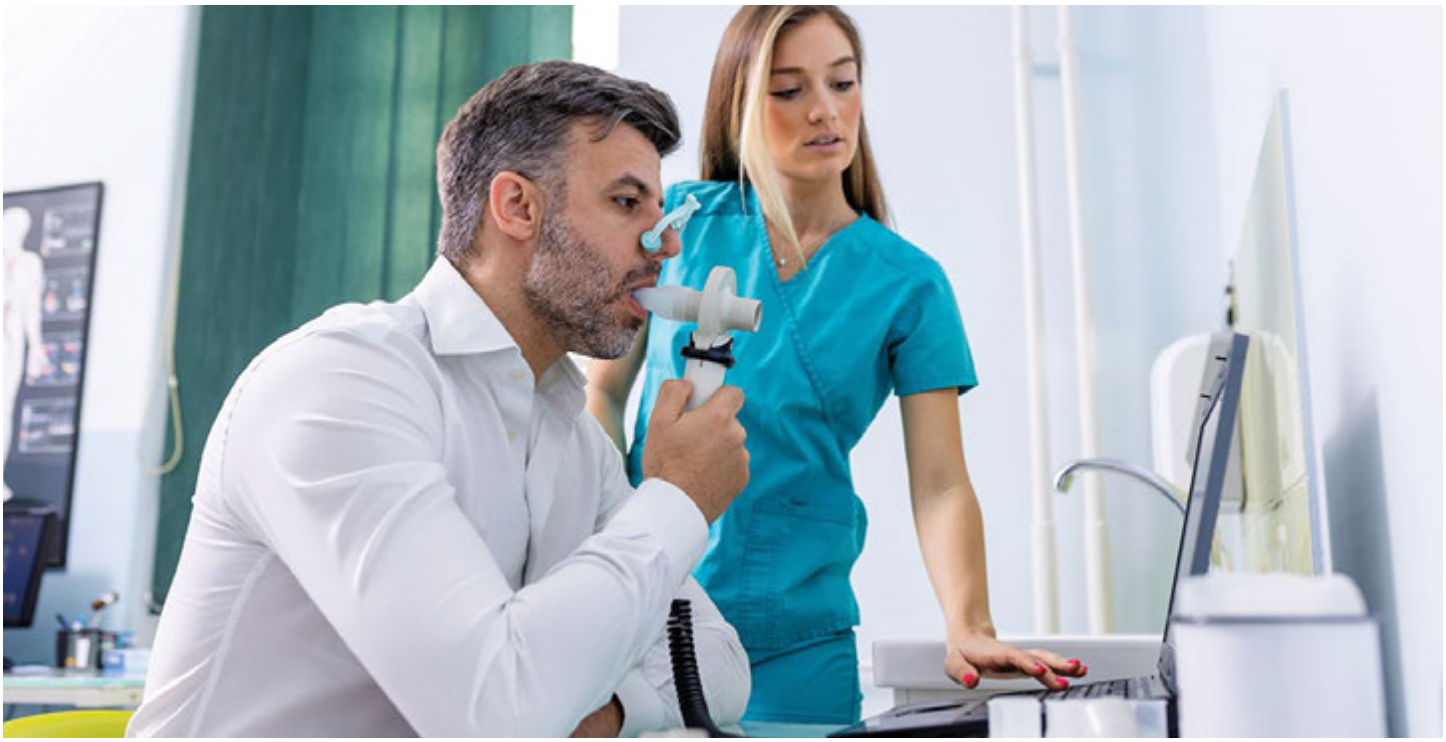
- Surgical Procedures: Carbon dioxide (CO_2) lasers are commonly used for cutting, vaporizing, and coagulating tissue in surgeries
- Dermatology: CO_2 lasers are used to treat skin conditions such as warts, moles, scars, and certain types of skin cancers. They are also employed for cosmetic procedures like skin resurfacing and removing tattoos and vascular lesions
- Ophthalmology: Argon and krypton lasers are used in procedures to treat glaucoma, diabetic retinopathy, and retinal detachment. These lasers help seal blood vessels and repair retinal tears
- Dental Procedures: CO_2 and erbium lasers are used for cavity preparation, soft tissue surgeries and teeth whitening. These lasers provide precision and reduce the need for anesthesia
- Urology: Holmium lasers are used to treat kidney stones, benign prostatic hyperplasia (BPH), and other urological conditions. They allow precise and minimally invasive treatments
- Oncology: Various laser types are employed in the treatment of certain cancers, including bladder, prostate, and liver cancers. Laser therapy can be used to shrink or destroy tumors with minimal damage to surrounding tissues
- Endoscopy: Laser gas mixtures are used to remove or vaporize abnormal growths, control bleeding and perform precise tissue removal in the gastrointestinal tract and other internal organs
- Ear, Nose, Throat (ENT): CO_2 and KTP (potassium titanyl phosphate) lasers are used to treat conditions such as vocal cord lesions, nasal polyps, and other soft tissue abnormalities in the throat and nasal passages. These applications leverage the specific properties of different gas mixtures to enable precise, effective, and minimally invasive treatments across a wide range of medical specialties

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z03HE8262003045	200	4.5% Carbon Dioxide/ 13.5% Nitrogen/Helium	5,663	200	4.7	9	51	580	002052
❶Z03HE826ME3045	E	4.5% Carbon Dioxide/ 13.5% Nitrogen/Helium	566	20	0.5	9	51	973	002052
❶Z03HE7962000006	200	7.0% Carbon Dioxide/ 14.0% Nitrogen/Helium	5,663	200	5.3	9	51	580	002052

Regulator Recommendations

❶Y12HC144SP973-AG
❶Y12HC144SP580-AG

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov



Lung Diffusion

Lung Diffusion Properties

SDS ID: See table on page 38 (Airgas.com)
Color Code: Beige, dots affixed to shoulder indicate components: Red: Carbon Monoxide, Methane, Acetylene, Green: Oxygen, Black: Nitrogen

Hazards: High Pressure
Toxicity: Nontoxic
Odor: None

DOT Designation
Name: Compressed Gas N.O.S. (NITROGEN, OXYGEN)
Label: Nonflammable Gas
Hazard Classification: 2.2
Grade: Certified
UN Number: 1956

Medical Applications

- Diffusing Capacity of the Lung for Carbon Monoxide (DLCO) Test: The DLCO test measures how effectively gases are transferred from the lungs to the bloodstream
- Diagnosis of Pulmonary Diseases: The DLCO test helps diagnose and monitor conditions such as pulmonary fibrosis, emphysema, chronic obstructive pulmonary disease (COPD), and other interstitial lung diseases
- Assessment of Lung Function: Used to evaluate the functional impact of various lung conditions, including asthma and pulmonary hypertension
- Preoperative Evaluation: The DLCO test is sometimes used to assess lung function before major surgeries, particularly in patients with known or suspected lung disease
- Evaluation of Gas Exchange Efficiency: By measuring the diffusing capacity, clinicians can determine how well the lungs are able to oxygenate the blood and remove carbon dioxide
- Research: Used in research to study lung physiology and the impact of different diseases on gas exchange

Lung Diffusion (cont'd.)

Part Number	Size	Description	Capacity (liter)	SCF	Product Weight (lb)	Diameter (in)	Length (in)	CGA	SDS ID
❶Z04NI7852003060	200	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen	5,069	179	13.3	9.0	51.0	500	002185
❶Z04NI785200C006	200	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen NISR	5,182	183	13.0	9.0	51.0	500	002185
❶Z04NI685200CVT6	200	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/ Nitrogen (3 decimals)	5,069	179	12.2	9.0	51.0	500	002185
❶Z04NI785ME0012	E	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002185
❶Z04NI785E71X4	E	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002185
❶Z04NI785EA0034	EA	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen	651	23	1.7	4.38	25.4	973	002185
❶Z04NI785EDC005	E	0.3% Carbon Monoxide/ 0.3% Methane/ 21.0% Oxygen/Nitrogen	566	20	1.5	4.1	25.7	973	002185
❶Z04NI7852003012	200	0.3% Carbon Monoxide/ 0.5% Neon/ 21.0% Oxygen/Nitrogen	5,154	182	13.3	9.0	51.0	500	012757
❶Z04NI785ME3012	E	0.3% Carbon Monoxide/ 0.5% Neon/ 21.0% Oxygen/Nitrogen	538	19	1.3	4.1	25.7	973	012757
❶Z04NI6852003016	200	0.3% Carbon Monoxide/ 10% Helium/21.0% Oxygen/Nitrogen	5,069	179	12.0	9.0	51.0	500	012685
❶Z04NI685ME3016	E	0.3% Carbon Monoxide/ 10.0% Helium/ 21.0% Oxygen/Nitrogen	566	20	1.4	4.1	25.7	973	012685
❶Z05NI7852003277	200	0.3% Carbon Monoxide/ 0.3% Methane/ 0.3% Acetylene/ 21.0% Oxygen/Nitrogen	5,069	179	13.0	9.0	51.0	500	008073

Regulator Recommendations

❶Y12HC144SP500-AG ❶Y12HC144SP973-AG

⚠ ❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

MicroBulk Gases from Airgas

This section explores our MicroBulk gas supply options, designed to optimize efficiency and safety while minimizing operational costs. MicroBulk offers a compelling alternative to traditional cylinder-based supply if you use more than 20 liquid cylinders per month or require less than 150,000 SCF per month, delivering numerous advantages for a variety of applications.

By transitioning to MicroBulk, you can significantly improve safety by eliminating manual cylinder handling and reducing exposure to pressurized or cryogenic gases. MicroBulk also enhances reliability with consistent on-site supply, eliminating the need for frequent cylinder change-outs and reducing the risk of contamination.

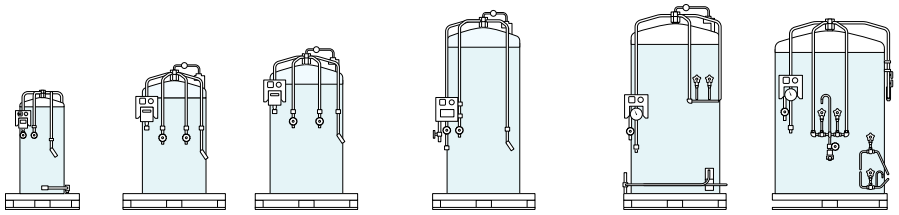
Furthermore, MicroBulk simplifies inventory management and reduces downtime associated with supply interruptions. This translates into enhanced productivity and improved profitability.

Whether you require gases for industrial processes, laboratory applications, or healthcare facilities, our experts can help you determine if MicroBulk is the optimal solution for your needs. We offer comprehensive support, from system design and installation to ongoing maintenance and supply management.

MicroBulk is delivered, connected and ready for the first fill by Airgas, all on the same day.

Standard MicroBulk Storage

- **Tangible growth potential**
- **Maximum safety**
- **Reduced operational costs**



Tank Specifications			450 (liter)		1,000 (liter)	1,500 (liter)		2,000 (liter)		3,000 (liter)		5,500 (liter)
Pressure style			VHP		HP	HP	VHP	HP	VHP	HP	VHP	VHP
Capacity	Gross	liters	450		1,056	1,550	1,550	2,042	2,042	2,911	2,911	5,434
	Net	liters	420		950	1,455	1,455	1,945	1,945	2,707	2,707	5,110
MAWP		psig	500		350	350	500	350	500	350	500	500
Preset Operating Pressure	Maximum	psig	450		300	300	450	300	450	300	450	450
Design Specifications			DOT	ASME	ASME	ASME	ASME	ASME	ASME	ASME	ASME	ASME
Storage Capacity(1)	N_2	SCF	7,922	10,332	24,350	35,790	35,790	47,847	47,847	66,592	66,592	125,000
	O_2	SCF	11,124	12,760	30,070	44,220	44,220	59,089	59,089	82,239	82,239	154,900
	CO_2	SCF	n/a	n/a	18,584	28,431	n/a	38,048	n/a	52,954	n/a	99,954
		lb	n/a	n/a	2,126	3,252	n/a	4,352	n/a	6,058	n/a	11,427
Thermal Performance (2)	N_2	NER%/day	1.9%	1.6%	1%	1%	1%	1%	1%	1%	1%	0.7%
	O_2	NER%/day	1.2%	1%	0.62%	0.62%	0.62%	0.62%	0.62%	0.62%	0.62%	0.43%
	CO_2	NER%/day	n/a		0.3%	0.3%	n/a	0.3%	n/a	0.3%	n/a	0.3%
Gas Delivery Rate	LIN/LOX	SCFH	575		960	1,350	1,350	1,350	2,000(3)	1,350	2,000(3)	3,500/ 5,000
	CO_2	SCFH	n/a		320	450	n/a	500	n/a	500	n/a	1,167
		lb/h	n/a		36	51	n/a	51/76	n/a	51/76	n/a	130
Dimensions	Diameter	in	30		42	48	48	48	48	59	59	80
	Height*	in	69		82	92	91	118.5	119.5	122	122.5	119
	Tare Weight**	lb	1,077		1,765	2,200	2,500	2,600	2,950	3,300	4,250	9,100

1) Values are based on net capacity at 0 psig for ASME vessels. CO_2 vessels are based on net capacity at 300 psig (20.7 barg). DOT vessels are per code.
2) Values are based on gross capacity.
3) Optional 3,500 SCFH flow kit available.

* All dimensions are measured from the floor to the top of the highest plumbing component.
** Weight includes lab bases (265 lbs.)

Bulk Gases

The Center for Integrated Bulk Operations (CIBO) at Airgas is based in Cleveland, Ohio, and unites over 100 Airgas minds from the Smart Innovative Operations (SIO) team and the Integrated Bulk Operations (IBO) team to orchestrate approximately 40,000 monthly bulk gas deliveries to customers across the nation.

Airgas engineers on the SIO team collaborate with our primary production facilities to produce oxygen, nitrogen, argon, carbon dioxide and hydrogen. They harness predictive analytics and data to fine-tune operations and analyze plant operations to identify opportunities to reduce costs and create the best customer experience.

The IBO team acts as the "ground traffic control" of Airgas tanker trucks, communicating with drivers as they make deliveries to all Airgas bulk customers. They monitor liquid levels in on-site Airgas storage tanks, forecasting the most efficient delivery sequence to ensure customers needs are met.

From atmospheric gas production at our Air Separation Units (ASUs) through bulk customer deliveries, our supply chain operations run smoothly thanks to our CIBO team, helping Airgas to ensure safe, reliable and efficient gas deliveries to our customers.

Learn more about CIBO at Airgas

If your healthcare facility requires gas flow that exceeds 10,000 SCF per month, Airgas bulk supply can help. Airgas bulk distribution and storage solutions are designed to meet your most challenging needs, safely and efficiently.

- Get an uninterrupted supply of gas, including carbon dioxide, nitrous oxide, nitrogen and oxygen
- Upon request, meet regulatory requirements with gas quality certifications
- Optimize your process and minimize risk with high-quality storage systems installed on your site per applicable codes and standards, and maintained per defined inspection programs
- Increase the reliability of supply by using remote telemetry monitoring
- Improve gas delivery with reliable and energy-efficient delivery routes

Ask about ECO ORIGIN™ certified low-carbon bulk Ar, N_2 and O_2 gas supply!

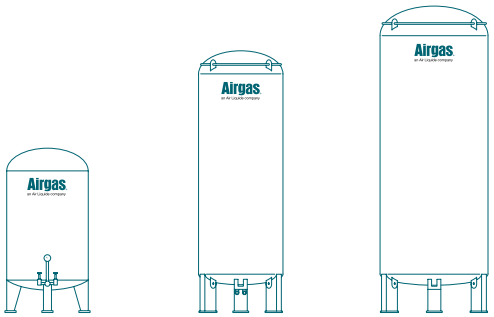
Flexible and reliable gas supply

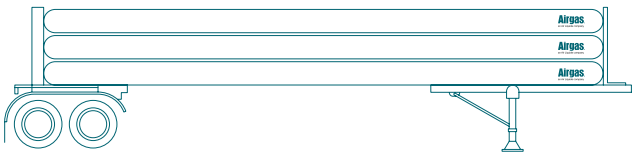
Our large national footprint of gas production plants is backed by the expertise of Airgas bulk gas specialists—this means you get optimal supply, wherever you are.

>25K	100+	31	15
Bulk Tanks	Bulk Gas Specialists	Air Separation Units	CO_2 Plants

Standard Vertical Bulk Cryogenic Storage

Improving your manufacturing process is your primary focus. We can help tap into the expertise of Airgas bulk gas specialists to discover a cost-effective bulk supply solution that optimizes your production and enhances your profitability.





Tube trailers, as well as other temporary and emergency cryogenic bulk gas services are available.

Tank Specifications		Atmospheric Gases							Carbon Dioxide				Nitrous Oxide			
Nominal Size*	gallons/ tons	1,500	3,000	6,000	9,000	11,000	13,000	15,000	6	14	30	50	6	14	30	50
Gross Volume*	gallons/ tons	1,640	3,150	6,010	9,360	11,410	13,470	15,520	6.9	13.2	30.7	47.7	6.6	12.9	29.3	45.6
Storage Capacity																
Net Volume*	gallons/ tons	1,580	3,030	5,770	8,990	10,960	13,060	15,060	6.6	12.6	29.1	45.4	6.3	12.3	27.9	43.4
Vessel Weight																
Empty	lb	6,200	12,800	21,500	32,300	38,700	45,700	52,600	7,400	13,700	31,700	44,300	7,400	13,700	31,700	44,300
O_2-Full	lb	21,250	41,670	76,470	117,950	143,120	170,120	196,080	–	–	–	–	–	–	–	–
N_2-Full	lb	16,860	33,240	60,420	92,940	112,630	133,790	154,180	–	–	–	–	–	–	–	–
Other-Full	lb	–	–	–	–	–	–	–	20,600	38,900	89,890	135,090	20,000	38,300	87,490	131,080
Diameter	ft/in	5' 6"	7' 2"	7' 2"	9' 6"	9' 6"	9' 6"	9' 6"	5' 6"	7' 2"	9' 6"	9' 6"	5' 6"	7' 2"	9' 6"	9' 6"
Height	ft/in	16' 4"	19' 0"	31' 11"	29' 0"	33' 11"	38' 10"	43' 9"	16' 4"	19' 0"	24' 3"	33' 10"	16' 4"	19' 0"	24' 3"	33' 10"

Sizes shown are typical; actual vessel specifications are determined by selected vessel.
Standard maximum working pressure is 250 psig for atmospheric and 350 psig for CO_2 and N_2. Other pressure ranges are available.
Horizontal bulk vessels are also available.
*Gallons for cryogenics; tons for CO_2 and N_2O.

Supply Chain Solutions

At Airgas Healthcare, we are ready to help you simplify gas management with our comprehensive supply chain solutions and an unrivaled buying experience: in person, on the phone and online. These solutions are designed to bring you better visibility, control, and savings for your gases and related supplies. We understand the evolving challenges faced by healthcare providers, we can help you optimize your facility so you can focus on patient care instead.

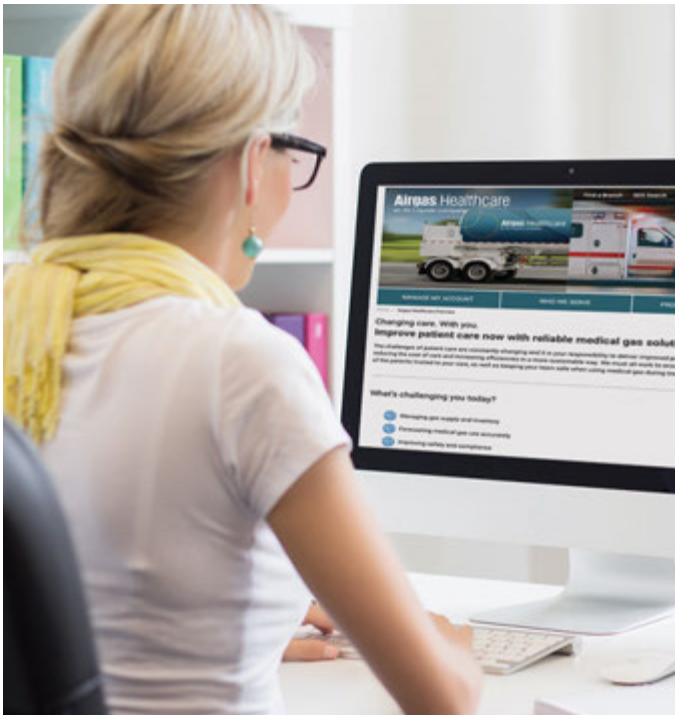
- Simplify gas management and administrative tasks with digital tools to improve your daily operations and streamline bill pay, accounting, purchasing and delivery tracking
- Enhance efficiency, gas continuity, and safety for your supply with cylinder tracking and tools to manage cylinder pressure levels, from anywhere
- Improve sustainability with ECO ORIGIN™ certified low-carbon bulk Ar, N_2 and O_2 gas supply
- Improve management of your gases with Total Gas Management™ (TGM™): An Airgas technician onsite at your facility to manage your gas inventory, reorder, connect equipment, and minimize safety risks while affording your team access to gas expertise

Airgas Total Access®

Airgas Total Access comprises a highly trained team of inside sales consultants dedicated to helping you select the best products for your healthcare application.

Our team is always there with:

- Competitive pricing, order placement, and shipment details
- Access to real-time inventory close to you and nationwide
- Your connection with the Airgas team, including healthcare and safety specialists, local branches, Airgas.com, and more



Airgas.com

Simplify Order Management

Airgas.com is the premier online platform for all your medical gas management needs. Airgas.com can streamline your procurement process with digital tools to help you improve invoicing and billing, purchasing and order tracking. EZ-TRAC™ provides digital Proof of Delivery (POD) receipts that keep your receipts organized while robust reporting tools help control purchasing spend and easily anticipate your needs.

Our suite of eBusiness solutions—including Airgas.com, our Airgas SupplySync punchout site, and integrations with a multitude of eProcurement platforms or directly via cXML and EDI—can help make your procurement process more efficient, cost effective, and accessible. Finally, as a single-source supplier of gases, equipment, safety products, and PPE, our large national footprint is positioned to ensure supply reliability while minimizing the number of suppliers you manage.

Total Gas Management™ (TGM™)

Always There to Simplify Gas Management

Managing medical gases is not easy. Efficiencies can certainly be lost in the daily and time-consuming monitoring of the gas and equipment needed to keep your facility on running smoothly. Total Gas Management (TGM) includes an on-site Airgas Healthcare technician to provide a customized, comprehensive management solution that may include ordering, inventory control, and operations management of your vital gas supply.

Applications

- Healthcare
- Pharmaceuticals and biotechnology
- Research

Your on-site Airgas Healthcare technician is a highly skilled technician dedicated to helping you implement supply chain efficiencies, manage your gases and equipment, and improve safety compliance.

Safety and Patient Care

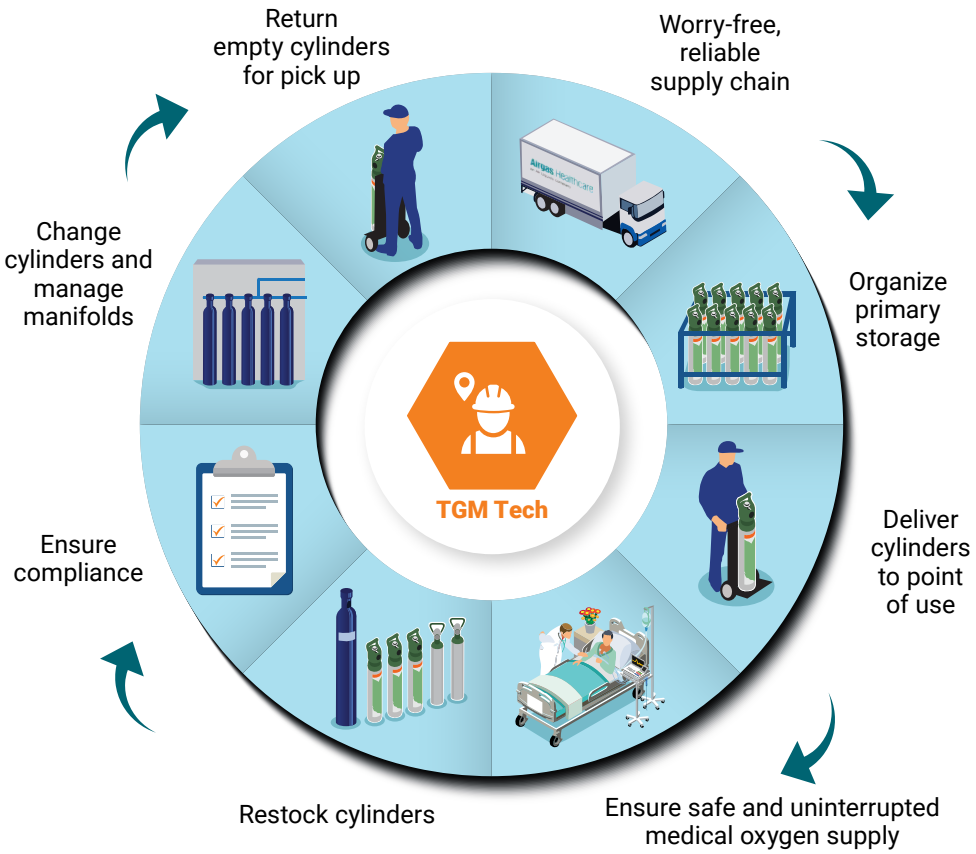
- Save time and focus on providing quality patient care
- Improve safety
- Avoid gas runout

Efficiency

- Maintain continuity of gas supply
- Reduce total inventory management costs
- Minimize gas waste and cylinder loss
- Streamline cost allocation

On-site Expertise

- Well-versed in best practices for large facilities
- Dedicated to meeting your unique requirements
- Daily access to gas and equipment expertise
- Improve inventory management with other supply chain technologies like EZ-TRAC™, EZ-GAZ™ and more



*Services offered are dependent upon various factors. All services may not be available for all customers.

EZ-GAZ™

Simplify Gas Management

EZ-GAZ is a digital cylinder gas pressure monitoring service that helps optimize your gas supply while avoiding gas interruptions.

With EZ-GAZ, you can:

- Reduce run-outs and rush delivery costs with real time gas monitoring and low-pressure alerts
- Minimize valuable time and personnel resources spent on manual point-of-use gas pressure monitoring and order management
- Improve forecasting and supply optimization with gas tracking and trending data
- Support staffing priorities and scheduling with remote systems visibility

How EZ-GAZ works

Installing EZ-GAZ is simple and quick—this highly secure digital system requires no wiring and is compliant with current FCC regulations and codes. Once installed, your data is safely collected and securely transmitted to your account, with real-time access that immediately improves the way you manage your gas supply.

Measure gas pressure → Securely transmit data → View alerts and notifications online → Place order at Airgas.com → Have gas delivered to your site

EZ-TRAC™

At Airgas, we are committed to providing our customers with the highest quality products and services. With our user-friendly online platform, EZ-TRAC inventory management system and EZ-GAZ™ gas monitoring service, we can help simplify your gas supply chain so you can focus on patient care instead.

Simplify Inventory Management

EZ-TRAC is the gateway to improved management of your physical inventory. Using barcode technology, you can quickly and accurately track and audit cylinders, equipment, and hard goods, right on your jobsite.

With EZ-TRAC, you can:

- Save time, eliminate manual data entry, and reduce paperwork with tools such as digital proof of delivery
- Optimize inventory use and forecasting across your sites
- Simplify order and invoice processing with accurate and easy reconciliation
- Improve quality and safety with real-time expiration dates, cylinder quantities, and available gas content

The Airgas Specialty Gas Equipment team, based in New Jersey, provides technical support and warehouses a wide variety of gas delivery systems, medical devices, and accessories tailored specifically to your patient care applications. The diverse array of high-quality equipment is available for delivery throughout the United States and Canada.

Our Distribution Centers offer convenient access to Personal Protective Equipment (PPE), signage, cylinder storage and movement devices to meet the diverse needs of our customers.

High-pressure Cylinder Movement and Storage Accessories

Carts

Part Number	Description	Cylinder Sizes	Number of Cylinders
❶ANT88PN	Single Cylinder Cart with Pneumatic Wheels	H, T	1
❶ANT6105	Single Cylinder Cart with Gurney Hook	D, E	1
❶ANT6205	Dual Cylinder Cart	D, E	2
❶ANT6105-MRI	Single Cylinder Cart, MRI Compatible	D, E	1
❶ANT6205-MRI	Dual Cylinder Cart, MRI Compatible	D, E	2
❶ANT6108-MRI	Single Cylinder Cart, MRI Compatible	M, M60	1
❶ANT6110-MRI	Cylinder Cart, MRI Compatible	H, T	1
❶ANT6110	Single Cylinder Cart	H, T	1
❶ANT6040-PC	Horizontal Cylinder Cart with Locking Casters	D, E	4
❶ANT6060-PC	Horizontal Cylinder Cart with Locking Casters	D, E	6
❶ANT6120-PC	Horizontal Cylinder Cart with Locking Casters	D, E	12
❶ANT6041	Cylinder Cart with Tilt Back Design	D, E	4
❶ANT6061	Cylinder Cart with Tilt Back Design	D, E	6
❶ANT6064	Cylinder Cart with Front Caster Design	D, E	6
❶ANT6124	Cylinder Cart with Front Caster Design	D, E	12
❶ANT6244	Cylinder Cart with 4" Casters	D, E	24
❶ANT6406	Cylinder Cart with 6" Heavy Duty Casters	D, E	40
❶ANT6246	Cylinder Cart with 6" Heavy Duty Casters	D, E	24
❶ANTLC25-4SD	Layered Cylinder Cart with Door	D, E	25
❶ANTLC50-4SD	Layered Cylinder Cart with Door	D, E	50

❶ANT6205

❶ANT6105

See more cylinder carts on page 49.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Carts (cont'd.)

Part Number	Description	Cylinder Sizes	Number of Cylinders
❶ANT6108	Single Cylinder Cart	M, M60	1
❶HRPMG-470C40	Single Cylinder Cart with Semi Pneumatic Wheels	H, T	1
❶HRPMG12-7979R	Horizontal Cylinder Cart	D, E	12
❶HRP701-86	Single Cylinder Cart with Solid Rubber Wheels and Continuous Handle	H, T	1
❶HRP60072-64	Liquid Cylinder Cart with Pneumatic/Rubber Wheels and Hook Handle	D, E	1
❶HRPMG-DEB21	Dual Cylinder Cart with Semi Pneumatic Wheels	D, E	2
❶HRP32T84	Single Cylinder Cart with Rubber Wheels	H, T	1
❶HRP52DAK19	Single Cylinder Cart with Pneumatic Wheels and Continuous Handle	H, T	1
❶HRPMG24-4949R	Horizontal Cylinder Cart	D, E	24
❶HRP701SC-01	Single Cylinder Cart	H, T	1
❶HRPMG-DE21	Single Cylinder Cart	D, E	1
❶HRPMG-M71	Dual Cylinder Cart	D, E	2
❶HRP40T60	Hand Truck with Rubber/Solid Wheels and Dual Handle	H, T	1
❶HRP20T14	Single Cylinder Cart with Rubber Wheels and Dual Handle	H, T	1
❶HRP40T63	Single Cylinder Cart with Solid Rubber Wheels and Dual Pin Handle	H, T	1

❶HRP20T14

❶HRPMG-470C40

❶HRPMG12-7979R

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Storage Stands and Racks

Part Number	Description	Cylinder Sizes	Number of Cylinders
❶ANT610-CS	Single Cylinder Stand	D, E	1
❶ANT6040	Cylinder Stand	D, E	4
❶ANT6040-LTL	Cylinder Stand with Lock Top Lid	D, E	4
❶ANT6060	Cylinder Stand	D, E	6
❶ANT6060-LTL	Cylinder Stand with Lock Top Lid	D, E	12
❶ANT6120	Cylinder Stand	D, E	12
❶ANT6120-LTL	Cylinder Stand with Lock Top Lid	D, E	12
❶ANT6240	Cylinder Stand	D, E	24
❶ANT6240-LTL	Cylinder Stand with Lock Top Lid	D, E	24
❶ANT6400	Cylinder Stand	D, E	40
❶ANT6108-CSM	Single Cylinder Stand	M	1
❶ANT6108-CSM60	Single Cylinder Stand	M60	1
❶HRP301	29" x 25.5" Dual Cylinder Stand	H, T	2
❶HRP401	28" X 22.5" Dual Cylinder Stand	H, T	2
❶Y99G275-AG	Dual Cylinder Floor Stand	H, T	2
❶Y99GSTD4X2-AG	Cylinder Floor Stand	H, T	8
❶ANTMCR-1200-BP	Cylinder Floor Stand	H, T	12
❶JTR35178	Cylinder Floor Rack	H,T	15
❶STCMDE-12S	Cylinder Rack	D, E	12
❶STCMDE-24S	Cylinder Rack	D, E	24
❶STCMDE-36S	Cylinder Rack	D, E	36

❶ANT610-CS

❶ANT6060

❶HRP301

❶ANT6240

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Storage Cabinets

Part Number	Description	Color	Cylinder Sizes	Number of Cylinders
❶SCRMG102	Self Latch Door	Green	D, E	2
❶SCRBG102FL	Self Latch Door with Fire Lining	Green	D, E	2
❶SCRMG104	Self Latch Door	Green	D, E	4
❶SCRMG104FL	Self Latch Door with Fire Lining	Green	D, E	4
❶SCRMG106H	Self Latch Door	Green	H	9
❶SCRMG106HFL	Self Latch Door with Fire Lining	Green	H	9
❶SCRMG109	Self Latch Door	Green	D, E	12
❶SCRMG109E	Self Latch Door	Red	D, E	12
❶SCRMG109FL	Self Latch Door with Fire Lining	Green	D, E	12
❶SCRMG109H	Self Latch Door	Green	H	12
❶SCRMG109HFL	Self Latch Door with Fire Lining	Green	H	12
❶SCRMG121	Self Latch Door	Green	D, E	24
❶SCRMG121FL	Self Latch Door with Fire Lining	Green	D, E	24
❶SCRMG304	Self Close, Self Latch Door	Green	D, E	4
❶SCRMG304FL	Self Close, Self Latch Door with Fire Lining	Green	D, E	4
❶SCRMG306H	Self Close, Self Latch Door	Green	H	9
❶SCRMG306HFL	Self Close, Self Latch Door with Fire Lining	Green	H	9
❶SCRMG309	Self Close, Self Latch Door	Green	D, E	12
❶SCRMG309FL	Self Close, Self Latch Door with Fire Lining	Green	D, E	12
❶SCRMG309H	Self Close, Self Latch Door	Green	H	12
❶SCRMG309HFL	Self Close, Self Latch Door with Fire Lining	Green	H	12
❶SCRMG321	Self Close, Self Latch Door	Green	D, E	24
❶SCRMG321FL	Self Close, Self Latch Door with Fire Lining	Green	D, E	24

❶SCRMG104FL

❶SCRMG102

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Wall Mounts

Part Number	Description	Cylinder Sizes
❶Y99242200-AG	Single Cylinder Bench Bracket with Strap	H, T
❶Y99241500-AG	Single Cylinder Wall Bracket with Strap	H, T
❶Y99G200-AG	Double Cylinder Wall Bracket	H, T
❶RAD64003560	Single Cylinder Wall Bracket with Chain	H, T
❶RAD64003561	Double Cylinder Wall Bracket with Chain	H, T
❶HRPWB2-20	22" Double Cylinder Wall Bracket	H, T
❶HRPWB1-9	Single Cylinder Wall Bracket	H, T
❶HRPWB2-23	25" Double Cylinder Wall Bracket	H, T
❶ANTWB-100-LC	Liquid Cylinder Wall Bracket with Strap	80–200 Liter
❶ANTWB-100C-LC	Liquid Cylinder Wall Bracket with Chain	80–200 Liter

❶Y99241500-AG

❶RAD64003560

❶Y99242200-AG

Wrenches

Part Number	Description	Cylinder Sizes
❶Y99W2000-AG	Spark Free Multipurpose Cylinder Wrench, CGA 540	200, 300
❶RRI200-0160	Plastic Cylinder Wrench with On/Off Arrows, 10/Pk	E
❶RRI200-0170	Plastic Cylinder Wrench with Chain and On/Off Arrows	E
❶RRI200-0175	Plastic Cylinder Wrench with Bungee, CGA 870	E
❶RRI200-0150	Small Metal Wrench, 10/Pk, CGA 870	E
❶RRI200-0180	Large Metal Cylinder Wrench, CGA 540	200, 300
❶RATVW-MED-MT	Medium Metal Cylinder Wrench	D, E
❶VIC1420-0288	Metal Post Valve Cylinder Wrench, CGA 870	D, E
❶VIC1420-0269	Plastic Post Valve Wrench, CGA 870	D, E

❶Y99W2000-AG

❶RRI200-0170

❶RRI200-0150

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Cryogenic Container Accessories

Dewar Part Number	Capacity (liter)	Neck Opening (in)	Usable Height (in)	Outer Diameter (in)	Internal Diameter (in)	Weight Empty (lb)	Weight Full (lb)	Spare Lid Part Number	Swivel Dipper Part Number
❶MVB9922219	4	1.4	7.8	16.8	5.5	6	13	MVB10588362	MVB20593015
❶MVB9918079	5	2.18	10.5	18.2	6.5	8	17	MVB13808658	MVB20593015
❶MVB10740281	10	2.18	13.5	21.5	8.3	12	31	MVB13808658	MVB20593015
❶MVB13492631	20	2.18	13.7	24.5	11.4	19	55	MVB13808658	MVB20593015
❶MVB9918099	30	2.5	14.9	24.0	14.0	25	82	MVB13808666	MVB20593015
❶MVB9918109	50	2.5	22.0	30.5	14.0	31	120	MVB13808666	MVB20593015
❶BRY501-20	20	2.18	13.7	24.5	11.4	19	55	N/A	N/A

Part Number	Length (in)	Description	Service
❶Y154CH429538-AG	48	CGA 295 x ⅜" MNPT Flex Hose	LIN, LAR, LHE
❶Y154CH629538-AG	72	CGA 295 x ⅜" MNPT Flex Hose	LIN, LAR, LHE
❶Y15PSB38-AG	36	Phase Separator Bronze, ⅜" FNPT	LIN, LAR, LHE
❶MVB14044151	24	Flex Hose with Phase Separator	LIN, LAR, LHE

Part Number	Description	Capacity (oz/ml)
❶BRYB700	Cryogun, Static Holding Time 20–24 hrs	16/500
❶BRYB800	Mini-Cryogun, Static Holding Time 10–12 hrs	10/300
❶BRY503	Liquid Nitrogen Withdrawal Tube	N/A
❶BRY501-RB-L	Base Roller for 20+ Liter Dewars	N/A

❶BRYB700

❶MVB9922219, ❶MVB9918079, ❶MVB10740281, ❶MVB13492631, ❶MVB9918099, ❶MVB9918109

❶BRY501-RB-L

❶MVB13492631

Tank Features

A. Durable, composite lid design

B. High-strength neck tube reduces Liquid Nitrogen loss

C. Strong, lightweight aluminum construction

D. Advanced chemical vacuum retention system

E. Liquid Nitrogen reservoir

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Regulators

Medical gas regulators are designed for use with high-pressure medical gas cylinders equipped with a medical cylinder valve. CGA E-7, Standard for Medical Gas Pressure Regulators, Flow Meters, and Orifice Flow Selectors describes regulators and flow meters for medical use. They regulate pressure and flow of medical gases to the patient and are intended for the administration of medical gases in the treatment, management, diagnostic evaluation and care of the patient.

Before using gas regulators, the healthcare provider must ensure that there is adequate pressure and flow for the full range of the intended use. See your Airgas Healthcare representative for more information. To maximize safety for applications involving high-pressure oxygen, CGA recommends only regulators meeting ASTM G-175, Standard Test Method for Evaluating the Ignition Sensitivity and Fault Tolerance of Oxygen Pressure Regulators Used for Medical and Emergency Applications, as well as applicable sections of ISO 10524. Airgas Healthcare is pleased to offer a good, better, best option to fit any clinic's budget and application needs.

Pressure-reducing regulators should always be used when withdrawing the contents from a medical gas cylinder. These devices deliver a constant, safe working pressure. Needle valves or similar devices without pressure-regulating mechanisms should not be used in place of pressure-reducing regulators because excessive pressures can develop downstream of such devices, resulting in damage to equipment or injury to personnel.

CAUTION: The release of high-pressure gas can be hazardous. Provide adequate means to reduce the gas pressure to appropriate levels and to control the gas flow.

Types of Regulators

- Flow Gauge Regulators: Some pressure regulators are equipped with two pressure gauges. The first gauge indicates the pressure at the regulator inlet and corresponds to the pressure in the cylinder or other supply source when connected to that source. The second gauge indicates the pressure at the regulator outlet and may increase when connected to utilization equipment, depending on application. Flow gauge regulators are calibrated to indicate flow rather than pressure as displayed on the second gauge by incorporating an orifice downstream of the second gauge.
- Flowmeter regulators combine fixed delivery pressure regulators with adjustable flow meters to provide user-adjustable variable flow rates based on application requirements.
- Click-style regulators combine fixed delivery pressure regulators with an orifice flow selector to provide discrete user adjustable flow rates based on user application requirements.

The inlet pressure to a regulator can impact pressure and flow. Flowmeters are designed and calibrated for specific gases and cannot be interchanged. Using the wrong flow meter will result in inaccurate flow information. Because there are several ways to adjust the gas flow and pressure of a regulator, Airgas Healthcare suggests users consult the manufacturer's instructions for proper operation and limitations. To ensure safety, regulators, flow meters and regulator/flow meter combinations should be inspected and tested at a minimum of 5-year intervals and more frequently, if necessary.

Regulators (cont'd.)

MediSelect™ II

Medical High-pressure Regulator–
LPM Flow Outlet for Medical Grade Oxygen Cylinders

❶Y11HC540650-AG

❶Y11HC8702550-AG

The MediSelect II regulator is designed for use with high-pressure medical gas cylinders equipped with medical cylinder valves. They regulate the flow of medical gases to the patient or instrument in liters per minute (LPM). They are intended for the administration of medical oxygen gas in the treatment, management, diagnosis, evaluation and care of the patient. The MediSelect II regulator is ASTM G-175 compliant.

The MediSelect II regulator has an easy-to-read flow selector visible from two sides. The pressure gauge rotates around the body to provide best viewing, regardless of the orientation of the source cylinder. The outlet hose barb also rotates around the body to better enable orientation of the delivery cannula or mask hose. This regulator was designed specifically to provide "ease of use" for medical professionals.

Additional flow settings allow the regulator to be used for other applications. A flow setting of 25 LPM can be used for resuscitation purposes. A flow setting of 7 LPM can be used for nebulization therapy. The 0–6 LPM model has fractional settings for pediatric applications of 0.25, 0.5 and 0.75 LPM. The MediSelect II regulator is equipped with a unique anti-shock element that reduces the risk of adiabatic compression, making the regulator more resistant to heat of recompression, which can lead to ignition. The oxygen gas velocity is slowed at the inlet to lower the risk of molecule friction.

Features

This regulator can be used in hospitals, proximity care facilities, EMS, outpatient care and doctor's office applications. The regulator is approved by the FDA for medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Nickel Plated Brass
Knob: Polyamide material
Pressure Control: Piston
O-Rings: EPDM
Filter: Sintered Bronze
Gauge Cover: Thermoplastic Elastomer (TPE)

Specifications

Inlet Pressure: 3000 psi maximum
Nominal Outlet Pressure: 50 psi
Flow Outlet Ranges: See Chart Below
Regulator Inlet Port: CGA 540/870
Outlet Connection: 9/16" UNF with hose barb
Outlet Connection: DISS 1160/1240

Part Number	Configuration		Delivery Outlet		
	Gas Service	CGA	9/16" UNF w/ Hose Barb (lpm)	DISS	Pressure (psi)
❶Y11HC9500650	Air USP	950	0–6	1160	50
❶Y11HC9502550	Air USP	950	0–25	1160	50
❶Y11HC3460650-AG	Air USP	950	0–6	1160	50
❶Y11HC3462550-AG	Air USP	346	0–25	1160	50
❶Y11HC540650-AG	Oxygen USP	540	0–6	1240	50
❶Y11HC5402550-AG	Oxygen USP	540	0–25	1240	50
❶Y11HC870650-AG	Oxygen USP	870	0–6	1240	50
❶Y11HC8702550-AG	Oxygen USP	870	0–25	1240	50
❶Y11HC2802550-AG	Oxygen USP/Helium USP	280	0–25	1180	50
❶Y11HC8902550-AG	Oxygen USP/Helium USP	890	0–25	1180	50

*The MediSelect II regulator is not intended for MRI use.

MediSelect II is a trademark of GCE Group AB.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Regulators (cont'd.)

MediTec™

The MediTec regulator is designed for use with high-pressure medical gas cylinders equipped with medical cylinder valves. It regulates the flow of medical gases to the patient or instrument in liters per minute (LPM). They are intended for the administration of medical oxygen gas in the treatment, management, diagnosis, evaluation and care of the patient. The MediTec regulator is ASTM G-175 compliant.

The MediTec regulator is the little brother of the MediSelect™ II. The regulator has fewer features than MediSelect II, because the focus of the design is functionality, safety and ergonomics. The regulator body is shrouded with a plastic guard to protect from less-than-gentle use.

This regulator is very lightweight, making it a great solution for EMS and ambulatory applications. The large dual scale gauge is easy to read, and the flow selector adjustment is intuitive. This regulator was designed specifically to provide “heavy duty use” for medical professionals.

❶Y11HC870T650-AG

Additional flow settings allow the regulator to be used for other applications. A flow setting of 25 LPM can be used for resuscitation purposes, while a flow setting of 7 LPM can be used for nebulization therapy. For pediatric applications, the 0–6 LPM models have fractional settings of 0.25, 0.5 and 0.75 LPM. The MediTec regulator is equipped with a unique anti-shock element that reduces the risk of adiabatic compression, making the regulator more resistant to heat of recompression, which can lead to ignition. The oxygen gas velocity is slowed at the inlet to lower the risk of molecule friction.

Features

This regulator can be used in hospitals, proximity care facilities, EMS, outpatient care and doctor's office applications. The regulator is approved by the FDA for the administration of medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Nickel plated brass
Knob: Polyamide material
O-Rings: EPDM
Filter: Sintered bronze
Gauge Cover: Thermoplastic elastomer (TPE)

Specifications

Inlet Pressure: 3000 psi max
Nominal Outlet Pressure: 50 psi
Flow Outlet Ranges: See chart below
Regulator Inlet Port: CGA 346/540/870
Outlet Connection: 9⁄16" UNF

Part Number	Configuration		Delivery Outlet		
	Gas Service	CGA	9⁄16" UNF w/ Hose Barb (lpm)	DISS	Pressure (psi)
❶Y11HC346T650-AG	Air USP	346	0–6	1160	50
❶Y11HC346T2550-AG	Air USP	346	0–25	1160	50
❶Y11HC540T650-AG	Oxygen USP	540	0–6	1240	50
❶Y11HC540T2550-AG	Oxygen USP	540	0–25	1240	50
❶Y11HC870T650-AG	Oxygen USP	870	0–6	1240	50
❶Y11HC870T2550-AG	Oxygen USP	870	0–25	1240	50

Models at 0–6 LPM have flow range settings at 0, 0.25, 0.5, 0.75, 1, 1.5, 2, 2.5, 3, 4, 5 and 6 liters per minute.
Models at 0–25 LPM have flow range settings at 0, 1, 2, 3, 4, 5, 6, 7, 9, 12, 15 and 25 liters per minute.

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Regulators (cont'd.)

MediReg™ II

The MediReg II regulator is used with high-pressure medical gas cylinders equipped with medical cylinder valves. It is intended for the administration of medical oxygen gas in the treatment, management, diagnosis, evaluation and indirect care of the patient. The MediReg II regulator is ASTM G-175 compliant.

The MediReg II regulator has an easy-to-read contents gauge. The pressure gauge rotates 360° to provide the best viewing, regardless of the orientation of the source cylinder.

The MediReg II is an ergonomic, streamline design. It is compact and user friendly. This lightweight and easy-to-clean product is a perfect addition to equipment and instruments that require a 50 psi oxygen inlet, such as a ventilator.

This regulator is equipped with a unique anti-shock element that reduces the risk of adiabatic compression, making the regulator more resistant to heat of recompression, which can lead to ignition. The oxygen gas velocity is slowed at the inlet to lower the risk of molecule friction.

❶Y11HC540P50-AG

❶Y11HC870P50-AG

Features

This regulator can be used in hospitals, proximity care facilities, EMS outpatient care and doctor's office applications. The regulator is approved by the FDA for the administration of medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Nickel Plated Brass
Knob: Polyamide material
Pressure Control: Piston
O-Rings: EPDM
Filter: Sintered Bronze
Gauge Cover: Thermoplastic Elastomer (TPE)

Specifications

Inlet Pressure: 3000 psi maximum
Nominal Outlet Pressure: 50 psi
Regulator Inlet Port: CGA 540/870
Outlet Connection: DISS 1240

Part Number	Configuration		Delivery Outlet	
	Gas Service	CGA	DISS	Pressure (psi)
❶Y11HC540P50-AG	Oxygen USP	540	1240	50
❶Y11HC870P50-AG	Oxygen USP	870	1240	50
❶Y11HC346P50-AG	Air USP	346	1160	50
❶Y11HC580HP50-AG	Helium USP	580	1060	50
❶Y11HC580P50-AG	Nitrogen NF	580	1120	50
❶Y11HC280P50-AG	Oxygen USP/Helium USP	280	1180	50

*The MediReg II regulator is not intended for MRI use.

MediReg II is a trademark of GCE Group AB.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Regulators (cont'd.)

Slim-Lite™ II

The Slim-Lite II regulator is designed for use with high-pressure medical gas cylinders equipped with a medical cylinder valve. They regulate the flow of medical gases to the patient in liters per minute (LPM). They are intended for the administration of medical oxygen gas in the treatment, management, diagnosis, evaluation and care of the patient.

The Slim-Lite II regulators are sleek and lightweight. The combination of anodized aluminum and all brass core construction with unibody design incorporates a flow control regulator with a built-in yoke for durability and convenience. This regulator was designed specifically to provide “ease of use” for medical professionals.

Flow settings of 0–15 LPM are available with this regulator/click-stop flow meter. Eleven flows are preset: 0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12 and 15 LPM.

The Slim-Lite II regulator is equipped with a ¼" barb fitting for easy connection to tubing, mask or cannula.

❶Y11HC870SL15-AG

Features

This regulator can be used in hospitals, proximity care facilities, EMS, outpatient care and doctor's office applications. The regulator is approved by FDA for administration of medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Aluminum and Brass
Pressure Control: Piston
O-Rings: EPDM
Filter: Sintered bronze

Specifications

Inlet Pressure: 2000 psi maximum
Regulator Inlet Port: CGA 870
Outlet Connection: 9/16" UNF with ¼" hose barb

Part Number	Configuration		Delivery Outlet
	Gas Service	CGA	9/16" UNF w/ ¼" Hose Barb (lpm)
❶Y11HC870SL15-AG	Oxygen USP	870	0–15

*The Slim-Lite II regulator is not MRI compatible.

Slim-Lite II is a trademark of Victor Equipment Company.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Regulators (cont'd.)

VariMed™

The VariMed single-stage regulator is designed for use with high-pressure medical gas cylinders equipped with medical cylinder valves. They regulate the pre-set pressure of medical gases to instruments in pounds per square inch (PSI). They are intended for the administration of medical oxygen gas in the treatment, management, diagnosis and evaluation.

The VariMed regulator is intended to connect to other medical devices, including pressure monitors, anesthetic equipment, or as a central gas source supply regulator for an ambulance or medical suite. The single gauge indicates the pressure of the source container, which can be converted to volume with a simple calculation.

❶Y11HC540V650-AG

Features

This regulator can be used in hospitals, proximity care facilities, EMS, outpatient care and doctor's office applications. The regulator is approved by the FDA for the administration of medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Nickel Plated Zamak
Bonnet: Painted Zamak
Pressure Control: Diaphragm
O-Rings: EPDM
Filter: Sintered Bronze
Gauge Cover: Thermoplastic Elastomer (TPE)

Specifications

Inlet Pressure: 3000 psi maximum
Nominal Outlet Pressure: 50 psi
Regulator Inlet Port: CGA 540/870
Outlet Connection: 9/16" UNF

Part Number	Configuration		Delivery Outlet	
	Gas Service	CGA	DISS	Pressure (psi)
❶Y11HC346V650-AG	Air USP	346	1160	50
❶Y11HC540V650-AG	Oxygen USP	540	1240	50
❶Y11HC870V650-AG	Oxygen USP	870	1240	50
❶Y11HC326V650-AG	Nitrous Oxide USP	326	1040	50
❶Y11HC320V650-AG	Carrbon Dioxide USP	320	1080	50

*The VariMed regulators are not intended for direct patient or MRI use.

VariMed is a trademark of GCE Group AB.

⚠ ❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Regulators (cont'd.)

VariMed™+

VariMed+ single-stage regulators are used with high-pressure medical gas cylinders equipped with medical cylinder valves. They regulate the pressure of medical gases to instruments in pounds per square inch (PSI). They are intended for the administration of medical gases in the treatment, management, diagnosis and evaluation. This regulator is not intended for direct use with patients.

The VariMed+ regulator connects to other medical devices, including diagnostic instrumentation, pressure monitors, anesthetic equipment, or as a central gas source supply regulator for an ambulance or medical suite. The dual gauges indicate both the pressure of the source container and downstream outlet, which can be converted to volume with a simple calculation.

❶Y11HC540VP80-AG

Features

This regulator can be used in hospitals, proximity care facilities, EMS, outpatient care and doctor's office applications. The regulator is approved by the FDA for the administration of medical grade gases. It is not MRI compatible.

Materials of Construction

Body: Nickel Plated Mazak
Bonnet: Painted Mazak
Pressure Control: Diaphragm
O-Rings: EPDM
Filter: Sintered Bronze
Gauge Cover: Thermoplastic Elastomer (TPE)

Specifications

Inlet Pressure: 3000 psi maximum
Nominal Outlet Pressure: 0–80 psi
Regulator Inlet Port: See chart below
Outlet Connection: See chart below

Part Number	Configuration		Delivery Outlet	
	Gas Service	CGA	DISS	Pressure
❶Y11HC540VP80-AG	Oxygen USP	540	1240	0–80
❶Y11HC870VP80-AG	Oxygen USP	870	1240	0–80
❶Y11HC326VP80-AG	Nitrous Oxide USP	326	1040	0–80
❶Y11HC910VP80-AG	Nitrous Oxide USP	910	1040	0–80
❶Y11HC320VP80-AG	Carbon Dioxide USP	320	1080	0–80
❶Y11HC940VP80-AG	Carbon Dioxide USP	940	1080	0–80
❶ Y11HC580HVP80-AG	Helium USP	580	1160	0–80
❶Y11HC930VP80-AG	Helium USP	930	1160	0–80
❶Y11HC580VP80-AG	Nitrogen NF	580	1120	0–80
❶Y11HC960VP80-AG	Nitrogen NF	960	1120	0–80
❶Y11HC346VP80-AG	Air USP	346	1060	0–80
❶Y11HC950VP80-AG	Air USP	950	1060	0–80
❶Y11HC880VP80-AG	Carbon Dioxide USP, Oxygen USP Drug Mixture	880	1200	0–80
❶Y11HC280VP80-AG	Carbon Dioxide USP, Oxygen USP Drug Mixture	280	1200	0–80
❶Y12HC144SP296-AG	Aerobic Biologic Atmosphere, Blood Gas Mixture, Lung Diffusion, PFT ¼" MNPT	296	NA	0–100
❶Y12HC144SP350-AG	Anerobic Biologic Atmosphere, ¼" MNPT	350	NA	0–100
❶Y12HC144SP500-AG	Aerobic Biologic Atmosphere, Blood Gas Mixture, Lung Diffusion, PFT, ¼" MNPT	500	NA	0–100
❶Y12HC144SP973-AG	Aerobic Biologic Atmosphere, Blood Gas Mixture, Lung Diffusion, PFT ¼" MNPT	973	NA	0–100
❶Y12HC144SP580-AG	Medical Laser, PFT ¼" MNPT	580	NA	0–100

* The VariMed+ series regulators are not intended for direct patient or MRI use.

VariMed+ is a trademark of GCE Group AB.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Suction Regulators

AMVEX Analog Continuous 3 Mode 0–300 mmHg

Airgas Part Number	Patient Connection	Wall Connection
❶Y11HCVRC3UTOMA	Tubing Nipple	Ohmeda
❶Y11HCVRC3UTDHA	Tubing Nipple	DISS Handtight
❶Y11HCVRC3UTCMA	Tubing Nipple	Chemetron
❶Y11HCVRC3UTPMA	Tubing Nipple	Puritan Bennett
❶Y11HCVRC3UDOMA	DISS Male	Ohmeda
❶Y11HCVRC3UDDHA	DISS Male	DISS Handtight
❶Y11HCVRC3UDCMA	DISS Male	Chemetron
❶Y11HCVRC3UDPMA	DISS Male	Puritan Bennett
❶Y11HCVRC3UHOMA	DISS Male with Safety Trap Diss Hantight	Ohmeda
❶Y11HCVRC3UHDHA	Tubing Nipple	DISS Handtight
❶Y11HCVRC3UHCMA	Tubing Nipple	Chemetron
❶Y11HCVRC3UHPMA	Tubing Nipple	Puritan Bennett

❶ Y11HCVRC3UHDHA

AMVEX Analog Continuous/Intermittent 0–300 mmHg

Airgas Part Number	Patient Connection	Wall Connection
❶Y11HCVRCIUTOMA	Tubing Nipple	Ohmeda
❶Y11HCVRCIUTDHA	Tubing Nipple	DISS Handtight
❶Y11HCVRCIUTCMA	Tubing Nipple	Chemetron
❶Y11HCVRCIUTPMA	Tubining Nipple	Puritan Bennett
❶Y11HCVRCIUDOMA	DISS Male	Ohmeda
❶Y11HCVRCIUDDHA	DISS Male	DISS Handtight
❶Y11HCVRCIUDCMA	DISS Male	Chemetron
❶Y11HCVRCIUDPMA	DISS Male	Puritan Bennett
❶Y11HCVRCIUHOMA	DISS Male with Safety Trap Diss Hantight	Ohmeda
❶Y11HCVRCIUHDHA	Tubing Nipple	DISS Handtight
❶Y11HCVRCIUHCMA	Tubing Nipple	Chemetron

❶Y11HCVRCIUHDHA

⚠ ❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Fully Automated Manifolds

Compact Medical Gas Automatic Switchover Manifold

Intended for use with portable liquid gas containers only

Compact medical gas manifolds from Airgas Healthcare are designed to be a fully automatic system for use with portable liquid containers. The manifolds give an uninterrupted supply of gas as the primary bank of dewers is depleted. At a preset pressure, the manifold automatically switches to the reserve bank. The system eliminates the need for the operator to change switchover pressure settings or indicate pressure when containers are depleted. These models include an economizing circuit to help prevent reserve containers from wasting gas due to venting excess head space pressure.

This automatic changeover meets all NFPA 99 requirements for use with medical gases. This changeover is equipped with an inlet port for a reserve high pressure back-up manifold. This changeover is not intended for direct patient care. An FDA certified medical device must be used between this gas delivery system and a patient.

❶Y11HCVCP540-AG

❶OXUSP180LT350

Properties

Standards and Codes
CGA: V-1, E-1 and G-1
ANSI: B57.1
NFPA: 51
ETL Listed to UL 407
Compliant with NFPA 99C

Materials of Construction
Internal Components: Brass
Housing: ABS Plastic Cover

Electrical Requirements:
24 VAC Service: Cabinet lights/alarm
115/24 VAC power supply included

Specifications
Inlet Pressure: 500 psig maximum
Regulator Inlet Port: 1" 11½ NPS Male
Outlet Connection: ½" NPT Female
Dimensions: 12.8" W x 14" H x 5" D
Flow: 3000 scfh @70°F
Flow Coefficient: Cv = 0.238

Part Number	Gas Service	CGA	Delivery Pressure (psi)
115V Service			
❶Y11HCVLCP540-AG	USP Oxygen	540	0–70
❶Y11HCVLCP580-AG	NF Nitrogen	580	0–200
❶Y11HCVLCP320-AG	USP Carbon Dioxide	320	0–70
❶Y99HC115VHEATER-AG	Heater Kit* for CO_2 (115V)	—	—

Headers for manifolds are not included. They can be ordered as separate line item; see page 66 for details.

*Must order two heater kits for use on fully automated compact medical gas manifolds.

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Fully Automated Manifolds (cont'd.)

Compact Medical Gas Automatic Switchover Manifold

Intended for use with high-pressure gas cylinders only

Compact medical gas manifolds from Airgas Healthcare are designed to be a fully automatic system for use with high-pressure cylinders. The manifold gives an uninterrupted supply of gas as the primary bank of cylinders is depleted. At a preset pressure, the manifold automatically switches to the reserve bank. The system eliminates the need for the operator to change switchover pressure settings or indicate pressure when the cylinder is depleted.

This automatic changeover meets all NFPA 99 requirements for use with medical gases. This changeover is not intended for direct patient care. An FDA certified medical device must be used between this gas delivery system and a patient.

❶Y11HCVCP540-AG

Properties

Standards and Codes
CGA: V-1, E-1 and G-1
ANSI: B57.1
NFPA: 51
ETL Listed to UL STD407
Compliant with NFPA 99C

Materials of Construction
Internal Components: Brass
Housing: ABS Plastic Cover

Electrical Requirements
24 VAC Service: Cabinet lights/alarm
115 or 230/240 VAC power supply included

Specifications
Inlet Pressure: 3000 psig maximum
Regulator Inlet Port: 1" 11½ NPS Male
Outlet Connection: ½" NPT Female
Dimensions: 12.8" W x 14" H x 5" D
Flow: 3000 scfh @ 70°F
Flow Coefficient: Cv = 0.238

Part Number	Gas Service	CGA	Delivery Pressure (psi)
115V Service			
❶Y11HCVCP540-AG	USP Oxygen	540	0–70
❶Y11HCVCP326-AG	USP Nitrous Oxide	326	0–70
❶Y11HCVCP580-AG	NF Nitrogen	580	0–200
❶Y11HCVCP346-AG	USP Air	346	0–70
❶Y11HCVCP320-AG	USP Carbon Dioxide	320	0–70
❶Y99HC115VHEATER-AG	Heater Kit* for N_2O and CO_2 (115V)	—	—
230/240V Service			
❶Y11HCVECP540-AG	USP Oxygen	540	0–70
❶Y11HCVECP326-AG	USP Nitrous Oxide	326	0–70
❶Y11HCVECP580-AG	NF Nitrogen	580	0–200
❶Y11HCVECP590-AG	USP Air	590	0–70
❶Y11HCVECP320-AG	USP Carbon Dioxide	320	0–70
❶Y99HC230VHEATER-AG	Heater Kit* for N_2O and CO_2 (230V)	—	—

Headers for manifolds are not included. They can be ordered as separate line item; see page 66 for details.

*Must order two heater kits for use on fully automated Compact medical gas manifolds.

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Fully Automated Manifolds (cont'd.)

Fully Automatic Medical Gas Switchover Manifold

Intended for use with high-pressure gas cylinders only

Fully automated medical gas switchover manifolds from Airgas Healthcare are designed to be used with high-pressure medical grade cylinders. The manifold provides an uninterrupted supply of gas to the pipeline at a constant pressure. The manifold permits automatic switchover for the "in use" primary bank of cylinders to the "reserve" secondary bank of cylinders.

The pressure control cabinet contains dual pressure regulators and switches that ensure an uninterrupted, regulated flow of gas to the pipeline. The cabinet has a digital pressure display and three analog pressure gauges, one for each supply side and one for the pipeline delivery pressure. A group of indicator lights indicates the status of the left and right cylinder banks. "In Service" is indicated by the green light, while the "Reserve" cylinder bank is indicated by the yellow "Ready to Use" light. A red "Replace Cylinder" light indicates a depleted cylinder bank. The manifold is equipped with a left- or right-bank inlet priority switch.

The control cabinet is equipped with a leak detection alert, in the event the reserve cylinder bank decreases by 25% from the initial standby pressure.

❶Y11HCPCP540-AG

This automatic changeover meets all NFPA 99 requirements for use with medical gases. This changeover is not intended for direct patient care. An FDA certified medical device must be used between this gas delivery system and the patient.

Properties

Standards and Codes
CGA: V-1, E-1, E-3, E-4 and G-1
ANSI: A13.1 and B57.1
NFPA: 99 and 51
Product Includes: UL/CSA/CE/ ISO 5175, BS 6158/EN 730 (BAM/DIN), AS4603 components

Materials of Construction
Internal Components: Brass
Housing: NEMA 4X Enclosure

Electrical Requirements
Input Voltage: 90–264VAC

Specifications
Inlet Pressure: 3000 psig maximum
Outlet Connection: ½" NPT Female
Dimensions: 16" W x 18" H x 10.5" D
Operating Temperature: 0–140°F

Part Number	Gas Service	CGA	Delivery Pressure (psi)
115V Service			
❶Y11HCPCP540-AG	USP Oxygen	540	0–70
❶Y11HCPCP326-AG	USP Nitrous Oxide	326	0–70
❶Y11HCPCP580-AG	NF Nitrogen	580	0–200
❶Y11HCPCP346-AG	USP Air	346	0–70
❶Y11HCPCP320-AG	USP Carbon Dioxide	320	0–70
❶Y99HC115VHEATER-AG	Heater Kit* for N_2O and CO_2 (115V)	–	–

Headers for manifolds are not included. They can be ordered as separate line items; see page 66 for details.

*Must order two heater kits for use on fully automated medical gas switchover manifolds.

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bottom of the table : Heater Kit* for N2O amd CO2 (115V) should be Heater Kit* for N2O and CO2 (115V)

Fully Automated Manifolds (cont'd.)

Hybrid Rx Medical Gas Switchover Manifold

Intended for use with high- or low-pressure gas cylinders

Hybrid Rx series of medical gas switchover manifolds from Airgas Healthcare are designed to be used with high-pressure medical grade cylinders, portable liquid medical grade gas containers or a combination of the two delivery vessels. The manifold provides an uninterrupted supply of gas to the pipeline at a constant pressure. The manifold permits automatic switchover for the "in use" primary bank of cylinders to the "reserve" secondary bank.

The pressure control cabinet contains dual pressure regulators and switches managed by a programmable controller that ensures an uninterrupted, regulated flow of gas to the pipeline. The cabinet has a digital pressure display for the pipeline delivery pressure. The display panel indicates the bank in use and the readiness of the reserve bank. All notification and controls are located on the remote pendant display, which can be mounted up to 7 feet from the control cabinet.

This changeover meets all NFPA 99 requirements for use with medical gases. This changeover is not intended for direct patient care. An FDA certified medical device must be used between this gas delivery system and a patient.

❶Y11HCXCP540-AG

Properties

Standards and Codes
NFPA: 99 and 51
Cabinet: IP65 rated
Control Pendant: IP65 rated
Cleaning: CGA G-4.1
Cabinet Pendant: UL/cUL listed

Materials of Construction
Regulators: Brass
Diaphragm: Neoprene
Seats: PTFE
Solenoids: Brass, 24VDC
Cabinet: Mild Steel, type 1, 3R, 4 12, 13 powered-coated finish
Pendant: IP and UV rated high impact plastic

Electrical Requirements
Pendant Input: 100–240 VAC, 50/60Hz

Specifications
Inlet Pressure: 3000 psig maximum
Outlet Connection: ½" NPT Female
Reserve Gas Connection: ¼" NPT Female
Inlet Bank Connections: ½" NPT Female
Cabinet Dimensions: 20" W x 16" H x 10" D
Pendant Dimensions: 6.7" W x 6.7" H x 4" D
Operating Temperature: -4–122°F

Part Number	Gas Service	CGA	Delivery Pressure (psi)
115V Service			
❶Y11HCXCP540-AG	USP Oxygen	540	0–100
❶Y11HCXCP326-AG	USP Nitrous Oxide	326	0–100
❶Y11HCXCP580-AG	NF Nitrogen	580	0–100
❶Y11HCXCP346-AG	USP Air	346	0–100
❶Y11HCXCP320-AG	USP Carbon Dioxide	320	0–100
❶Y99HC115VHEATER-AG	Heater Kit* for N_2O and CO_2 (115V)	—	—

Headers for manifolds are not included. They can be ordered as separate line items; see page 66 for details.

*Must order two heater kits for use on Hybrid Rx series of medical gas switchover manifolds.

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Manifold Header Bars and Accessories

Header bars are used with all Airgas Healthcare changeovers: Compact HP, Compact Liquid, Fully Automatic HC and Hybrid Med. Brass header bars are available for medical gases in a variety of sizes and configurations. Each part number includes two header bars with check valves and 36" long pigtails with CGA fittings. The pigtails are made of braided stainless steel, except for O_2, which are copper/brass.

Header bar assemblies must be ordered with the appropriate Airgas Healthcare changeover manifold to complete the gas delivery system. All wall mounting brackets are included with header manifolds.

❶Y15HCHM08540-AG 4x4, Changeover manifold not included.

Headers

Size	Oxygen with CGA 540	Nitrous Oxide with CGA 326	Nitrogen with CGA 580	Air with CGA 346	Carbon Dioxide with CGA 320*
1x1	❶Y15HCHM02540-AG	❶Y15HCHM02326-AG	❶Y15HCHM02580-AG	❶Y15HCHM02346-AG	❶Y15HCHM02320-AG
2x2	❶Y15HCHM04540-AG	❶Y15HCHM04326-AG	❶Y15HCHM04580-AG	❶Y15HCHM04346-AG	❶Y15HCHM04320-AG
3x3	❶Y15HCHM06540-AG	❶Y15HCHM06326-AG	❶Y15HCHM06580-AG	❶Y15HCHM06346-AG	❶Y15HCHM06320-AG
4x4	❶Y15HCHM08540-AG	❶Y15HCHM08326-AG	❶Y15HCHM08580-AG	❶Y15HCHM08346-AG	❶Y15HCHM08320-AG
5x5	❶Y15HCHM10540-AG	❶Y15HCHM10326-AG	❶Y15HCHM10580-AG	❶Y15HCHM10346-AG	❶Y15HCHM10320-AG
6x6	❶Y15HCHM12540-AG	❶Y15HCHM12326-AG	❶Y15HCHM12580-AG	❶Y15HCHM12346-AG	❶Y15HCHM12320-AG
7x7	❶Y15HCHM14540-AG	❶Y15HCHM14326-AG	❶Y15HCHM14580-AG	❶Y15HCHM14346-AG	❶Y15HCHM14320-AG
8x8	❶Y15HCHM16540-AG	❶Y15HCHM16326-AG	❶Y15HCHM16580-AG	❶Y15HCHM16346-AG	❶Y15HCHM16320-AG
9x9	❶Y15HCHM18540-AG	❶Y15HCHM18326-AG	❶Y15HCHM18580-AG	❶Y15HCHM18346-AG	❶Y15HCHM18320-AG
10x10	❶Y15HCHM20540-AG	❶Y15HCHM20326-AG	❶Y15HCHM20580-AG	❶Y15HCHM20346-AG	❶Y15HCHM20320-AG

All header bar configurations are designed to be expanded for future gas volume requirements. Please contact the Airgas Specialty Gas Equipment team for assistance on expansion of healthcare header bar systems.

Heater*

Part Number	Description	Gas
❶Y99HC115VHEATER-AG	115/24VAC	Carbon Dioxide

*Must order two heaters for use on carbon dioxide liquid changeover system.

EZ-GAZ™ Adapter

Part Number	Description
❶Y99ZHCEXTKIT-AG	¼" NPT Elbow

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Medical NFPA Liquid Backup Manifold

Compact/Hybrid Changeover Back Up Manifold

NFPA 99 requires a high-pressure back up for liquid container systems

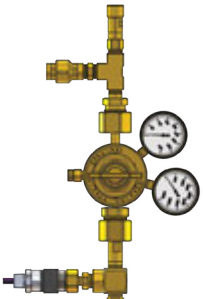
Simplex high-pressure manifolds from Airgas Healthcare are designed to connect to the Airgas Compact Liquid Changeover and the Hybrid Changeover. These manifolds are intended to fulfill the emergency backup requirement when low-pressure containers are the primary supply source.

The size of the high-pressure emergency reserve must represent a day's usage volume of gas or three cylinders, whichever is higher. Please consult your NFPA 99 Medical Gas installation professional to calculate the manifold size.

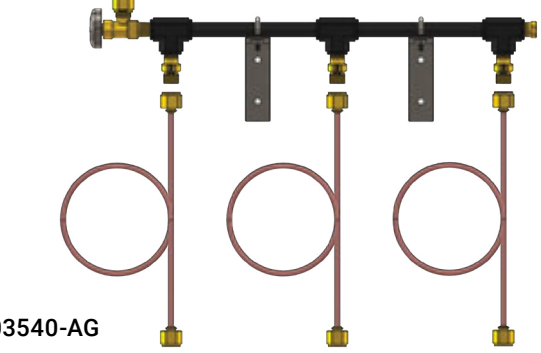
This manifold meets all NFPA 99 requirements for use with medical gases. This manifold is not intended for direct patient care. An FDA certified medical device must be used between this gas delivery system and a patient.

❶Y11HCVCP540-AG

❶Y11HCXCP540-AG



❶OXUSP180LT350



❶Y15HCRM03540-AG

Properties

Standards and Codes
CGA: V-1, E-1 and G-1
NFPA 99C

Materials of Construction
Primary Components: Brass
Filter: Sintered bronze
Shutoff Valves: Brass
Header: Silver brazed brass

Pressure Switch
Adjustable Range: 100–1500 psi

Specifications
Inlet Pressure: 3000 psig maximum
Inlet Connections: See chart below
Outlet Connection: ½" NPT Female
Outlet Pressure: 100 psi
Flow: 2500 scfh @ 70°F

Header Size	Oxygen Gas Service		Nitrogen Gas Service		Carbon Dioxide Gas Services	
No. of Cylinders	Part Number	CGA	Part Number	CGA	Part Number	CGA
3	❶Y15HCRM03540-AG	540	❶Y15HCRM03580-AG	580	❶Y15HCRM03320-AG	320
4	❶Y15HCRM04540-AG	540	❶Y15HCRM04580-AG	580	❶Y15HCRM04320-AG	320
5	❶Y15HCRM05540-AG	540	❶Y15HCRM05580-AG	580	❶Y15HCRM05320-AG	320
6	❶Y15HCRM06540-AG	540	❶Y15HCRM06580-AG	580	❶Y15HCRM06320-AG	320
7	❶Y15HCRM07540-AG	540	❶Y15HCRM07580-AG	580	❶Y15HCRM07320-AG	320
8	❶Y15HCRM08540-AG	540	❶Y15HCRM08580-AG	580	❶Y15HCRM08320-AG	320
9	❶Y15HCRM09540-AG	540	❶Y15HCRM09580-AG	580	❶Y15HCRM09320-AG	320
10	❶Y15HCRM10540-AG	540	❶Y15HCRM10580-AG	580	❶Y15HCRM10320-AG	320

Manifold must be ordered as separate line item for all liquid container systems. See pages 62–67 for details.

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Flow Meters

The pressure compensated flow meter is designed to meet strict standards of durability and precision. The base is constructed of solid brass with full-body, gas-specific, colored labeling. Flow meters are available with a wide variety of options, including DISS power outlets/power take-offs and twin flow meter configurations. They are also available with an optional plastic DISS tubing nipple and a multitude of wall adapters. Each flow meter comes with a swivel tube hose barb outlet fitting as standard equipment.

Below is a list of the most commonly used flow meters paired with medical gas outlets. Please contact the Airgas Specialty Gas Equipment team at 800.654.2737 for assistance if you require something different from what is listed below.

Standard Oxygen Flow Meters

Part Number	Outlet Option	Wall Connector	Standard Oxygen Properties
❶Y21HCFM15XM4XX-AG	No Power Take-Off	¼" NPT Male	Color: Green Flow Rate: 15 LPM Standard: ANSI
❶Y21HCFM15XM4P-AG	Power Take-Off	¼" NPT Male	
❶Y21HCFM15XM2XX-AG	No Power Take-Off	⅛" NPT Male	
❶Y21HCFM15XM2P-AG	Power Take-Off	⅛" NPT Male	
❶Y21HCFM15XDNXX-AG	No Power Take-Off	DISS Nut/Nipple	
❶Y21HCFM15XDNP-AG	Power Take-Off	DISS Nut/Nipple	
❶Y21HCFM15XDHXX-AG	No Power Take-Off	DISS Hand-Tight	
❶Y21HCFM15XDHP-AG	Power Take-Off	DISS Hand-Tight	
❶Y21HCFM15XHMXX-AG	No Power Take-Off	Ohmeda	
❶Y21HCFM15XHMP-AG	Power Take-Off	Ohmeda	
❶Y21HCFM15XPBXX-AG	No Power Take-Off	Puritan	
❶Y21HCFM15XPBP-AG	Power Take-Off	Puritan	
❶Y21HCFM15XCHXX-AG	No Power Take-Off	Chemetron	
❶Y21HCFM15XCHP-AG	Power Take-Off	Chemetron	

❶Y21HCFM15XDNXX-AG

Standard Medical Air Flow Meters

Part Number	Outlet Option	Wall Connector	Standard Medical Air Properties
❶Y21HCFM15AM4XX-AG	No Power Take-Off	¼" NPT Male	Color: Yellow Flow Rate: 15 LPM Standard: ANSI
❶Y21HCFM15ADNXX-AG	No Power Take-Off	DISS Nut/Nipple	
❶Y21HCFM15ADHXX-AG	No Power Take-Off	DISS Hand-Tight	
❶Y21HCFM15AOHXX-AG	No Power Take-Off	Ohmeda	
❶Y21HCFM15ACHXX-AG	No Power Take-Off	Chemetron	

All flow meters come with swivel tubing, hose barb outlet fitting as standard equipment.

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Flow Meters (cont'd.)

Oxygen and Heliox Flow Meters

Part Number	Standard	Gas Service	Color	Flow Rate (lpm)	Outlet Option	Wall Connector
❶Y21HCFM1XDNXX-AG	ANSI	Oxygen	Green	1 NICU	No Power Take-Off	DISS Nut/Nipple
❶Y21HCFM3XDNXX-AG	ANSI	Oxygen	Green	3.5 NICU	No Power Take-Off	DISS Nut/Nipple
❶Y21HCFM16EDNXX-AG	ANSI	Heliox	Green	16	No Power Take-Off	DISS Nut/Nipple

Examples

Part Number ❶Y21HCFM15XCHP-AG Breakdown	
Y21	Supply code
HCFM	Airgas Healthcare brand
15	LPM
X	Oxygen
CH	Chemetron
P	With power take-off

Part Number ❶Y21HCFM15ADHXX-AG Breakdown	
Y21	Supply code
HCFM	Airgas Healthcare brand
15	LPM
A	USP Air
DHXX	Hand-tight; no power take-off

Part Number ❶Y21HCFM16EDNXX Breakdown	
Y21	Supply code
HCFM	Airgas Healthcare brand
15	LPM
E	Heliox service
CH	Chemetron
DHXX	DISS nut/nipple; no power take-off

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Medical Gas Vertical Wall Outlets

Common Configurations

These gas outlets are UL listed, NFPA compliant, cleared for medical gas service, and pressure tested. Each outlet has less than a 3 PSI pressure drop @120 LPM and 50 PSI inlet pressure. The wall outlets have a gas-specific back body with a steel mounting plate, which allows outlets to be mounted adjacent with a centerline spacing of 5". For aesthetic appeal, each outlet includes a one-piece ivory trim plate, which is constructed of high-impact, flame-retardant Cycoloy™.

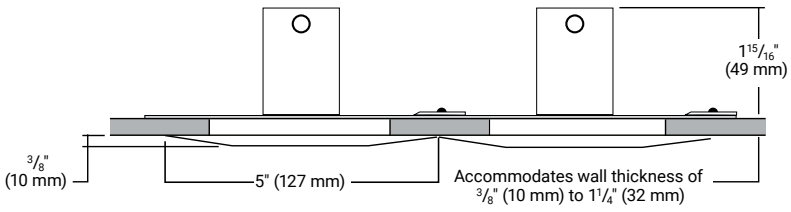
Y15HCW26100013-AG

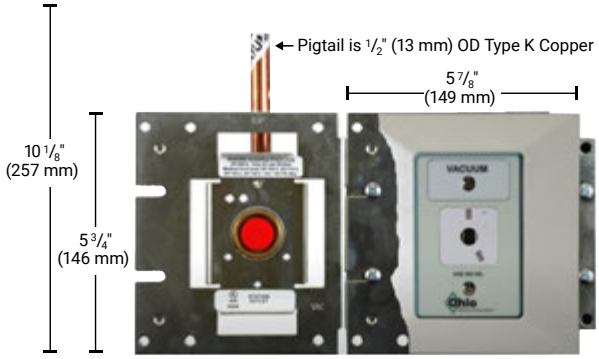
Y15HCW26110005-AG

Y15HCW2610001-AG

Part Number	Gas Service	Color	Orientation	Connection Port
❶Y15HCW2610101X-AG	Oxygen	Green	Wall Vertical	Ohmeda/Diamond
❶Y15HCW2610201-AG	Oxygen	Green	Wall Vertical	Chemetron
❶Y15HCW2610401-AG	Oxygen	Green	Wall Vertical	Puritan™ Bennett
❶Y15HCW2610001-AG	Oxygen	Green	Wall Vertical	DISS
❶Y15HCW2610105X-AG	Vacuum	Clear	Wall Vertical	Ohmeda/Diamond
❶Y15HCW2610205-AG	Vacuum	Clear	Wall Vertical	Chemetron
❶Y15HCW2610405-AG	Vacuum	Clear	Wall Vertical	Puritan Bennett
❶Y15HCW2610005-AG	Vacuum	Clear	Wall Vertical	DISS
❶Y15HCW26101013X-AG	USP Air	Yellow	Wall Vertical	Ohmeda/Diamond
❶Y15HCW26102013-AG	USP Air	Yellow	Wall Vertical	Chemetron
❶Y15HCW26100013-AG	USP Air	Yellow	Wall Vertical	DISS
❶Y15HCW2610109X-AG	Nitrous Oxide	Blue	Wall Vertical	Ohmeda/Diamond
❶Y15HCW2610209-AG	Nitrous Oxide	Blue	Wall Vertical	Chemetron
❶Y15HCW2610409-AG	Nitrous Oxide	Blue	Wall Vertical	Puritan Bennett
❶Y15HCW2610009-AG	Nitrous Oxide	Blue	Wall Vertical	DISS
❶Y15HCW26104017-AG	Nitrogen	Black	Wall Vertical	Puritan Bennett
❶Y15HCW26100017-AG	Nitrogen	Black	Wall Vertical	DISS
❶Y15HCW26100025-AG	Carbon Dioxide	Gray	Wall Vertical	DISS

Assemblies must be secured to wall in order to support the weight of the outlet assembly





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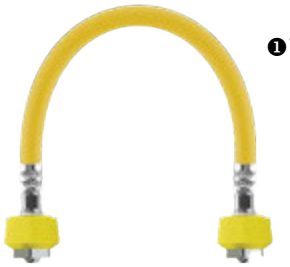
Hose Assemblies

All gas and mixture services and connections are available as custom configurations in a wide variety of lengths and materials. Hoses that are commonly requested are listed below. If the specific hose you require is not listed, please contact the Airgas Specialty Gas Equipment team at 800.654.2737 for assistance. Please see page 72 for custom configurations and additional options.

In healthcare settings, conductive hoses are typically used as they are manufactured—with a carbon filament that conducts and dissipates static charge that may build up in the hose. Non-conductive hoses are less expensive and can be used when static charge is not an issue.



❶Y15HCHS03UADHDHC4

❶Y15HCHS06UODHOMC4

❶Y15HCHS10UODHM2C4

Pre-configured Hose Assemblies

Part Number	Configuration					
	Length (in)	Gas	Color	End Connection	End Connection	¼" Hose Type
❶Y15HCHS03UODHDHC4	36	Oxygen	Green	DISS Hand Tight	DISS Hand Tight	Conductive
❶Y15HCHS03UODFDFC4	36	Oxygen	Green	DISS Female Hex	DISS Female Hex	Conductive
❶Y15HCHS03UADHDHC4	36	Air	Yellow	DISS Hand Tight	DISS Hand Tight	Conductive
❶Y15HCHS03UADFDFC4	36	Air	Yellow	DISS Female Hex	DISS Female Hex	Conductive
❶Y15HCHS06UODHDHC4	72	Oxygen	Green	DISS Hand Tight	DISS Hand Tight	Conductive
❶Y15HCHS06UODFDFC4	72	Oxygen	Green	DISS Female Hex	DISS Female Hex	Conductive
❶Y15HCHS06UODHOMC4	72	Oxygen	Green	DISS Hand Tight	Ohmeda Diamond Male	Conductive
❶Y15HCHS06UADHDHC4	72	Air	Yellow	DISS Hand Tight	DISS Hand Tight	Conductive
❶Y15HCHS06UADFDFC4	72	Air	Yellow	DISS Female Hex	DISS Female Hex	Conductive
❶Y15HCHS06UADHOMC4	72	Air	Yellow	DISS Hand Tight	Ohmeda Diamond Male	Conductive
❶Y15HCHS10UODFDHC4	120	Oxygen	Green	DISS Female Hex	DISS Hand Tight	Conductive
❶Y15HCHS10UODHM2C4	120	Oxygen	Green	DISS Hand Tight	⅛" Male NPT	Conductive
❶Y15HCHS06UODFDFN4	72	Oxygen	Green	DISS Female Hex	DISS Female Hex	Conductive
❶Y15HCHS10UADFDHC4	120	Air	Yellow	DISS Female Hex	DISS Hand Tight	Conductive

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Medical Hoses Assemblies — Custom Configurations

Please contact the Airgas Specialty Gas Equipment team at 800.654.2737 for assistance in creating a custom medical hose configuration. Available in lengths from 1'–99'.

Gas Service

- USP Oxygen (Green)
- USP Air (Yellow)
- USP Carbon Dioxide (Gray)
- NF Nitrogen (Black)
- USP Nitrous Oxide (Blue)
- Medical Vacuum (Clear)

Inlet Connection

- ¼" NPT Female
- ¼" NPT Female Brass Swivel
- ¼" NPT Male
- ⅛" NPT Female
- ⅛" NPT Male
- ⅛" NPT Male with Elbow
- Chemetron® Female
- Chemetron Male
- Chemetron Male with Elbow
- DISS Handtight Female
- DISS Handtight Female with Elbow
- DISS Hex Nut Female
- DISS Hex Nut with Elbow
- DISS Male No-demand Check
- DISS Male No-demand Check with Elbow
- MedStar Female
- MedStar Male
- Ohmeda Diamond Female
- Ohmeda Diamond Male
- Ohmeda Diamond Male with Elbow
- Oxequip® Male
- Oxequip Male with Elbow
- Puritan® Female
- Puritan Male
- Puritan Male with Elbow
- Schrader Female
- Schrader Male

Outlet Connection

- ¼" NPT Female
- ¼" NPT Female Brass Swivel
- ¼" NPT Male
- ⅛" NPT Female
- ⅛" NPT Male
- ⅛" NPT Male with Elbow
- Chemetron Female
- Chemetron Male
- Chemetron Male with Elbow
- DISS Handtight Female
- DISS Handtight Female with Elbow
- DISS Hex Nut Female
- DISS Hex Nut with Elbow
- DISS Male No-demand Check
- DISS Male No-demand Check with Elbow
- MedStar Female
- MedStar Male
- Ohmeda Diamond Female
- Ohmeda Diamond Male
- Ohmeda Diamond Male with Elbow
- Oxequip Male
- Oxequip Male with Elbow
- Puritan Female
- Puritan Male
- Puritan Male with Elbow
- Schrader Female
- Schrader Male

Hose Type:

- Conductive ¼"
- Non-conductive ¼"

Not all configurations are possible. Not all configurations carry the CE Mark. MR Conditional hose assemblies and other configurations are available. Please contact your Airgas Healthcare Sales Representative for more options.

Cannulas and Tubing

Ultra-soft Cannulas

- Offer flex-soft fit for the ultimate in comfort
- Reduce irritation behind the ears

Demand Cannulas

- Offer one-nasal prong
- Sense inhalation while other delivers oxygen
- Smooth bore tubing enhance sensitivity of inhalation effort

High-flow, Ultra-soft Cannulas

- Offer flex-soft fit for the ultimate in comfort
- Reduce irritation behind the ears
- High-flow cannula, 6–15 LPM

Adult Micro Specialty Cannulas

- Lightweight and compact
- Ideal for patients with flow rates 3 LPM or less

Infant and Pediatric Specialty Cannulas

- Feature ulta-soft cannula design with flex-soft fit
- Reduce irritation behind the ears

Part Number	Description	UOM
❶RRI220-1604	Ulta-soft Cannula, 4' Safety Tubing	50/CS
❶RRI220-1604-5	Ulta-soft Cannula, 4' Safety Tubing	5/PK
❶RRI220-1617	Ulta-soft Cannula, 7' Safety Tubing, Green	50/CS
❶RRI220-1617-5	Ulta-soft Cannula, 7' Safety Tubing, Green	5/PK
❶RRI220-1804	Ulta-soft Cannula, 7' Safety Tubing, Demand	25/CS
❶RRI220-1607	Comfort Plus Cannula, 7' Safety Tubing	50/CS
❶RRI220-1607-5	Comfort Plus Cannula, 7' Safety Tubing	5/PK
❶RRI220-1625	Comfort Plus Cannula, 7' Safety Tubing	25/CS
❶RRI220-1625-5	Comfort Plus Cannula, 7' Safety Tubing	5/PK
❶RRI220-1560	Earmates	50/CS
❶RRI220-1604-H	High Flow, Ulta-soft Cannula 4' Safety Tubing	25/CS
❶RRI220-1607-H	High Flow, Ulta-soft Cannula 7' Safety Tubing, Green	25/CS
❶RRI220-1625-H	High Flow, Ulta-soft Cannula 25' Safety Tubing, Green	10/CS
❶RRI220-1707	Cannula, 7' Safety Tubing, Adult ≤3 LPM	50/CS
❶RRI220-1707-5	Cannula, 7' Safety Tubing, Adult ≤3 LPM	5/PK
❶RRI220-1737	Cannula, 7' Safety Tubing, Ulta-soft, Infant	50/CS
❶RRI220-1737-5	Cannula, 7' Safety Tubing, Ulta-soft, Infant	5/PK
❶RRI220-1757	Cannula, 7' Safety Tubing, Ulta-soft, Pediatric	50/CS
❶RRI220-1757-5	Cannula, 7' Safety Tubing, Ulta-soft, Pediatric	5/PK

❶RRI220-1604-5

❶RRI220-1625-H

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Masks and Nebulizer Kits

Oxygen Masks

- Medium and high concentration masks with 7' safety tubing
- High concentration masks include reservoir bag
- Latex free, clear soft vinyl for patient comfort
- Adjustable straps
- One size fits most—flexible elongated shape with molded nose bridge fits most faces, reducing inventory

Adult Nebulizer Mask Kit

- Includes swiveling aerosol mask with 7' safety tubing and medication bowl
- Swiveling mask ensures patient comfort during therapy

Pedi-pacifier Pediatric Nebulizer Kit

- Ideal for children 2 and under
- Pacifier calms the child and allows direct medication through nasal inhalation
- Includes: Pacifier, 7' safety tubing, medication bowl, and elbow or tee with flex hose

Part Number	Description	UOM
❶RRI220-1520	Medium Concentration Mask	50/CS
❶RRI220-1520-5	Medium Concentration Mask	5/PK
❶RRI220-1525	High Concentration, Non-rebreather Mask with Reservoir Bag	50/CS
❶RRI220-1525-5	High Concentration, Non-rebreather Mask with Reservoir Bag	5/PK
❶RRI220-1535	Adult Bi-flow Mask with 7' Tubing	25/CS
❶RRI220-1535-5	Adult Bi-flow Mask	5/PK
❶RRI220-1540	Pediatric Bi-flow Mask with 7' Tubing	25/CS
❶RRI220-1540-5	Pediatric Bi-flow Mask	5/PK
❶RRI220-1510	Adult Aerosol Mask	50/CS
❶RRI220-1510-5	Adult Aerosol Mask	5/PK
❶RRI220-1515	Pediatric Aerosol Mask	50/CS
❶RRI220-1515-5	Pediatric Aerosol Mask	5/PK
❶RRI220-1210	Adult Nebulizer Kit	50/CS
❶RRI220-1210-5	Nebulizer Kit	5/PK
❶RRI220-1215	Adult Nebulizer Mask Kit	50/CS
❶RRI220-1215-5	Nebulizer Mask Kit	5/PK
❶RRI220-1221	Pediatric Nebulizer Kit	50/CS
❶RRI220-1221-5	Pediatric Nebulizer Kit	5/PK
❶RRI220-1225	Pedi-pacifier Nebulizer Kit with Elbow	12/CS

❶RRI220-1225

❶RRI220-1520

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Personal Protective Equipment and Signage

Strengthen your compliance with OSHA and NFPA with support from a QSSP-certified Airgas Safety Specialist. It's the perfect opportunity to ask questions and learn more about safety equipment, procedures and regulations from one of our field-trained and industry-educated safety experts. Our goal is to help you create an overall safer work environment.

❶MCRN193-2

❶MCRDF-850-L

❶N33G99CRBERLGMA

❶SEL14350

❶SELS39110

❶N33A02CRC24X48

Gloves

Part Number	Description	Size*	UOM
❶MCRN19-*	Ansell Exam, Nitrile, 3.1 mil, Powder Free, Cobalt	1, 2, 3, 4	BX
❶MCRDF-850-*	Ansell Exam, Vinyl, Disposable, 9.1", 3.1 mil	S, M, L, XL	BX
❶RAD6405789*	RADNOR™ Exam, Latex, Disposable, Powder Free, 9.1", 4.5 mil, Textured	6, 7, 8, 9	BX
❶B13M7500PF*	SHOWA Exam, Nitrile, Disposable, 4 mil, Biodegradable, Blue	S, M, L, XL	BX

*To complete Part Numbers, insert sizes: 1, 2, 3, 4 or 6, 7, 8, 9 or S, M, L, XL

Cryogenic PPE

Part Number	Description	Size	UOM
❶N33G99CRBER*MA	National Safety Apparel® Cryogenic, Nylon, Water Resistant, 14" Mid-arm Length	M, L, XL	PR
❶N33G99CRBER*EL	National Safety Apparel Cryogenic, Nylon, Water Resistant, 17" Elbow Length	M, L, XL	PR
❶RAD64051120	RADNOR Classic Plus, Clear Safety Glasses with Clear Hard-coat Lens	One Size	EA
❶SEL14350	Sellstrom® Faceshield, Medical Splash, Clear, PETG Lens with Nylon Headband	9" x 14" x 0.020	EA
❶N33A02CRC24X36	National Safety Apparel Cryogenic Apron Bib	24" x 36"	EA
❶N33A02CRC24X48	National Safety Apparel Cryogenic Apron Bib	24" x 48"	EA
❶SEL14350	Sellstrom Medical Faceshield, Clear PEG/Nylon Lens with Nylon Headband	9" x14" x 0.020"	EA
❶SELS39110	Sellstrom Single Crown, Blue Plastic Faceshield with Ratchet Headgear and Clear Acetate Shield	8" x 12" x 0.04"	EA

*To complete Part Numbers, insert sizes: 1, 2, 3, 4 or 6, 7, 8, 9 or S, M, L, XL

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

❶RAD64051201

❶3MRSF201AF

❶DPPIC701SWH0000

❶K4590012

❶DPPPB125SWHXL00

❶DPPTY125SWHLG00

Eyewear

Part Number	Description	UOM
❶RAD64051201	RADNOR™ Safety Glasses, Clear, Anti scratch, Retro Blue, Adjustable	EA
❶RAD64051101	RADNOR Safety Glasses, Clear, Visitor Spec Series, with Clear Sideshield	EA
❶RAD64005095	RADNOR Goggle, Chemical Splash, Indirect Vent, Clear Lens	EA
❶RAD64051120	RADNOR Safety Glasses, Clear Classic Plus	EA
❶3MRSF201AF	3M™ Safety Glasses, Clear Impact-resistant Lens	EA
❶3MRSF3701SGAF-BLU	3M Safety Glasses, Blue with Clear Anti-fog Lens	EA

Gowns and Coveralls

Part Number	Description	Size	UOM
❶K4569988	Keystone Safety Yellow Isolation Gown	XL	CA
❶K4569981	Keystone Safety Blue Isolation Gown		BX
❶K4590012	Keystone Safety Evolution Surgical Gown	L	BX
❶DPPIC701SWH0000	DuPont™ Isoclean® Gown		CA
❶DPPPB125SWH**00	DuPont Proshield® 10 Elastic Wrist and Ankle Coverall	M–7X	CA
❶DPPTY125SWH**00	DuPont Tyvek® 400 Elastic Wrist and Ankle Coverall	M–7X	CA
❶DPPTY212SWH**00	DuPont Tyvek 400 White Labcoat	S–7X	CA

**To complete Part Numbers, insert sizes: S, M, L, XL, 2X, 3X, 4X, 5X, 6X or 7X

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❶3MR1870PLUS

❶MOL1512

❶3MRTR-300NPLUSHKS

❶RAD64055473

❶MOL1511

❶3MR1860

Masks and Respiratory Protection

Part Number	Description	Size	UOM
❶3MR1870PLUS	3M™ N95 Disposable Mask, Particulate Respirator/Surgical, Ind Pkg	One Size	CA
❶MOL1510	Moldex® N95 Disposable Particulate Respirator/Surgical Mask, Latex Free	XS	CA
❶MOL1511	Moldex N95 Disposable Particulate Respirator/Surgical Mask, Latex Free	S	CA
❶MOL1512	Moldex N95 Disposable Particulate Respirator/Surgical Mask, Latex Free	M	CA
❶MOL1513	Moldex N95 Disposable Particulate Respirator/Surgical Mask, Latex Free	L	EA
❶3MR1860	3M N95 Disposable Particulate Respirator, Particulate 1	One Size	BX
❶3MR1860S	3M N95 Disposable Respirator/Surgical Mask	S	BX
❶3MRTR-300NPLUSHKS	3M Versaflo™ Powered Air Purifying Respirator Kit	S–M	CA
❶3MRTR-300NPLUSHKL	3M Versaflo Powered Air Purifying Respirator Kit	M–L	CA

Footwear Covers

Part Number	Description	Size	UOM
❶RAD64055473	RADNOR™ Blue Disposable, Polypropylene, Elastic Top, None-skid Shoe/Boot Cover	One Size	BX
❶ECLSI-7200	CleanPro® Stationary Shoe Cover Dispenser	One Size	EA
❶ECL7FWT-80HC	CleanPro Blue Shoe Cover with Traction Sole (80/Bundle)	One Size	BD

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❶RAD64055409

❶K20110TVK21

❶AU391227

❶AU321760

Bouffants

Part Number	Description	Size	UOM
❶RAD64055409	RADNOR™ White Polypropylene Bouffant Cap (100/Bag)	24"	CA
❶K20110TVK21	Keystone® White Tyvek® Bouffant Cap	21"	BX

Bloodborne Pathogen Kits

Part Number	Description	UOM
❶AU391227	Acme-United Personal Protection 5-Day Hygiene Kit	CA
❶AU321760	Acme-United Bloodborne Pathogen Spill Clean-up Kit (22 Pieces)	BX

Disinfectants

Part Number	Description	UOM
❶3MB048011-29612	3M™ Cleaner TB Quat Disinfectant (1 quart size)	CA
❶N24P22884	Sani Professional® Disinfecting Sani-cloth Wipe	BX

❶3MB048011-29612

❶WARNING: Cancer and reproductive harm www.p65warnings.ca.gov

Plastic Signage

Part Number	Accuform Sign® Description	Size
❶A81MCPG800VP	Cylinder Chain Notice	7" x 10"
❶A81MCHL113VP	Danger Carbon Dioxide	10" x 14"
❶A81MCPG018VP	Danger Compressed Air	7" x 10"
❶A81MCHL115VP	Danger Liquid Nitrogen	10" x 14"
❶A81MCHL173VP	Danger Nitrogen	7" x 10"
❶A81MCHL168VP	Danger Oxygen	7" x 10"
❶A81MCPG566VP	Air Empty Cylinder	7' x 10"
❶A81MCPG522VP	Carbon Dioxide Empty Cylinder	10" x 14"
❶A81MCPG595VP	Empty Cylinder	7" x 10"
❶A81MCPG568VP	Helium Empty Cylinder	7" x 10"
❶A81MWLD506VP	Empty Nitrogen Cylinder	10" x 14"
❶A81MCPG570VP	Empty Nitrogen Cylinder	7" x 10"
❶A81MCPG558VP	Nitrous Oxide Empty Cylinder	10" x 14"
❶A81MWLD502VP	Empty Oxygen Cylinder	10" x 14"
❶A81MCPG567VP	Air Full Cylinder	7" x 10"
❶A81MCPG519VP	Carbon Dioxide Full Cylinder	10" x 14"
❶A81MCPG593VP	Full Cylinder	7" x 10"
❶A81MCPG569VP	Full Helium Cylinder	7" x 10"
❶A81MCPG571VP	Full Nitrogen Cylinder	7" x 10"
❶A81MWLD508VP	Full Nitrogen Cylinder	10" x 14"
❶A81MCPG557VP	Nitrous Oxide Full Cylinder	10" x 14"
❶A81MWLD504VP	Full Oxygen Cylinder	10" x 14"
❶A81MCHL656VP	Caution Oxygen No Open Flames	10" x 14"
❶A81MQTL942VP	Quality Assurance Quarantine Area	7" x 10"
❶A81MCPG502VP	Valve Cap Warning	10" x 14"
❶A81MCHL671VP	OSHA Caution Quarantine Area	7" x 10"
❶A81MCPG005VP	Danger Gas Cylinder Storage Area	7" x 10"
❶A81MADM023VP	Authorized Personnel Only	7" x 10"
❶A81MPPA001VP	Danger Safety Glasses Required	7" x 10"
❶A81ZFD101XV	Adhesive NFPA Placard	10" x 10"
❶A81ZRS409	Red/White Aluminum Safety Data Sheet Center	20" x 15"

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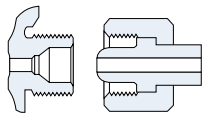
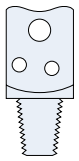
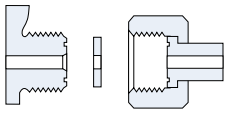
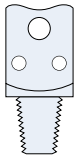
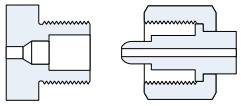
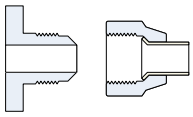
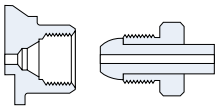
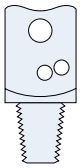
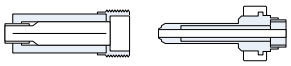
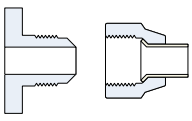
Cylinder Valve Connections

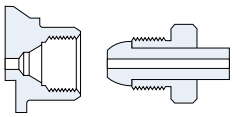
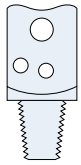
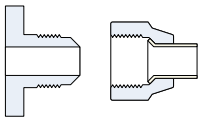
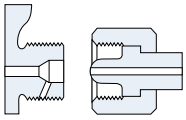
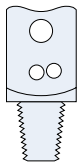
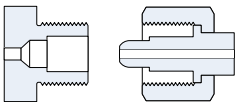
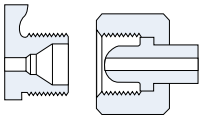
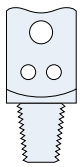
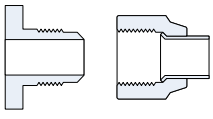
Cylinder valves for medical gas applications are regulated by the Compressed Gas Association (CGA). Pamphlets V-1 and V-7.1 provide the standards that apply to the dimensions for manufacturing new cylinder valve outlet and inlet connections, as well as the selection of appropriate cylinder valve outlet connections for medical gases at pressures up to 3000 psi at 70ºF. When applying these standards, the term medical gases means liquefied, non-liquefied, or cryogenic gas alone or in combination with other gases that are drugs or medical devices as defined by the Federal Food, Drug and Cosmetic Act, or other applicable regulations.

- The scope of the standard is to provide connections that minimize the possibility of hazardous or incompatible misconnections of gases.
- Non-medical gas cylinder valves used in the healthcare industry must use standard compressed gas connections as identified in CGA V-1.
- It is highly recommended that valve adapters not be used when connecting valves to regulators, as hazardous conditions or incompatible misconnections become more likely.

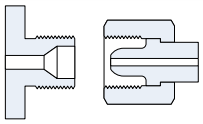
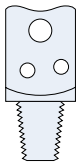
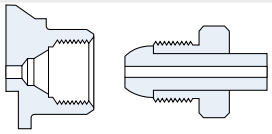
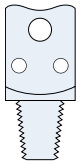
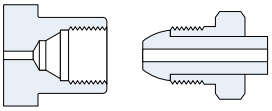
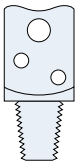
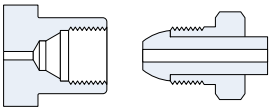
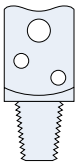
Pure Gases and Assigned Connections

Gas	CGA	Configuration	
Air USP			
Up to 3000 psi Threaded	346		0.825" – 14 NGO RH EXT (Large Round Nipple) for Air
Yoke	950		Medical Cylinder Yoke Connection for Air
Carbon Dioxide USP			
Up to 3000 psi Threaded	320		0.825" – 14 RH EXT (Flat Nipple) with Gasket for Carbon Dioxide
Yoke	940		Medical Cylinder Yoke Connection for Carbon Dioxide and Carbon Dioxide/Oxygen Mixtures (CO_2 >7.0%)
Refrigerated Liquid Withdrawal	622		1.030" – 14 NGO RH EXT for Refrigerated Liquid Withdrawal of Carbon Dioxide
Refrigerated Liquid Vent	295		0.750" – 16 UNF 2A RH EXT (1/2" SAE Flare) for Cryogenic Liquid Withdrawal, Filling and Liquid Cylinder Venting of Carbon Dioxide
Helium USP			
Up to 3000 psi Threaded	580		0.965" – 14 RH INT for Helium and Nitrogen
Yoke	930		Medical Cylinder Yoke Connection for Helium and Helium/Oxygen Mixtures (He >80.0%)
Cryogenic Liquid Withdrawal	792		1.500" – 12 UNF 2A RH EXT for Cryogenic Liquid Withdrawal of Helium
Cryogenic Vapor Vent	295		0.750" – 16 UNF 2A RH EXT (1/2" SAE Flare) for Cryogenic Liquid Withdrawal, Filling and Liquid Cylinder Venting of Helium

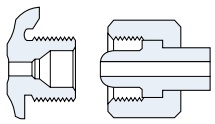
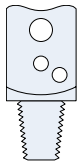
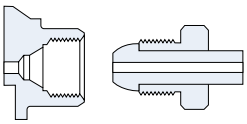
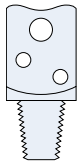
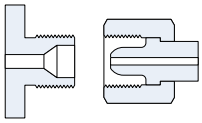
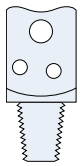
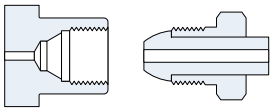
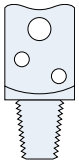
Pure Gases and Assigned Connections (cont'd.)

Gas	CGA	Configuration	
Nitrogen NF			
Up to 3000 psi Threaded	580		0.965" – 14 RH INT for Helium and Nitrogen
Yoke	960		Medical Cylinder Yoke Connection for Nitrogen
Refrigerated Liquid Withdrawal and Refrigerated Liquid Vent	295		1.030" – 14 NGO RH EXT for Refrigerated Liquid Withdrawal of Nitrogen
Nitrous Oxide USP			
Up to 3000 psi Threaded	326 (Formerly CGA 1320)		0.825" – 14 RH EXT (Small Round Nipple) for Nitrous Oxide
Yoke	910		Medical Cylinder Yoke Connection for Nitrous Oxide
Refrigerated Liquid Withdrawal and Refrigerated Liquid Vent	624		1.030" – 14 NGO RH EXT for Refrigerated Liquid Withdrawal and Liquid Cylinder Venting of Nitrous Oxide
Oxygen USP			
Up to 3000 psi Threaded	540		0.903" – 14 RH EXT for Oxygen
Yoke	870		Flush-out Yoke Connection for Oxygen
Cryogenic Liquid Withdrawal	440		0.875" – 14 UNF 2A RH EXT (⅝" SAE Flare) for Cryogenic Liquid

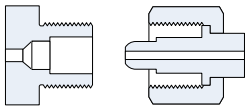
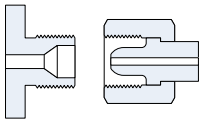
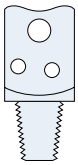
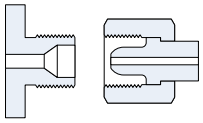
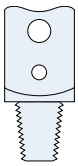
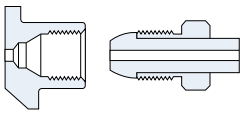
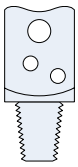
Gas Mixtures and Assigned Connections

Gas	CGA	Configuration	
Carbon Dioxide and Oxygen (CO_2 <7%)			
Threaded	280		0.745" – 14 NGO RH EXT for Carbon Dioxide/ Oxygen Mixtures (CO_2 <7.0%)
Yoke	880		Medical Cylinder Yoke Connection for Carbon Dioxide/ Oxygen Mixtures (CO_2 <7.0%)
Carbon Dioxide and Oxygen (CO_2 >7%)			
Threaded	500		0.885" – 14 NGO RH INT (Bullet Nipple) for Carbon Dioxide/Oxygen Mixtures (CO_2 >7.0%)
Yoke	940		Medical Cylinder Yoke Connection for Carbon Dioxide and Carbon Dioxide/Oxygen Mixtures (CO_2 >7.0%) Medical Cylinder Yoke Connection for Carbon Dioxide/ Oxygen Mixtures (CO_2 >7.0%)
Biological Atmosphere (O_2 <23.5%)			
Threaded	500		0.885" – 14 NGO RH INT (Bullet Nipple) for Nonflammable, Non-corrosive Diagnostic and Medically Related Gas Mixtures
Yoke	973		Medical Cylinder Yoke Connection for Nonflammable, Non-corrosive Diagnostic and Medically Related Gas Mixtures (CO_2 <23.5%)
Blood Gas			
Threaded	500		0.885" – 14 NGO RH INT (Bullet Nipple) for Nonflammable, Non-corrosive Diagnostic and Medically Related Gas Mixtures
Yoke	973		Medical Cylinder Yoke Connection for Nonflammable, Non-corrosive Diagnostic and Medically Related Gas Mixtures

Gas Mixtures and Assigned Connections (cont'd.)

Gas	CGA	Configuration	
Anaerobic Biological Atmospheres with Flammable Component			
Threaded	350		0.825" – 14 LH EXT for Hydrogen Mixtures
Yoke	981		Medical Cylinder Yoke Connection for Gas Mixtures Assigned to CGA 350 and Not Having Another Medical Yoke CGA Connection Assignment
Medical Laser			
Threaded	580		0.965" – 14 RH INT (Bullet Nipple) for Carbon Dioxide/ Oxygen Mixtures (CO_2 >7.0%)
Yoke	973		Medical Cylinder Yoke Connection for Nonflammable, Non-corrosive Diagnostic and Medically Related Gas Mixtures
Helium and Oxygen (He ≤ 80%)			
Threaded	280		0.7455" – 14 RH EXT for Helium/Oxygen Gas Mixtures (He ≤80.0%)
Yoke	890		Medical Cylinder Yoke Connection for Helium/Oxygen Gas Mixtures (He ≤80.0%)
Lung Diffusion			
Threaded	500		0.885" – 14 NGO RH INT (Bullet Nipple) for Lung Diffusion Mixtures
Yoke	973		Medical Cylinder Yoke Connection for Lung Diffusion Mixtures

Gas Mixtures and Assigned Connections (cont'd.)

Gas	CGA	Configuration	
Therapeutic Nitric Oxide			
Threaded	626		1.030" – 14 NGO RH EXT for Therapeutic Nitric Oxide Mixtures
Yoke	Not Permitted		
Nitrogen and Oxygen (Oxygen >23.5%)			
Threaded	280		0.7455" – 14 RH EXT for Oxygen/ Nitrogen Mixtures (O_2 >23.5%)
Yoke	890		Medical Cylinder Yoke Connection for Oxygen/ Nitrogen Mixtures (O_2 >23.5%)
Nitrous Oxide and Oxygen (Nitrous Oxide 47.5%–52.5%)			
Threaded	280		0.7455" – 14 RH EXT for Oxygen/Nitrous Oxide Mixtures (N_2O 47.5%–52.5%)
Yoke	965		Medical Cylinder Yoke Connection for Oxygen/ Nitrous Oxide Mixtures (N_2O 47.5%–52.5%)
Oxidizing			
Threaded	296		0.803" – 14 RH for Certain Oxidizing Mixtures
Yoke	977		Medical Cylinder Yoke Connection Not Having Another Medical Yoke or CGA Connection Assignment

Post Valve or Pin Index Safety Systems (Yoke Style)

Pin Index Safety Systems should be limited to E-size or smaller cylinders and must be labeled as either a drug or a medical device. CGA connections are labeled on the valve. Please note that the only exception to this is connection CGA 950, which is designated for breathing air and Air USP. Connections using the Pin Index Safety System can be used to calibrate the medical equipment or instrumentation used to analyze medical gases.

Pin Index Safety Systems include any non-threaded type of connection to the valve outlet where non-interchangeability among connections is maintained through a varied and specified series of holes in the valve; matching pins will meet in the connecting yoke. To ensure proper gas connections, never remove the pins from the connecting yoke.

Each E-size or smaller post valve cylinder includes a dust cover and spare gasket. The dust cover provides protection from unwanted ambient debris. Also, it indicates if gas has been withdrawn from the cylinder. If a cylinder is delivered without the dust cover, please reach out to your Airgas Healthcare customer service team to obtain a replacement cylinder.

The gasket provides a gas-tight connection to the yolk. Replace it every time you change the cylinder, and do not use more than one gasket at a time. With the regulator or yoke connector attached, slowly open all the valves.

Threaded Outlet for Valves with Handwheels

Threaded outlets, much like Pin Index Safety Systems, provide a system that prevents interchangeability of incompatible gases. Internal, external, right-handed, and left-handed orientations with varying diameters of the seats and nipples provide this protection to the end user. Each valve is labeled with the CGA connection number for valve identification purposes.

Some connections do not provide gas-tight seals on their own and require a washer or O-ring and a hand-tight connection to secure the nipple within the connection. Pay special attention to not over-tighten these connections as the washer or O-ring can be damaged, which will diminish the integrity of the gas-tight connection.

Label Information

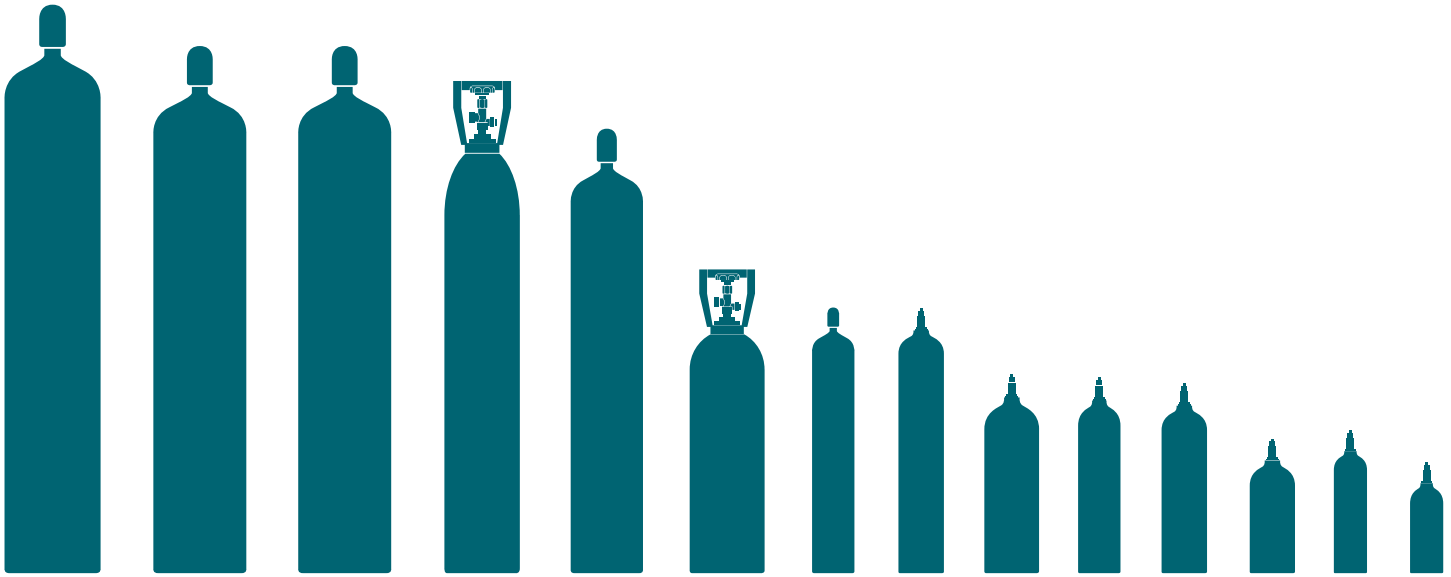
All medical gases meet the specifications of CGA C-7, “Guide for the Safe Storage, Handling, and Use of Portable Liquid Oxygen Systems in Healthcare Facilities,” and FDA 21 CFR Parts 201 and 610. Airgas Healthcare medical device mixtures meet FDA 21 CFR Part 801 “Labeling” specifications.

Markings and labels are the primary means for identifying the gas contents of a cylinder. Airgas Healthcare legibly marks the chemical name or commercially accepted name of the material on the cylinder. To ensure applicability and compatibility of system components, rely on these markings to identify contents and understand the properties and hazards of the gas or gases.

High-pressure Cylinders for Medical Gas

Get the right amount of medical gas to keep your patients safe, avoid runout and maintain your schedules. Airgas Healthcare offers a variety of cylinder sizes designed for convenience. Please contact your Airgas Healthcare representative for more information.

Size Comparison Chart



Size	DOT Specification	Material	Service Pressure		Oxygen Volume		Dimensions				Content Weight (avg)	
							Diameter		Length			
			psig	bar	cf	liter	in	mm	in	mm	lb	kg
300	3AA2400	Steel	2400	165	337	9540	9.3	235.0	55.0	1397.0	27.9	12.6
250	3AA2265	Steel	2265	156	281	7960	9.0	228.6	51.0	1295.4	23.3	10.5
200	3AA2015	Steel	2215	153	251	7100	9.0	228.6	51.0	1295.4	20.5	9.3
150A	DOT-3AL	Aluminum	2015	139	153	4333	7.3	185.4	46.5	1181.1	13.0	5.9
125	3AA2015	Steel	2015	139	127	3540	7.0	177.8	43.0	1092.2	10.5	4.8
60A	DOT-3AL	Aluminum	2216	153	61	1702	7.3	184.2	23.0	584.2	5.0	2.3
E	3AA2015	Steel	2015	139	25	697	4.1	104.1	25.7	652.8	2.0	0.9
EA	DOT-3AL	Aluminum	2015	139	24	679	4.4	111.8	25.6	650.2	2.0	0.9
M22	DOT-3AL	Steel	2216	153	23	652	5.3	134.6	17.0	431.8	1.9	0.9
D	DOT-3AL	Steel	2015	139	15	427	4.1	104.1	16.7	424.2	1.3	0.6
DA	DOT-3AL	Aluminum	2015	139	15	425	4.4	111.8	16.5	419.1	1.3	0.6
M9	DOT-3AL	Steel	2015	139	9	250	4.4	111.8	10.9	276.9	0.8	0.3
M6	DOT-3AL	Steel	2216	153	6	170	3.2	81.3	11.8	299.7	0.5	0.2
M4	DOT-3AL	Steel	2216	153	4	113	3.2	81.3	9.0	228.6	0.3	0.1

Cylinder Handling and Storage

The CGA P-1 standard outlines procedures for the safe handling of compressed gases in containers. Additionally, the CGA SB-31 document provides critical information related to the hazards of oxygen in healthcare environments, emphasizing safety measures necessary in such settings.

Magnetic Resonance Environment

Compressed medical gas cylinders, including their valves, regulators, and any associated equipment, must not be present in the same room as an MRI device unless such equipment is verified to be non-magnetic and has been specifically tested for suitability within that environment. For inquiries regarding the appropriateness of equipment for MRI use, please consult your Airgas Healthcare representative. For further guidance, refer to ASTM F2503, which details standards for marking medical devices and other items for safety within the magnetic resonance environment.

Safe Practices When Handling Compressed Medical Gas Cylinders

- Ensure that all piping, regulators, and associated equipment are securely fastened to prevent leakage.
- Verify that hoses are in proper working order, free of any nicks, cuts, or crimps.
- Maintain a safe distance between cylinders or equipment and any potential sources of sparks or flames.
- Keep the cylinder valve fully open while in use to ensure proper gas flow.
- Ensure that all cylinder markings and labels are completely visible. Remove any obstructions during use.
- Identify gas contents solely by the labeled identification. If a cylinder lacks a label or if the label is illegible, contact your Airgas Healthcare representative for assistance.
- If the label does not accurately reflect the gas contained within the cylinder, please notify your Airgas representative for corrective measures.
- Before using a cylinder, thoroughly read and understand all warnings and safety precautions indicated on the labels or markings.
- When a cylinder approaches empty, retain residual pressure within the cylinder and close the valve completely before detaching or replacing the cylinder.
- Ensure that the protective cylinder cap or any outlet caps are secured before returning the cylinder to Airgas.
- Do not attempt to repair any component of the cylinder or valve. Report any issues to Airgas Healthcare and tag the cylinder for maintenance attention.
- Keep cylinder valves securely closed when not in active use.
- Inform Airgas Healthcare if you suspect foreign substances having back-flowed into the cylinder. Mark the affected cylinder(s) and report the concern promptly.
- Document any dissatisfaction regarding identity, quality, durability, reliability, safety, effectiveness, or performance. Immediately inform Airgas Healthcare with comprehensive details of the complaint, including lot or cylinder serial numbers. Also, quarantine the product to prevent inadvertent use.
- Ensure that only experienced and adequately trained personnel are assigned to handle compressed gases.
- Use leak detection instruments or non-hydrocarbon based leak detection solutions for identifying gas leaks. The use of an open flame for leak detection is strictly prohibited.
- When conducting liquid oxygen transfilling operations, position the reservoir system on non-combustible surfaces, such as concrete and ensure that the area is well-ventilated.
- Should your facility use Nitrous Oxide, it is advisable to obtain and comply with the Nitrous Oxide Fact Sheet, which is available on the CGA's website at www.cganet.com.
- Liquefied gas cylinders, including Carbon Dioxide and Nitrous Oxide, should be stored and used in an upright position unless equipped with a dip or educator tube.
- Use Nitrogen NF only for health-related applications, such as powering surgical instruments.
- Lubricant residues on hands or gloves are potential contaminants. Ensure that oil, grease and other combustible materials do not contact cylinders, valves, regulators, gauges, hoses, or fittings. These interactions may result in explosive combinations with oxidizing gases like Oxygen or Nitrous Oxide.
- Employ appropriate regulating equipment for the specified gas application and avoid modifying equipment for use with different gases.
- Mixing gases within cylinders by customer personnel is prohibited. All gas mixtures must be prepared and sourced from Airgas Healthcare.

Safe Practices When Handling Compressed Medical Gas Cylinders (cont'd)

- Filling cryogenic containers directly from the bulk tank supplying the healthcare facility's medical gas pipeline system is prohibited.
- The removal or alteration of any markings used to identify the contents of a container is strictly forbidden.
- Cylinders must not be subjected to temperatures exceeding 125ºF (51.7 °C). Should ambient conditions lead to temperatures surpassing this limit, please consult your Airgas representative for guidance.
- The use of connection adapters is not permitted.
- Modifications or replacements of existing connections are prohibited.
- Pressure relief devices must remain unaltered and untampered with obstructing these devices is also prohibited.
- Cylinders shall only be used to supply the contained gas as received and intended.
- Implement measures to ensure that cylinders do not inadvertently become part of an electrical circuit.
- Customers are prohibited from repainting cylinders; this task shall be executed only by Airgas personnel.
- If containers are connected to a manifold, the manifold must be properly designed and equipped with pressure regulators.
- When opening a valve, point the outlet away from you.

Cylinder Movement

- Moving cylinders presents significant safety hazards for healthcare personnel, patients, and the broader community. Due to their substantial weight and high center of gravity, the safe relocation of cylinders can prove challenging. Personnel responsible for cylinder movement must recognize that the contents are stored under high pressure and that the valves constitute the most vulnerable points of the cylinder assembly. Even cylinders that are deemed "empty" have the potential to cause damage, injuries, or fatalities. Accordingly, thorough training and special precautions are imperative to ensure safe transport.
- When transporting cylinders, it is essential to use cylinder caps, when applicable, to protect the valves during movement. Ensure that the protection cap is securely fitted, and never lift the cylinder by the valve protection cap, as this may result in personal injury if the cap disengages.
- Special attention must be given to E-size cylinders and smaller, as these are typically not equipped with valve protection caps and are particularly susceptible to valve damage if dropped or inverted. Such structural damage, especially when the valve stem is impacted, can lead to operational malfunctions and safety risks. Valves exhibiting bent or mushroomed stems must be promptly removed from service.
- It is advisable to use a suitable hand truck or cart to move cylinders. The cylinder(s) should be secured using the retaining chain, strap, or hook provided with the truck or cart, ensuring that the cylinders are properly fastened.
- Large cryogenic containers and small base reservoir systems should be transported using equipment specifically designed for such purposes. Care must be taken to avoid dropping or forcibly striking cylinders. In the event of a cylinder beginning to fall, personnel should refrain from attempting to catch it.
- Cylinders should never be rolled, dragged, or slid, even over short distances; the cylinder valve must not be employed for the purpose of moving the cylinder.

Storage of Compressed Medical Gases

Government agencies have regulations governing storing compressed gases, including medical gases. Facilities that store and handle small liquid oxygen base and portable units should comply with the guidance contained in CGA P-2.7, "Guideline for the Safe Storage, Handling, and Use of Small Portable Liquid Oxygen Systems in Health Care Facilities." Personnel responsible for storing medical gases must be adequately trained and familiar with the applicable regulations and the facility's cylinder storage policies and procedures.

- Medical gases should be inventoried to allow for first in, first out (FIFO) access.
- Storage rooms should be dry, cool, and well ventilated.
- Where practical, storage areas should be constructed of fire-resistant, noncombustible materials.
- Cylinders and containers must be stored away from heat sources such as radiators and heater vents.
- Combustible, flammable, and/or corrosive materials must be stored away from cylinder storage areas.
- Keep refrigerated liquid CTC/DOT-4L and TC-4LM cylinders in an upright position.
- Protect stored cylinders from potential physical damage. Barriers or other safeguards can be used to protect cylinders.
- Except for when cylinders are being used, ensure that valve protection caps on cylinders that are equipped with threaded collars are installed at all times.
- Request an inspection of each cylinder storage area by the local Fire Marshall.
- Store cylinders and containers so that they do not prohibit access to electrical panels, fire extinguishers, other emergency response equipment, or walkways.
- Operating rooms or other patient areas must not be used for cylinder storage more than what may be required for backup during a procedure.
- Cylinders must not be stored near or exposed to corrosive chemicals or fumes. The resulting corrosion will damage the containers and can cause the valve protection caps to stick.
- Store cylinders away from highly flammable materials or vapors, including oil, gasoline, grease, or other combustible materials.

Cylinder Segregation

- Storage protocols require that cylinders be adequately segregated to prevent product mix-up. All cylinder storage areas should employ adequate signage to identify the status of the cylinders in storage, i.e. EMPTY CYLINDERS, FULL OXYGEN USP, FULL NITROGEN NF, QUARANTINE, etc. Airgas Healthcare personnel can assist with obtaining proper signage.
- To reduce the likelihood of connecting an empty cylinder during a critical time, separate full cylinders from empty cylinders. This can be accomplished in a variety of ways, including signage, spatial distancing, physical barriers, or dividers.
  Empty cylinders do not have to be segregated by gas type.
- Each cylinder storage area should have an area designated for quarantine; this area should be used specifically to store non-conforming products and materials. Quarantine areas can be a designated area separated by a physical barrier or an area that is painted and identified as QUARANTINE. Any nonconforming product identified prior to, during, or after use must be placed in the designated quarantine area and adequately marked or tagged with a brief description of the nonconformance. Also, please notify your Airgas Healthcare representative of any nonconformance.

Cylinder Gas Security

Proper security protocols are critical for safeguarding facilities, employees, and the surrounding community by mitigating the risks associated with a variety of threats and minimizing the consequences of incidents such as vandalism, sabotage, workplace violence, theft or misuse of products, and terrorism. The implementation of robust security measures is pivotal in enhancing the objectives of risk management and ensuring personnel safety.

To deter the theft or diversion of medical gas cylinders, storage areas must be secured and accessible exclusively to authorized personnel. Healthcare facilities that store nitrous oxide cylinders must exercise heightened vigilance concerning security, given the potential for recreational abuse. The CGA SB-6: Nitrous Oxide Security and Control standard provides specific guidelines pertinent to the security of nitrous oxide.

In light of the potential for misuse and/or intentional contamination of compressed gas products and systems used in medical applications, healthcare facilities should conduct regular reviews of their security requirements. The established security protocols should encompass, but are not limited to, the following measures:

- Full and empty cylinders must be stored in a secured location, as empty cylinders may still contain residual product and necessitate appropriate security precautions.
- Access to storage areas should be restricted to authorized personnel only.
- A comprehensive inventory of products should be maintained, and any discrepancies should be thoroughly investigated.

Product Withdrawal

Use the following safe practices when withdrawing compressed medical gases from cylinders:

- The valve protection cap, where applicable, must remain on the cylinder until the withdrawal of contents or the connection to a manifold begins.
- Valves should be kept closed when gas is not actively being dispensed.
- Ensure the valve and regulating equipment are compatible, specifically of the same Compressed Gas Association (CGA) type. Avoid forcing connections that do not properly fit, as adapters are not permitted.
- Under no circumstances should modifications be made to the product withdrawal connections on a container while establishing a connection to a product distribution system.
- To prevent gas leaks, verify that the threads on the regulator-to-cylinder valve connections or the pin-indexing devices on yoke-to-cylinder valve connections are properly mated and securely tightened.
- Certain connections may include O-rings or gaskets that require only hand-tightening.
- Using hammers or non-approved valve wrenches to operate the cylinder valve, whether for opening or closing, is strictly prohibited.
- When opening the cylinder valve, it is advisable to do so slowly by turning the valve counter-clockwise, thereby allowing gas to incrementally enter the regulating device.
- Prior to disconnecting the regulating device, ensure that the cylinder valve is closed by turning it clockwise.
- Adhering to these guidelines is crucial for ensuring safety when handling compressed medical gases.

Cryogenic Liquid Withdrawal

Cryogenic liquids pose significant hazards due to extreme cold and potential expansion. Thus, the following precautions and safe practices must be strictly observed:

- Avoid Skin Contact: Never allow cryogenic liquids or their frosted components to come in contact with your skin.
- Wear Protective Gear: Use heavily insulated gloves. Ensure that gloves are free from oil when handling liquid oxygen.
- A protective face shield is mandatory. Wear long-sleeved shirts made of natural fibers such as wool or cotton, ensuring they are buttoned at the cuffs. Avoid synthetic materials like rayon or polyester.
- Pants and Footwear: Wear long pants without cuffs. Do not tuck pants into boots, as cryogenic liquids can become trapped and cause severe burns.
- Maintenance and Transfer: Wipe or blow off moisture from quick-connect valves between fills to avoid poppets freezing open. Use phase separators with cryogenic transfer lines and a phase separator at low pressure (22 psi) when transferring liquid nitrogen to open lab-type dewars. Always keep cryogenic containers upright.
- Supervision: Never leave transfer filling systems unattended.
- Expansion: Understand that cryogenic liquids expand rapidly when they vaporize. For instance, liquid oxygen expands 860 times its volume at atmospheric pressure and ambient temperature.
- Pressure Safety: Extreme high pressure can rupture transfer lines, containers, and plumbing components with explosive force if relief valves are not appropriately sized or functioning.
- Ventilation and Monitoring: Always withdraw cryogenics in well-ventilated areas. To prevent fire hazards while withdrawing liquid oxygen and to avoid asphyxiation when working with other cryogens, use oxygen monitors in designated filling areas.

Gas Withdrawal

The following precautions and safe practices apply to both facilities and personnel involved in withdrawing gas from cryogenic containers:

- Do not withdraw gas at flow rates that exceed the maximum specified values. High flow rates can lead to extremely low gas temperatures, which may damage components and equipment, posing potential health hazards. In certain conditions, excessively high flow rates can even result in the withdrawal of cryogenic liquid.
- Withdrawing gas from cryogenic containers at high flow rates for extended periods can lead to excessive frost condensation and the accumulation of water. This can damage facilities and create safety hazards.

Supply Systems

- Piping and manifold systems for medical gases from the bulk storage source valve should be constructed in accordance with NFPA 99 and all appropriate local requirements.

Vacuum Systems

- Medical gas and vacuum systems should be maintained in accordance with CGA E-10. It is important to differentiate medical air supply systems from non-medical air systems, such as instrument air.
- CGA V-5, Diameter Index Safety System (Noninterchangeable Low Pressure Connections for Medical Gas Applications) defines noninterchangeable removable connections for use with medical gases at pressures of 200 psi or less. These are threaded connections commonly used with regulators, resuscitation equipment, anesthesia equipment, therapy equipment, wall outlets and other equipment where low pressure medical gases, typically oxygen, USP air and nitrous oxide, are used. DISS connections are also used for vacuum and waste anesthetic gas disposal (WAGD) as well as other gases and gas mixtures. For oxygen, use the CGA 1240 DISS connection.

Important Links

Overview of Airgas Healthcare
Always there for healthcare providers
Transformation of healthcare
Medical gases throughout the hospital care path
INTELLI-OX+™ medical Oxygen cylinder training
WOB+™ Operating Instructions
Safely using, handling and storing compressed gases
PPE and safety products to help keep your team safe
Are you ready to change to bulk gas supply?
Earning & maintaining Joint Commission accreditation
Breathe easier: Avoid medical grade gas runouts

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