AIR LIQUIDE™

Cylinder Gases

www.airliquide.ca

Air Liquide is committed to catering to customers' needs.

Now available, cylinder rental at daily, monthly or yearly rates.

Let us help you choose the option that is best for you!

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For oxy-acetylene applications, size matters! Let us fill you in.

If you're working on small to medium jobs, we have our **DUO**™s in sizes 8/9 or 14/16. When you're looking for no-hassle larger cylinders for those bigger jobs, try our **DUO ALTOP**™ in sizes 23/44.

DUO JUNIOR™

TOTAL WEIGHT kg	TOTAL WEIGHT lb	CYLINDER OXYGEN	CYLINDER ACETYLENE	CHARACTERISTICS	CART HEIGHT mm	CART HEIGHT in	CART WIDTH mm	CART WIDTH in	CART WEIGHT kg	CART WEIGHT lb
30	67	9	8	Tulip caps, cylinder locked into the cart on the top and bottom	1321	52	489	19 1/4	15.4	34

DUO

TOTAL WEIGHT kg	TOTAL WEIGHT lb	CYLINDER OXYGEN	CYLINDER ACETYLENE	CHARACTERISTICS	CART HEIGHT mm	CART HEIGHT in	CART WIDTH mm	CART WIDTH in	CART WEIGHT kg	CART WEIGHT lb
42	92	16	14	Tulip caps, integrated toolbox, cylinder locked into the cart on the top and bottom	1143	45	635	25	11.8	26

DUO ALTOP

TOTAL WEIGHT kg	TOTAL WEIGHT lb	CYLINDER OXYGEN	CYLINDER ACETYLENE	CHARACTERISTICS	CART HEIGHT mm	CART HEIGHT in	CART WIDTH mm	CART WIDTH in	CART WEIGHT kg	CART WEIGHT lb
97	213	44	23	**ALTOP** cap, integrated valve and regulator, protected by a non-removable rugged composite top	1143	45	635	25	15	33

In oxy-acetylene applications, keep safety in mind. Flashbacks occur when the flame passes right through the tip and torch into the hose. It can be very dangerous as it may cause the cylinder to explode. Use flashback arrestors to protect the operator from the hazards of flashbacks.

Oxygen

Oxygen is commonly used in industrial applications in conjunction with acetylene and other fuel gases in processes such as metal cutting, welding, flame hardening, scarfing, cleaning, hard-facing, etc. Oxygen can also be used in medical, aviation and breathing applications.

ITEM NUMBER	SIZE	VOLUME[1] m^3	VOLUME[1] scf	CGA CONNECTION
GAS-OXY9COP / GAS-OXY9TCOP*	9	1.39	50.13	540
GAS-OXY16*	16	2.77	99.90	540
GAS-OXY22	22	3.45	124.78	540
GAS-OXY44 / GAS-OXY44ALTOP**	44	6.90	248.84	540

*[1] m^3 @ 15°C; scf @ 70°F / * with tulip cap / ** in ALTOP cylinder*

Acetylene

Acetylene is a standard fuel gas used in conjunction with oxygen for welding metals and cutting steel, and for allied oxy-acetylene processes for the heating, forming and treating of metals.

Air-acetylene flames also are, in general, used for brass and aluminum soldering and other plumbing applications where the very high temperature of the oxy-acetylene flame is not required.

ITEM NUMBER	SIZE	VOLUME[1] m^3	VOLUME[1] scf	CGA CONNECTION †
GAS-ACE2COP	2	0.28	10.10	200
GAS-ACE8COP / GAS-ACE8TCOP*	8	1.10	39.67	520
GAS-ACE14*	14	2.08	75.01	410
GAS-ACE23 / GAS-ACE23ALTOP**	23	3.60[2]	129.83	410
GAS-ACE69 / GAS-ACE69ALTOP**	69	10.30[2]	371.46	410

*[1] m^3 @ 15°C; scf @ 70°F / [2] Typical volume; actual volume may vary / * with tulip cap / ** in ALTOP cylinder*
† See page 15 for CGA connections information

Air Liquide, over 100 years of experience in flame applications enabled us to create what customers were asking for: easy-to-use cylinders with integrated regulators!

Discover our exclusive solution: **ALTOP**.

ALTOP Packaging

Oxygen and acetylene are available in **ALTOP**, the unique, fully-integrated valve and regulator with an ON/OFF lever that revolutionizes the use of compressed gas. It was created to provide superior safety, ease-of-use and cost efficiency in the most innovative way.

- Gas cylinders ready to use any time, any place; all you need are your torch and hoses
- The right regulator for the job on each cylinder; always operational and ready to supply
- Portable – you can leave everything connected in the back of your truck
- Simple ON/OFF lever
- Gas level shown at all times

MAPP™

MAPP is used in all flame processes in which acetylene, propane and natural gas can be used with oxygen. The air-**MAPP** flame is also used to replace air-acetylene. **MAPP** is ideally suited for use in machine or hand oxy-cutting. **MAPP** is also safer than acetylene because it is less explosive (not sensitive to shock), and of lighter weight making cylinders more portable.

ITEM NUMBER	SIZE	VOLUME		CGA CONNECTION
		kg	lb	
GAS-MAP13	13	5.50	12.13	510
GAS-MAP28	28	13.60	29.98	510
GAS-MAP65	65	31.80	70.11	510
GAS-MAP108	108	52.20	115.08	510

Still using pure gases for welding?

Try our value-added mixed gases:
ALMIG™, ALTIG™, ALFLUX™

Choosing the right gas has never been so easy!

ALMIG, ALTIG, ALFLUX

Shielding gases made easy!

ALMIG is the optimum choice for MIG applications for carbon steel
Low levels of smoke
Low spatter
Excellent weld bead appearance
Ideal for thin-gauge, autobody applications
2.81 m^3 (99.20 ft^3) of gas

ALFLUX, for flux-cored welding of carbon and stainless steels
Minimal smoke and spatter
Versatile
Can also be used for metal-cored and MIG welding of carbon steels
3.03 m^3 (109.27 ft^3) of gas

ALTIG, for TIG applications
Fast puddle initiation
Improved welding power
Fast travel speed
Can also be used for MIG welding of aluminum and non-ferrous alloys
2.79 m^3 (98.50 ft^3) of gas

Air Liquide also offers a wide range of welding shielding gases to cover your needs for quality and consistency in the MIG, TIG and flux-cored processes: **BLUESHIELD™** and **ARCAL™** optimized mixtures.

See page 13 for complete product information.

Did you know proper storage of consumables is essential for good quality welds?

To avoid getting wires dirty or damp, they should be kept in their package in a warm, dry place.

Argon

Argon is an inert gas that is often used in shielded arc processes for welding aluminum, stainless steel, bronze and copper. In these processes, argon is used as a shielded gas, either in pure form or in combination with predetermined percentages of oxygen, carbon dioxide or helium, depending on the metal being welded. The shielding gas provides an inert atmosphere during the welding to prevent oxidation or other chemical change of the metals that would be detrimental to the weld.

Argon is also used for inerting in other industries such as wine-making & food applications.

ITEM NUMBER	SIZE	VOLUME[1]		CGA CONNECTION
		m^3	scf	
GAS-ARG9COP[2]	9	1.38	49.76	580
GAS-ARG22	22	3.44	124.05	580
GAS-ARG50	50	9.33	336.47	580
GAS-ARG50XPR	50 **XPR**	15.06	543.12	680

[1] m^3 @ 15ºC; scf @ 70ºF / [2] COP cylinder without tulip cap or hand wheel

Nitrogen

Nitrogen is used in purging applications for the heating/ventilation/plumbing industries.

Large volumes of nitrogen are required by oil refineries and petrochemical industries for purging and blanketing operations.

Nitrogen is being used at a sharply increasing rate by the food industry. In its liquid form, nitrogen is employed to quick-freeze a wide variety of perishable foods, some of which cannot be successfully frozen by conventional methods. In its gaseous form, nitrogen is used in storage facilities for fresh produce to delay normal ripening and deterioration.

ITEM NUMBER	SIZE	VOLUME[1]		CGA CONNECTION
		m^3	scf	
GAS-NIT9COP	9	1.27	45.80	580
GAS-NIT11	11 AL	1.54	55.54	580
GAS-NIT16*	16	2.51	90.52	580
GAS-NIT50	50	8.45	304.74	580
GAS-NIT50XPR	50 **XPR**	13.02	469.54	680

*[1] m^3 @ 15ºC; scf @ 70ºF / * with tulip cap*

The right size for the right job
Be sure to choose the right cylinder size for your application. You can save on rental fees by leasing smaller cylinder sizes.
Ask your representative to help you determine which size is best for you!

Helium Baloon

One of the major properties of helium is that it's much lighter than air. Consequently, the entertainment industry frequently uses helium to fill balloons.

Take note that inhaling helium can be deadly; it can cause anoxia. Oxygen is needed to maintain life.
If another gas is inhaled, such as helium, it displaces the much-needed oxygen and can cause death.

ITEM NUMBER	SIZE	VOLUME[1] m^3	VOLUME[1] scf	CGA CONNECTION
GAS-HELBAL9COP	9	1.21	43.64	580
GAS-HELBAL11	11 AL	1.47	53.01	580
GAS-HELBAL16*	16	2.40	86.55	580
GAS-HELBAL50	50	8.10	292.11	580

*[1] m^3 @ 15°C; scf @ 70°F / * with tulip cap*

CO_2

In addition to its well-known and extensive use as the carbonating and dispensing medium in the beverage industry, carbon dioxide has numerous other widely varying uses in many different industries.

For example, in metal fabricating operations, CO_2 is widely used as a shielding gas in a semi-automatic welding process.

In the food industry, CO_2 is employed for processing, packaging, transportation and refrigeration of meat products, frozen foods, dairy products and as an inert atmosphere over perishable packaged products.

ITEM NUMBER	SIZE	VOLUME kg	VOLUME lb	CGA CONNECTION
GAS-CO29COP	9	5.90	13.00	320
GAS-CO214	14 AL	9.07	20.00	320
GAS-CO237	37	22.68	50.00	320
GAS-CO244	44	29.30	64.60	320

Welding in confined spaces?

Ventilate the area properly; welding fumes can be hazardous to your health.

Compressed Air

Industrial compressed air is typically used to run pneumatic or air tools, inflate tires and clean parts. Breathing grade compressed air is used in applications requiring a portable source of air to breathe.

	ITEM NUMBER	SIZE	VOLUME[1]		CGA CONNECTION
			m^3	scf	
Industrial grade	GAS-AIR9COP[2]	9	1.31	47.24	346
Industrial grade	GAS-AIR44	44	6.50	234.41	346
Breathing grade	GAS-AIRBRE22	22	3.25	117.21	346
Breathing grade	GAS-AIRBRE44	44	6.50	234.41	346

[1] m^3 @ 15ºC; scf @ 70ºF / [2] COP cylinder without tulip cap or hand wheel

Industrial Helium

Helium is used considerably in the welding industry as an inert shielding gas for arc welding. It is used both as a pure gas and in mixtures with argon for TIG or MIG welding.

On some applications, helium has the advantage over argon in gas-shielded arc welding because it provides greater arc heat for the same welding currents and arc length. This results in deeper penetration, which is preferable for welding heavier materials, when greater welding speed is required, or when metals of high thermal conductivity are to be welded.

ITEM NUMBER	SIZE	VOLUME[1]		CGA CONNECTION
		m^3	scf	
GAS-HEL50	50	8.10	292.11	580

[1] m^3 @ 15ºC; scf @ 70ºF

ALIGAL™

Your top-of-the-line gas solution from food packaging to wine making and beer dispensing.

ALIGAL

The **ALIGAL** family of gases is specifically designed for the food industry. The cylinders are dedicated for use only in the food and beverage industries. Special cylinder filling procedures are followed in order to ensure that the strict quality standards of the food industry are met. **ALIGAL** is your top-of-the-line gas solution from food packaging to beer dispensing.

Gases for the beverage industry

Air Liquide helps you tap into faster and more profitable beer / soft-drink sales. Also used in the winemaking industry to improve the quality of wines.

MIXTURE	TYPICAL APPLICATIONS	CGA CONNECTION	SIZE	VOLUME[1] m^3	VOLUME[1] scf	ITEM NUMBER
ALIGAL 3	For oxygenation of wine, beer and bottled water	540	44	6.90	243.67	GAS-ALG344
ALIGAL BEVERAGE	For carbonated soda beverages and water	320 320 320	14AL 33 37	9.07 kg 22.68 kg 22.68 kg	20.00 lb 50.00 lb 50.00 lb	GAS-ALGBEV14 GAS-ALGBEV33 GAS-ALGBEV37
ALIGAL DRAFT ALE	For dispensing draft ale	580 580	11AL 44	1.76 7.16	62.15 252.85	GAS-ALGALE11 GAS-ALGALE44
ALIGAL DRAFT LAGER	For dispensing draft lager	580 580	11AL 44	2.09 8.60	73.81 303.71	GAS-ALGLAG11 GAS-ALGLAG44
ALIGAL DRAFT STOUT	For dispensing draft stout	580 580	11AL 44	1.65 6.74	58.27 238.02	GAS-ALGSTO11 GAS-ALGSTO44
ALIGAL WINE	For pushing wine tap systems	580 580	11AL 44	1.54 6.32	54.38 223.19	GAS-ALGWIN11 GAS-ALGWIN44

[1] m^3 @ 15°C; scf @ 70°F

Need to preserve the quality and freshness of your products?

ALIGAL is especially designed to reduce oxidative reactions thus ensuring a longer shelf life.

Modified atmosphere packaging applications

ALIGAL is one of the most recognized names for modified atmosphere packaging in the world today. Because different food groups have different shelf life requirements, each **ALIGAL** gas mixture has special properties to enhance colour and appearance, to reduce oxidative reactions or to provide protection against mold and bacteria.

MIXTURE	TYPICAL APPLICATIONS	CGA CONNECTION	SIZE	VOLUME[1] m^3	VOLUME[1] scf	ITEM NUMBER
ALIGAL 1	For nuts, potato chips, lettuce, salad mixes, coffee	580	44	6.32	223.19	GAS-ALG144
ALIGAL 2	For fresh poultry, cheese, bakery products	320 320	37 44	22.68 kg 22.68 kg	50.00 lb 50.00 lb	GAS-ALG237 GAS-ALG244
ALIGAL 3	For fresh red meat, sausage in combination with **ALIGAL 2**	540	44	6.90	243.67	GAS-ALG344
ALIGAL 13	For prepared meals, pizza, pasta, shredded cheese, deli products, fresh salads, vegetables	580	44	7.16	252.85	GAS-ALG1344
ALIGAL 15	For prepared meals, pizza, pasta, bakery goods, cooked meat products, etc.	580	44	6.74	238.02	GAS-ALG1544
ALIGAL 28	For fresh red meat such as beef, lamb, veal, sausage, pork, turkey, etc.	296	44	7.33	258.86	GAS-ALG2844

[1] m^3 @ 15°C; scf @ 70°F

Regardless of the type of steel your are welding, whether thick or thin, Air Liquide has the optimal shielding gas for your application.

Welding Mixtures Selection Guide

TYPE OF METAL / THICKNESS		MIG WELDING WIRE	METAL CORED WIRE WELDING	FLUX-CORED WELDING	TIG WELDING
Mild steel	Thin	ALMIG BLUESHIELD 8 ARCAL 14	ALMIG BLUESHIELD 6 ARCAL 14	ALFLUX ARCAL 211 BLUESHIELD 8	ALTIG
	Thick	BLUESHIELD 23 ALMIG BLUESHIELD 6	BLUESHIELD 6 ARCAL 211 BLUESHIELD 8	ALFLUX ARCAL 211 BLUESHIELD 8	ALTIG BLUESHIELD 1
Low alloy steel	Thin	BLUESHIELD 4 ARCAL 14 BLUESHIELD 6	BLUESHIELD 4 ARCAL 14 BLUESHIELD 6	ALFLUX ARCAL 211 BLUESHIELD 8	ALTIG
	Thick	BLUESHIELD 4 ARCAL 14 BLUESHIELD 23 BLUESHIELD 6	BLUESHIELD 4 ARCAL 14 BLUESHIELD 23 BLUESHIELD 6	ALFLUX ARCAL 211 BLUESHIELD 8	ALTIG BLUESHIELD 1
Stainless steel	Thin	BLUESHIELD 9 ARCAL 121 ARCAL 14	BLUESHIELD 9 ARCAL 121 ARCAL 14	ARCAL 211 BLUESHIELD 8	ALTIG BLUESHIELD 1 BLUESHIELD 11
	Thick	BLUESHIELD 4 ARCAL 14	ARCAL 14 ARCAL 121	ARCAL 211 BLUESHIELD 8	BLUESHIELD 2 BLUESHIELD 11 BLUESHIELD 12
Aluminum / magnesium and alloys	Thin	ALTIG BLUESHIELD 1	—	—	ALTIG BLUESHIELD 1
	Thick	BLUESHIELD 2 BLUESHIELD 3	—	—	BLUESHIELD 2 BLUESHIELD 3
Copper and alloys	Thin	ALTIG BLUESHIELD 1 BLUESHIELD 2	—	—	BLUESHIELD 2
	Thick	BLUESHIELD 2 BLUESHIELD 3	—	—	BLUESHIELD 3
Nickel and alloys	Thin	ALTIG BLUESHIELD 1	—	—	ALTIG BLUESHIELD 1
	Thick	BLUESHIELD 2 BLUESHIELD 3	—	—	ALTIG BLUESHIELD 1 BLUESHIELD 2 BLUESHIELD 3

Contact us.

We'll show you how to improve your welding application with **BLUESHIELD** gases, or optimize it with **ARCAL** shielding gases

BLUESHIELD & **ARCAL** Shielding Gases

Please find below the gas main components and their packaging sizes.

For more information, contact your Air Liquide representative.

NAME	COMPONENTS	SIZE*	VOLUME		CGA CONNECTION	ITEM NUMBER
			m^3	sfc		
BLUESHIELD 1	Argon / Helium	50 50 **XPR**	8.70 15.46	313.80 557.50	580 680	GAS-BLU150 GAS-BLU150XPR
BLUESHIELD 2		50	8.36	301.50	580	GAS-BLU250
BLUESHIELD 3		50	8.03	289.60	580	GAS-BLU350
BLUESHIELD 6	Argon / CO_2	50 50 **XPR**	9.35 15.93	337.20 574.50	580 680	GAS-BLU650 GAS-BLU650XPR
BLUESHIELD 7		50	9.62	346.90	580	GAS-BLU750
BLUESHIELD 8		9 COP 22 50	1.50 3.75 10.30	54.10 135.20 371.50	580 580 580	GAS-BLU89COP GAS-BLU822 GAS-BLU850
BLUESHIELD 9	Helium / Argon / CO_2	50	7.44	268.30	580	GAS-BLU950
BLUESHIELD 11	Argon / Hydrogen	44	6.24	225.00	350	GAS-BLU1144
BLUESHIELD 12		44	6.23	224.70	350	GAS-BLU1244
BLUESHIELD 14		50	8.17	294.60	350	GAS-BLU1450
BLUESHIELD 15	Nitrogen / Hydrogen	44	5.86	211.30	350	GAS-BLU1544
BLUESHIELD 23	Argon / CO_2 / Oxygen	50 50 **XPR**	9.12 15.57	328.90 561.50	580 680	GAS-BLU2350 GAS-BLU2350XPR
ARCAL 14	Argon / CO_2 / Oxygen	50 **XPR**	15.42	556.09	680	GAS-ARC1450XPR
ARCAL 121	Argon / Helium / CO_2	50 **XPR**	13.96	503.44	680	GAS-ARC12150XPR
ARCAL 211	Argon / CO_2 / Helium	50 **XPR** 52 **XPR**	15.34 12.53	553.22 451.88	680 680	GAS-ARC21150XPR GAS-ARC21152XPR

** Take note that bulk packs and liquid cylinders are also available for certain gases.*

From cylinders to bulk, on-site, **FLOXAL**™ and pipelines, Air Liquide supplies gas to its customers to suit their needs.

Look to Air Liquide for all your gas and gas handling requirements!

Hydrogen

As a fuel gas with oxygen, hydrogen produces a relatively low flame temperature of 5,125°F (2,830°C) and it is most useful for the brazing of aluminum and magnesium and for lead welding. Because hydrogen can be safely compressed to overcome underwater pressures, oxy-hydrogen cutting torches are sometimes employed by divers on salvage operations. Mixed in small quantities with argon, hydrogen brings significant improvements in weld quality for stainless steels.

Hydrogen is also increasingly used in plastic brushing applications.

ITEM NUMBER	SIZE	VOLUME[1]		CGA CONNECTION
		m^3	scf	
GAS-HYD44	44	5.41	198.71	350

[1] m^3 @ 15°C; scf @ 70°F

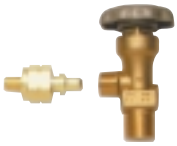
LASAL™

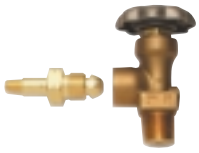
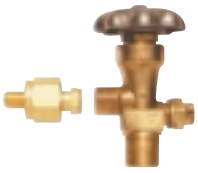
LASAL gases are specifically designed for the laser industry. They offer consistent, high-purity mixtures to increase the output of your equipment. All **LASAL** cylinders are equipped with a check-valve, which maintains a residual positive pressure and eliminates the risk of gas contamination.

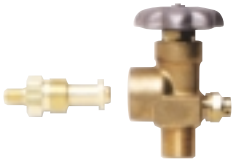
Contact your Air Liquide representative for more information on **LASAL** gases and their applications.

Be sure the valve on your cylinder is always protected!
If the valve or the regulator snapps off the cylinder, all the power is unleashed through an opening no larger than a pencil.
The cylinder will jet away faster than any dragster.
The cylinder will smash trough brick walls.
The cylinder will spin, ricochet, crash and splash through anything in its path.

CGA Cylinder Connections

CGA 200 Acetylene Size 2	CGA 520 Acetylene Size 8	CGA 410 Acetylene Sizes 14, 23, 69
		

CGA 540 Oxygen	CGA 510 **MAPP** and Propane	CGA 320 Carbon Dioxide
		

CGA 580 Argon, Helium, Nitrogen and mixtures	CGA 680 Argon, mixtures and all **XPR** cylinders
	

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1140-252E (04-10) REL. - PRINTED IN CANADA