

# CRYOSPEED®.

Leading edge cryogenic gas supply solutions.



# CRYOSPEED®.



BOC has been supplying cryogenic liquids, gases, equipment and applications for over forty years. We're experts in their safe supply and efficient usage. What we know, we share every day with customers across many different markets. Whatever the size of your business, whether your requirements have outgrown cylinder supply or you require liquid for its cryogenic properties, CRYOSPEED® has a reliable, safe, total gas and equipment supply solution for you.

When you turn to CRYOSPEED® for your cryogenic gas needs, you choose a partner known for reliability, flexibility and expert customer service. CRYOSPEED® customers have the peace of mind that comes from knowing supply is secure and help is always at hand.

## Product range.

Whether your business requires gas or liquid in large or small volumes, CRYOSPEED® can meet your needs by providing a hands free delivery of liquid argon, carbon dioxide, nitrogen and oxygen. Our cryogenic liquids are stored in vacuum insulated vessels which are filled on site by the CRYOSPEED® service operators. To complement the supply of gas, CRYOSPEED® offers a wide range of vessels and equipment to support their safe handling, usage and storage of cryogenic product.

## Delivery.

CRYOSPEED® offers seamless delivery via a compact tanker vehicle which is small enough to accommodate most sites. Our operators will deliver your product without assistance, and have the experience and flexibility to provide true security of supply.

Most CRYOSPEED® customers rely on the simplicity and security of our scheduled delivery service. Our schedulers are experts in understanding customer usage patterns and adapting to changing requirements, so they'll look at your demand and schedule regular deliveries to ensure security of supply.

If you have sporadic demands which make scheduled delivery impractical, that's not a problem. Provided you give us sufficient notice we will fit you into our schedules. Sometimes, unforeseen circumstances can catch us all out leading to an emergency delivery being required. With an extensive distribution network to work with, we'll make every effort to get your supply to you in good time.

# Service.

Our strengths become your advantages.



CRYOSPEED® service operators not only deliver your product when you need it, but provide a regular point of contact.

Highly trained, they provide a truly personal service – practical answers to your product, technical and safety questions, guidance on best practice and advice when developing a service and supply package that works best for you. Through a wealth of experience they can offer advice on the most suitable storage options for you – together with a choice of maintenance packages to ensure you meet current legislation.

The CRYOSPEED® service operators are with you every step of the way in helping you to manage your cryogenic equipment and safety requirements:

- Safely delivering your product when and where you need it
- Providing advice on product and equipment safe handling, usage and storage
- Performing detailed pre-delivery vessel inspections
- Performing annual CRYOCARE inspections of customer-owned Portable Cryogenic Containers of up to 265 litres
- Providing advice on CRYOSPEED®'s cryogenic equipment range, including suitable personal protective equipment
- Giving practical and workable answers to all your technical and safety questions.

## Account management.

Behind the CRYOSPEED® operators, you'll find the strong support of BOC's wider infrastructure. We have a large team of account managers who'll discuss all your process and application requirements – as well as answer a wide range of commercial, service and supply queries.

# Safe storage.

Whether you need cryogenic gas in large or small quantities, we have the storage solution for you.

CRYOSPEED® provides a wide range of cryogenic storage options. All are designed to meet the highest safety and quality standards.

BOC provides pressurised cryogenic stainless steel containers for rent. The rental charge includes all required maintenance activities. BOC's rental system provides our customers the peace of mind that the vessels they are using are safe and supported with a maintenance plan which provides for the continuity of their liquid or gas supply.

Storage type	Capacity	Typical users
Open flasks	0.6 - 66 litres	Laboratory or industrial applications using liquid nitrogen - only short term storage required.
Dewars	2 - 50 litres	Laboratory, clinic or industrial applications using liquid nitrogen - mid-term storage required. Usually used with accessories for mobility or decanting product.
Portable Cryogenic Containers (PCCs)	85 - 265 litres	Laboratory or industrial applications using liquid nitrogen - longer term storage and larger volumes required.

## Dewars and flasks.

Only custom-designed cryogenic equipment should be used to handle cryogenic products. Dewars and flasks are designed for storing or handling small quantities of cryogenic liquid nitrogen. BOC has selected a range that performs to extremely high standards of both quality and safety. Open flasks, non-pressurised dewars, a range of suitable personal protective equipment, gas monitors and accessories are available for purchase.



## Portable Cryogenic Containers.

Portable Cryogenic Containers (PCCs) are portable vacuum and super insulated containers for the transport and storage of cryogenic liquids, and for the dispensing of their contents in either liquid or gaseous form. PCCs typically have a capacity of between 85 and 265 litres of product.

BOC offers a wide range of PCCs. These vessels come in a range of sizes, pressures and flow rates to meet customers' varying requirements.

### Advantages of renting.

- BOC takes the responsibility to ensure that the PCCs are maintained in accordance with the Australian Standards 3788, 1894 and 2030.4
- Routine maintenance and labour is included in the rental price, so there are no unexpected charges
- BOC offers a range of PCC sizes to suit your requirements
- Emergency vessel replacement within 24 hours (metro areas)
- 4 hourly response in the event of a PCC failure (metro areas).

### Customer-owned PCCs.

BOC will fill privately owned PCCs where the customer can demonstrate that they are properly maintained in line with Australian Standards. If customers would prefer not to take on the maintenance requirements of the Australian Standards themselves, BOC offers two CRYOCARE maintenance solutions to cater for your needs.

#### CRYOCARE standard offer.

Meets the requirements of the Australian Standards, including annual external inspections of your PCC and planned maintenance every 5 years to keep your PCC in top condition.

#### CRYOCARE premium offer.

If reliability is what you're after then our CRYOCARE premium offer is for you. This has all the components of our standard offer plus some great extras, including 2 free callouts per year and a free temporary loan unit in the event of a PCC failure\*.

\*Conditions apply. Contact BOC for details.



## Cryotank vessels.

Cryotanks are an ideal solution where larger gas volumes of up to 400m<sup>3</sup> per week are required. They are used for the storage of cryogenic liquids and for the dispensing of their contents in either liquid or gaseous forms. Their design allows for simple, compact, low cost installations.

- There is no need to hire a crane as a fork lift can be used to unload and position the Cryotank
- A flat base means that the Cryotank does not require a reinforced concrete plinth to support its weight
- There is no requirement for 3 phase power to run the delivery tanker filling pump
- Rather than being a separate piece of equipment, the vapouriser is attached to the Cryotank
- Telemetry capability on all Cryotank vessels.



## Specifications.

### High pressure Cryotank vessels.

These vessels are available for nitrogen, oxygen and argon.

Vessel Name	VIE950HP	VIE1500HP	VIE2000HP
Net Liquid Capacity (litre)	950	1420	1845
Nominal Gas Capacity N <sub>2</sub> * (m <sup>3</sup> )	647	968	1257
Nominal Gas Capacity O <sub>2</sub> * (m <sup>3</sup> )	811	1213	This size not available for Oxygen service
Nominal Gas Capacity Ar* (m <sup>3</sup> )	793	1186	1541
Design Pressure** (kPa)	3700	3700	3700
Operating Pressure (kPa)	0-3200	0-3200	0-3200
Gas Delivery Rate (m <sup>3</sup> /hr)*	100	100	100
Height (mm)	2387	2824	2786
Footprint (mm)	1120x1420	1250x1580	1400x1700
Empty Weight (Kg)	1018	1449	1964

\*At 15°C and 101.33kPa

\*\*High pressure vessels used in O<sub>2</sub> service must be down-rated to <2050kPa

### Standard pressure Cryotank vessels.

These vessels are available for nitrogen, oxygen and argon.

	VIE230	VIE450	VIE700
Net Liquid Capacity (litre)	230	428	700
Nominal Gas Capacity N <sub>2</sub> (m <sup>3</sup> )*	157	292	477
Nominal Gas Capacity O <sub>2</sub> (m <sup>3</sup> )*	197	366	598
Nominal Gas Capacity Ar (m <sup>3</sup> )*	192	357	585
Design Pressure (kPa)	2400	2400	2400
Gas Delivery Rate (m <sup>3</sup> /hr)*	11	15.5	20
Cylinder Diameter (mm)	665	800	1008
Footprint (mm)	695x695	900x900	1120x1120
Height (mm)	1497	1766	1778
Empty Weight (Kg)	217	400	631

\*At 15°C and 101.33kPa



# Smart technology.

Innovation to help get your business ahead.

## Mix Onsite.

In an exciting addition to our CRYOSPEED® offer, we are proud to introduce Mix Onsite. This solution is designed to deliver customised welding gas mixtures in medium to high volume supply directly at customer sites. This package has low installation costs, takes up only a small amount of space, and provides consistent high quality gas in a cost effective supply solution.

## The Mix Onsite unit.

The Mix Onsite unit comes in a range of skid sizes containing up to 2 portable CO<sub>2</sub> cylinders and an integrated mixing panel. These skids are entirely self contained, and allow for ready transportation and connection to customer sites.

Mix Onsite units are installed with an Argon Cryotank plus additional gas supply of other minor gas components where applicable, for example oxygen or hydrogen. The mixing panel blends the gas components to the required welding gas composition, and supplies a ring main from which multiple welding sets are served.



Image is for illustrative purposes only.

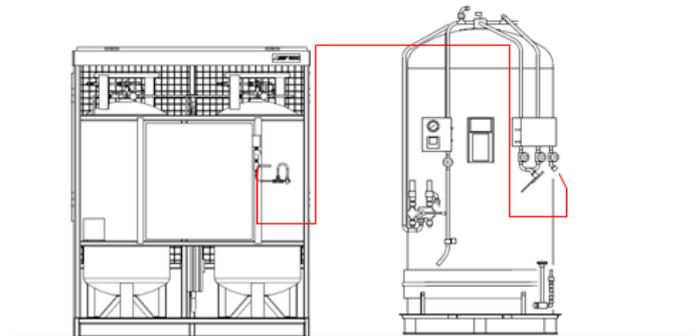
## Specifications.

Mix Onsite module (standard models).

Vessel Name	MOS450	MOS750	MOS900	MOS1500
Net Capacity (litre)	182	310	364	620
Storage Capacity (kg)*	205	357.9	410	715.8
Design Pressure (kPa)	2070	2070	2070	2070
Gas Delivery Rate (m <sup>3</sup> /hr)	1-30	1-30	1-30	1-30
Footprint (mm)	1230x800	1230x800	1100x1836	1100x1836
Height	2100	2100	2225	2225

\*At 861.9 kPa

## Standard layout.



Mix Onsite unit  
Part number: MOS1500  
Footprint: 1100mm x 1836mm

Argon Cryotank  
Part number: VIE950HP  
Footprint: 1420mm x 1120mm



# Applications.

Our CRYOSPEED® offer can supply cryogenic gas to suit a wide range of applications.

## Nitrogen. N<sub>2</sub>.

- Produced by air separation
- Colourless and odourless
- Heavier than air
- Non-toxic
- Almost totally inert
- Boiling point of -196°C
- Increased nitrogen levels can lead to oxygen deficiency and cause asphyxiation

	Nitrogen liquid as a cryogen	Nitrogen gas used for its inert properties
Cryosurgery	•	
Shrink fitting	•	
Pipe freezing	•	
Scientific sample storage	•	
Food chilling and freezing	•	
Research and development	•	
Blanketing and inerting		•
Chemical processes*		•
Purging		•
Sparging		•
Modified food packaging and storage		•
Heat treatment		•
Plasma cutting		•
Laser cutting		•

## Oxygen. O<sub>2</sub>.

- Produced by air separation
- Colourless and odourless
- Heavier than air
- Boiling point of -183°C
- Supports combustion
- Strong oxidiser
- Oxygen enrichment can increase flammability of materials
- Oxygen deficiency can cause asphyxiation

	Oxygen gas to support life	Oxygen gas to support combustion	Oxygen gas as an oxidant
Healthcare	•		
Water treatment	•		
Aquaculture	•		
Fermentation	•		
Oxy-fuel cutting		•	
Blast furnaces		•	
Laser cutting of mild steel			•
Modified atmospheric packaging			•

## Argon. Ar.

- Produced by air separation
- Colourless
- Heavier than air
- Boiling point of -186°C
- Very low thermal conductivity
- Industrial argon contains 2% oxygen
- Increased argon levels can lead to oxygen deficiency and cause asphyxiation

	Argon used for its total inertness	Argon gas used for its very low thermal conductivity
TIG welding*	•	
Scientific analytics spectrometry	•	
Semiconductor wafer manufacture	•	
Scientific sample storage	•	
Laser cutting	•	
Laser welding	•	
Furnace purging and blanketing		•
Metal manufacturing processes		•
Double glazing unit manufacture		•

\*Argon is also used for MIG welding mixed with varying percentages of Carbon Dioxide depending on the thickness of material.

## Carbon Dioxide. CO<sub>2</sub>.

- Obtained industrially by cracking hydrocarbon gases or as a by-product of ammonia production
- Colourless and virtually odourless gas but can cause the nose to sting
- Toxic at high concentrations
- Heavier than air
- Does not support life
- Increased carbon dioxide levels can lead to oxygen deficiency and cause asphyxiation

### Common applications for Carbon Dioxide

pH control of swimming pools
Carbonation of drinks
Fire extinguishers
Food chilling and freezing
Foamed plastics
Chemical solvents
Water treatment
Horticulture
Mixed with Argon as a MIG shielding gas
Scientific sample incubation
Modified food packaging



A Member of The Linde Group

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