

The logo for ASCO, featuring a stylized blue 'A' with three horizontal lines to its left, followed by the letters 'ASCO' in a bold, blue, sans-serif font.

All about CO<sub>2</sub>

# Product Catalogue

The Complete CO<sub>2</sub> Solution  
US Version 3.3

[ascoco2.com](http://ascoco2.com)



# Table of Contents

<b>General Information about CO<sub>2</sub></b>	
<b>CO<sub>2</sub> Production</b>	<b>8</b>
• ASCO CO <sub>2</sub> Production Plants .....	8
<b>CO<sub>2</sub> Recovery</b>	<b>12</b>
• ASCO CO <sub>2</sub> Stack Gas Recovery Systems.....	12
• ASCO CO <sub>2</sub> By-Product Recovery Systems .....	16
• ASCO CO <sub>2</sub> Gas Revert Recovery Systems .....	18
<b>CO<sub>2</sub> Storage</b>	<b>24</b>
• Vacuum insulated ASCO CO <sub>2</sub> Storage Tanks .....	24
• Polyurethane insulated ASCO CO <sub>2</sub> Storage Tanks .....	38
• 20' ASCO ISO Tank Containers .....	48
• Transportable ASCO CO <sub>2</sub> Tanks / ASCO CO <sub>2</sub> Semi-Trailers .....	54
<b>CO<sub>2</sub> Gas Dosing for Water Neutralisation</b>	<b>56</b>
• ASCO CO <sub>2</sub> Gas Dosing Systems.....	56
<b>CO<sub>2</sub> Vaporising</b>	<b>62</b>
• Atmospheric ASCO CO <sub>2</sub> Vaporiser .....	62
<b>CO<sub>2</sub> Cylinder Filling</b>	<b>68</b>
• ASCO CO <sub>2</sub> Cylinder Filling System LH800AR .....	68
<b>CO<sub>2</sub> Transfer Pumps</b>	<b>72</b>
• ASCO CO <sub>2</sub> Transfer Pumps: Low to Low Pressure .....	72
<b>CO<sub>2</sub> Testing Equipment</b>	<b>76</b>
• ASCO CO <sub>2</sub> Gas Purity Tester.....	76
• ASCO CO <sub>2</sub> Carbonation Tester Type III .....	78
• ASCO CO <sub>2</sub> Dew Point Tester .....	79
<b>CO<sub>2</sub> Equipment</b>	<b>80</b>
• ASCO CO <sub>2</sub> Flowmeter .....	80
• ASCO CO <sub>2</sub> Cylinder Valve .....	82
• ASCO Line Safety Assembly .....	83
• ASCO CO <sub>2</sub> Pressure Reducing Valve .....	84
<b>Safety</b>	<b>86</b>
• ASCO CO <sub>2</sub> Gas Detectors .....	86
<b>Dry Ice Storage</b>	<b>88</b>
• ASCO Dry Ice Box AT126 .....	88
• ASCO Dry Ice Container AT240.....	89
• ASCO Dry Ice Container AT440.....	90

## Dry Ice Production

92

• ASCO Dry Ice Pelletizer A30P-D3 .....	92
• ASCO Dry Ice Pelletizer A55P-D3 .....	96
• ASCO Dry Ice Pelletizer A120P-D3 .....	100
• ASCO Dry Ice Pelletizer P28-D3 .....	104
• ASCO Dry Ice Pelletizer P450 .....	108
• ASCO Dry Ice Pelletizer P700 .....	110
• ASCO Automatic Dry Ice Machine BP420 .....	112
• ASCO Dry Ice Reformer A700R.....	116
• ASCO Automatic Wrapping Machine APM50.....	120
• ASCO Dry Ice Pellets Bagging Machine.....	124
• ASCO Passive Saw for Dry Ice Slices .....	126

## ASCO Dry Ice Blasting Technology

128

• General Information.....	128
• ASCO Nanojet .....	138
• ASCOJET 1208.....	144
• ASCOJET 1701.....	148
• ASCOJET Combi blaster 1708 .....	154
• ASCOJET 2008 Combi Pro.....	162

**ASCO reserves the right to modify all specifications without prior notice.**

**All photos and drawings are used for marketing purposes only.**

# General Information about CO<sub>2</sub>

## What is CO<sub>2</sub>?

Carbon dioxide is the combination of two atoms of oxygen joined with a single atom of carbon. Its chemical formula CO<sub>2</sub>, is almost as well known as that of water, H<sub>2</sub>O and it is frequently referred to by its formula rather than its name.

In nature's chain of life, the mutual dependence of plant and animal life is maintained through the link of carbon dioxide. Every time we breathe we release this gas, which plants need for life. Through the process of photosynthesis, the plants separate the carbon from the oxygen. In turn, plants release the pure oxygen, which we need to survive. We reverse the process, and by combining the oxygen with carbon from the foods we eat, produce carbon dioxide again.

CO<sub>2</sub> is a colourless, inert gas approximately 1½ times heavier than air and 0.03 % is present in the earth's atmosphere. It is odorless, has a sweet biting taste (soda water) and is highly stable (difficult to separate).

It is produced in varying amounts by the common process of combustion of fuels high in carbon content. The most common source of fuel for combustion is oil which, when mixed with the correct proportion of air, burns to produce around 15 % CO<sub>2</sub> in the flue gases of a CO<sub>2</sub> plant. After combustion has taken place, the CO<sub>2</sub> can be separated from the flue gases and, through a simple process, made available for the many commercial purposes to which it can be applied.

CO<sub>2</sub> can exist in three forms:

- in gaseous form: for the beverage and food industries
- in liquid form: in a storage tank under pressure
- in solid form: called dry ice (for cooling, blasting etc.)

**GASEOUS CO<sub>2</sub>** can be liquefied under pressure provided its temperature is below 31 °C, this temperature being referred to as the **CRITICAL POINT**. If compressed and cooled below the critical point, a colourless fluid, approximately the same density as water, is produced.

CO<sub>2</sub> will remain in the liquid form as long as its temperature remains below the critical point but will return to the gaseous state if its temperature rises above this point, regardless of the pressure applied.

**LIQUID CO<sub>2</sub>** can be stored indefinitely at

High pressure  
or  
Low pressure

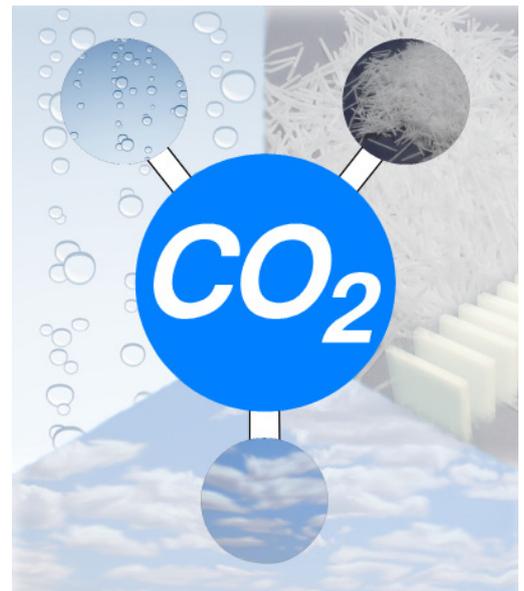
as follows:

### High Pressure CO<sub>2</sub>

High pressure liquid CO<sub>2</sub> is produced by compressing the gaseous CO<sub>2</sub> in multistage compressors to pressures in the neighbourhood of 69 bar pressure, then cooling it to around 18 °C. It is customarily filled into specially constructed steel cylinders. Like water, liquid CO<sub>2</sub> can be weighed, and this is the normal form of measuring it.

### Low Pressure CO<sub>2</sub>

Low pressure liquid is an alternative method of storing CO<sub>2</sub> and is produced either by expanding high pressure CO<sub>2</sub> to a lower pressure or by refrigeration. It is held in specially constructed storage tanks, heavily insulated and equipped with refrigeration units to hold the internal tank pressure at or below 21 bar and -18 °C temperature. Pressure switches are incorporated to control the refrigeration units and safety mechanism and electrical alarms are fitted to release the tank pressure and raise an alarm in the event of refrigeration malfunction.



# General Information about CO<sub>2</sub>

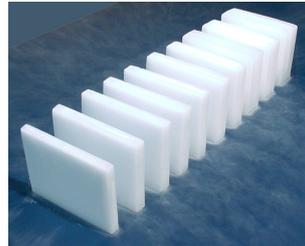
Low pressure liquid CO<sub>2</sub> (sometimes referred to as “bulk”) is transported to one place from another in insulated road tankers or trailers (or, in some countries, by rail tank wagons), the liquid being simply transferred from mobile to static tank by pumping or gravity feed.

Unlike water, carbon dioxide cannot exist in the open air in liquid form. It must be held under pressure or refrigeration (or a combination of both) to remain in the liquid state.

## **SOLID CO<sub>2</sub> (customarily known as “DRY ICE”)**

Dry ice is the product of processing liquid CO<sub>2</sub>. If the pressure of liquid CO<sub>2</sub> is suddenly released, a proportion of that liquid will change to the solid state (becoming dry ice “snow”) and the remainder will revert to gas (revert gas). When the snow is compressed under hydraulic or mechanical action, blocks or pellets of dry ice are formed. The revert gas (gaseous CO<sub>2</sub>) can be readily reclaimed and converted back to liquid by recompression and reliquefaction, thence returned to the dry ice block machine or pelletizer for further processing.

The temperature of dry ice is -79 °C and in the atmosphere it will pass directly from the solid to the gaseous stage, leaving no moisture or trace of its presence except the cold.



## CO<sub>2</sub> is our Life

---

Many generations - and individual lifetimes! - of experience have perfected **ASCO**'s ability to provide the most complete and best matched CO<sub>2</sub> system available.

From the CO<sub>2</sub> production or recovery plant to storage, dry ice blasting, cylinder filling, dry ice making and even dry ice wrapping, it's all **ASCO**. This ability to provide matched components benefits **ASCO** clients as they can comfortably develop and grow their business without changing suppliers.

Having the largest range of CO<sub>2</sub> and dry ice components also enables **ASCO** customers to make full use of the versatile nature of CO<sub>2</sub> and its vast number of uses, thus gaining maximum value from the product. For example a soft drink bottler could easily develop an extra cash flow business from surplus CO<sub>2</sub> (or excess plant capacity) by adding **ASCO** dry ice equipment and / or cylinder filling gear to supply CO<sub>2</sub> to other users.

**ASCO**'s website provides details of their most up to date CO<sub>2</sub> and dry ice plants. All **ASCO** equipment is space efficient, designed for easy operation, maintenance and engineered for maximum reliability and life. Component materials are selected to balance capital cost and plant longevity and from the flue gas oxygen sensor on the plant to the level indicator on the CO<sub>2</sub> storage tank all controls are effective, logical, clear, and linked to a PLC.

**ASCO**'s technology, combined with a wide range of CO<sub>2</sub> equipment, makes it easy for their clients to mix and match components and thus tailor their CO<sub>2</sub> / dry ice system from the one shop.

Significant new **ASCO** CO<sub>2</sub> plant sales to Africa, South America and the Middle East indicates that many bottlers, brewers and merchant CO<sub>2</sub> companies prefer working with a single supplier and that supplier is **ASCO**. Let our life add life to your business.

# General Information about CO<sub>2</sub>

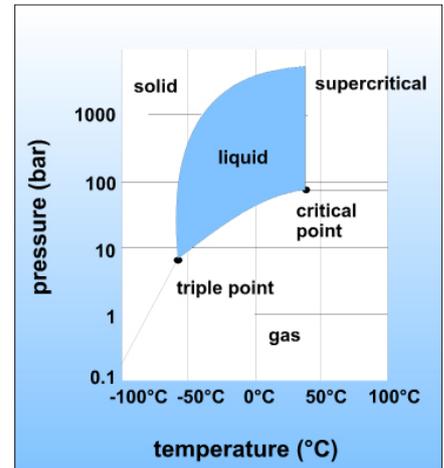
## From Liquid CO<sub>2</sub> into Dry Ice

Carbon Dioxide has 3 physical states of gas, liquid and solid which depend on temperature and pressure.

The relationship between the 3 states is shown on the pressure-temperature phase diagram beside.

## Where does CO<sub>2</sub> come from?

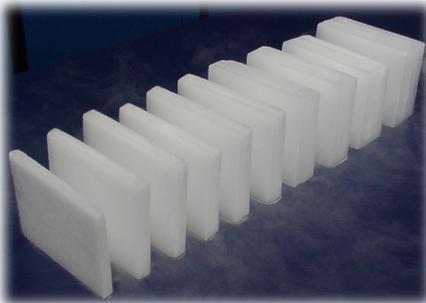
CO<sub>2</sub> is derived from a number of sources including combustion of carbonaceous fuels, fermentation, natural wells, and as a by-product of industrial processes such as ethylene oxide and bioethanol production and ammonia synthesis.



CO<sub>2</sub> phase diagram

## The Solid State (Dry Ice)

Below the triple point (5.18 bar, -56.6°C) (75.13psi) CO<sub>2</sub> can only appear in its solid and gaseous state. Dry Ice is the common trade name for solid CO<sub>2</sub>. At atmospheric pressure it has a temperature of approx. -79°C. The solid CO<sub>2</sub> changes directly into its gaseous state. This evaporation (sublimation) does not leave any residues. Dry ice is non-toxic, non-inflammable, inert, without smell and bacteriostatic. It is white and has a density of approx. 1'500 kg/m<sup>3</sup> (93.6 lb/ft<sup>3</sup>) in its compact state. Dry ice is an ideal refrigerant which qualifies especially well for various applications. It has a high cooling capacity and heat transfer is very high when in direct contact with the cold material.



Dry ice slices and blocks



16 mm (5/8 in) pellets



3 mm (1/8 in) pellets

**ASCO** has the best range of dry ice machines for dry ice production.

## The Liquid State

Within a temperature range between -56.6°C and 31°C and pressure greater than 5.2 bar (75.42 psi) and less than 74 bar (1'073.28 psi) respectively CO<sub>2</sub> is in its liquid state except at very high pressures. This means that, below 5.2 bar (75.42 psi), CO<sub>2</sub> exists only in its solid or gaseous state. At 5.2 bar (75.42 psi) and -56.6°C all three states (solid, liquid and gas) are present. This is called the triple point.

# General Information about CO<sub>2</sub>

The critical point of CO<sub>2</sub> lies at a temperature of approx. 31 °C and a pressure of approx. 74 bar (58.02 psi). Normal CO<sub>2</sub> liquid can only be formed at temperatures below 31 °C. Above the critical point there is no physical difference between the liquid and gaseous phase. This supercritical state is also called „Fluid“. The liquid state is important for the storage and transportation of CO<sub>2</sub> as well as during cooling and freezing applications. During release of the liquid CO<sub>2</sub> to atmosphere a temperature of -79 °C is reached. This is associated with a high cooling capacity due to the evaporation heat which is extracted from the environment when releasing the liquid CO<sub>2</sub>.



Horizontal CO<sub>2</sub> storage tank



Vertical CO<sub>2</sub> storage tank



ISO container for transportation of CO<sub>2</sub>

## The Gaseous State

CO<sub>2</sub> gas has a density of approx. 1.9kg/m<sup>3</sup> (0.12lb/ft<sup>3</sup>) at atmospheric pressure and +15 °C. CO<sub>2</sub> has many unique and beneficial features which make it valuable in the preservation of packaged food, in explosion and fire protection, in pest control and as protective gas in inert-gas-welding. In all these applications it is important for the CO<sub>2</sub> gas to drive out and replace the atmospheric oxygen. Moreover, CO<sub>2</sub> gas is used for enriching the atmosphere in greenhouses, in storing fruits and vegetables and for pH control when treating potable and waste water.



CO<sub>2</sub> for beverage carbonation



CO<sub>2</sub> fumigation in pest control

[www.ascoco2.com](http://www.ascoco2.com)

provides details of our most up to date CO<sub>2</sub> and dry ice plants. All ASCO equipment is space efficient, designed for easy operation and maintenance and engineered for maximum reliability and life.

# CO<sub>2</sub> Production

## ASCO CO<sub>2</sub> Production Plants



Compact, easy to operate and maintain, **ASCO** high performance CO<sub>2</sub> Generators run from low sulphur content diesel, kerosene or natural gas. They are fully automatic and use a low concentration, aqueous monoethanolamine solution to efficiently and safely produce highest quality gaseous CO<sub>2</sub>.

**ASCO's** advanced CO<sub>2</sub> plant designs employ the latest technology for refined high performance, user friendly controls, flexible layout and ultra-efficient operation. The result is lowest possible CO<sub>2</sub> production costs, extended plant life and minimum environmental effect.

Each plant is dry tested to the fullest extent possible before despatch. This ensures your satisfaction - and ours!

**ASCO** CO<sub>2</sub> Generators can be engineered to operate from low sulphur content diesel, kerosene or natural gas fuels. A dual fuel model is also available. This flexibility allows customers to select their most economic fuel. The design of **ASCO** high performance CO<sub>2</sub> Production Plants has evolved **from over 130 years commercial operation as a major CO<sub>2</sub> and dry ice equipment producer.** This unique advantage means **ASCO** CO<sub>2</sub> Plants are engineered with performance and the end user very much in mind.

Plant construction is from carefully selected materials to give a good balance between plant life, performance and capital cost, i.e. maximum value for money. **ASCO** CO<sub>2</sub> Plants are compact in design and layout to make best use of space in your factory.

Our skilled and experienced engineers ensure each new **ASCO** CO<sub>2</sub> Plant is correctly installed and commissioned and operators trained in proper operation and maintenance procedures. A set of comprehensive installation and operation manuals is supplied to ensure installation as well as future operation and maintenance is carried out efficiently and correctly.

Cooling System: Optional cooling water recirculation system to handle all the process cooling water.

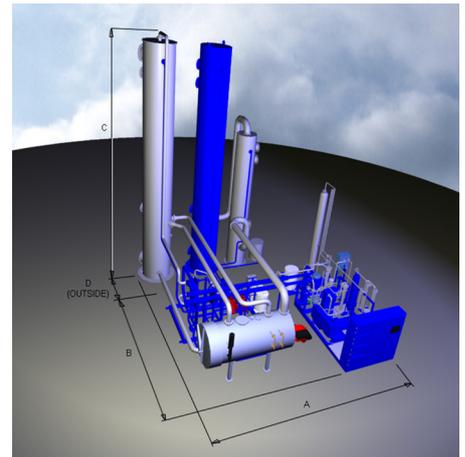
Plant tools, chemicals and lubricants are available along with CO<sub>2</sub> testing equipment.

### Utility Consumptions

Capacity	Fuel (diesel) kg/h (lb/h)	Water m <sup>3</sup> /h (ft <sup>3</sup> /h)	Power (absorbed) kW (hp)	
70 kg/h (154 lb/h)	24.4 (54)	0.6 (21)	29 (38.89)	
160 kg/h (352 lb/h)	55.8 (123)	1.5 (53)	52 (69.73)	
285 kg/h (628 lb/h)	99.5 (219)	2.6 (92)	84 (112.65)	Larger capacities on request
500 kg/h (1'102 lb/h)	174.5 (384)	4.6 (162)	133 (178.36)	
1'000 kg/h (2'205 lb/h)	349.0 (769)	8.7 (307)	241 (323.19)	
1'500 kg/h (3'307 lb/h)	523.5 (1'154)	12.4 (438)	365 (489.47)	
2'000 kg/h (4'409 lb/h)	690.0 (1'521)	15.1 (533)	440 (590.05)	

# ASCO CO<sub>2</sub> Production Plants

Dimensions in mm				
Capacity	A	B	C	D
<b>70 kg/h</b> (154 lb/h)	Skid mounted towers 4'445 x 7'670 x 4'800 (L x W x H) (175 X 301.97 X 188.98 in)			
<b>160 kg/h</b> (353 lb/h)	11'920 (469 in)	5'735 (226 in)	9'960 (392 in)	2'130 (84 in)
<b>285 kg/h</b> (628 lb/h)	11'078 (436 in)	6'566 (259 in)	10'160 (400 in)	2'280 (90 in)
<b>500 kg/h</b> (1'102 lb/h)	11'807 (436 in)	5'820 (229 in)	11'913 (469 in)	2'410 (94 in)
<b>1'000 kg/h</b> (2'205 lb/h)	17'985 (708 in)	8'380 (330 in)	17'050 (671 in)	3'450 (136 in)
<b>1'500 kg/h</b> <b>3'307 lb/h</b>	Dimensions according to customer requirements and space available			
<b>2'000 kg/h</b> <b>4'409 lb/h</b>				



Schematic layout of typical ASCO CO<sub>2</sub> Production Plant

## ASCO CO<sub>2</sub> Production Plant process description

The fuel is burned under carefully controlled conditions. After water/soda ash scrubbing, CO<sub>2</sub> from the flue gas is absorbed into a monoethanolamine based solution which is subsequently heated by the combustion process to release the raw CO<sub>2</sub> gas. The CO<sub>2</sub> is then led to a vertical, two stage, dry running (oil free) compressor and on to the high pressure, potassium permanganate purifier. After thorough drying in an automatic twin tower molecular sieve drier, the CO<sub>2</sub> receives final purification in an activated carbon filter prior to feeding into an R404a refrigeration loop in the liquefier. The pure, liquefied CO<sub>2</sub> can then be fed to a bulk CO<sub>2</sub> storage tank.

This continuous process is efficient, reliable and safe. The CO<sub>2</sub> meets international food-grade quality standards and is used daily by the world's top gas companies, soft drink and beer brands in over 100 countries.

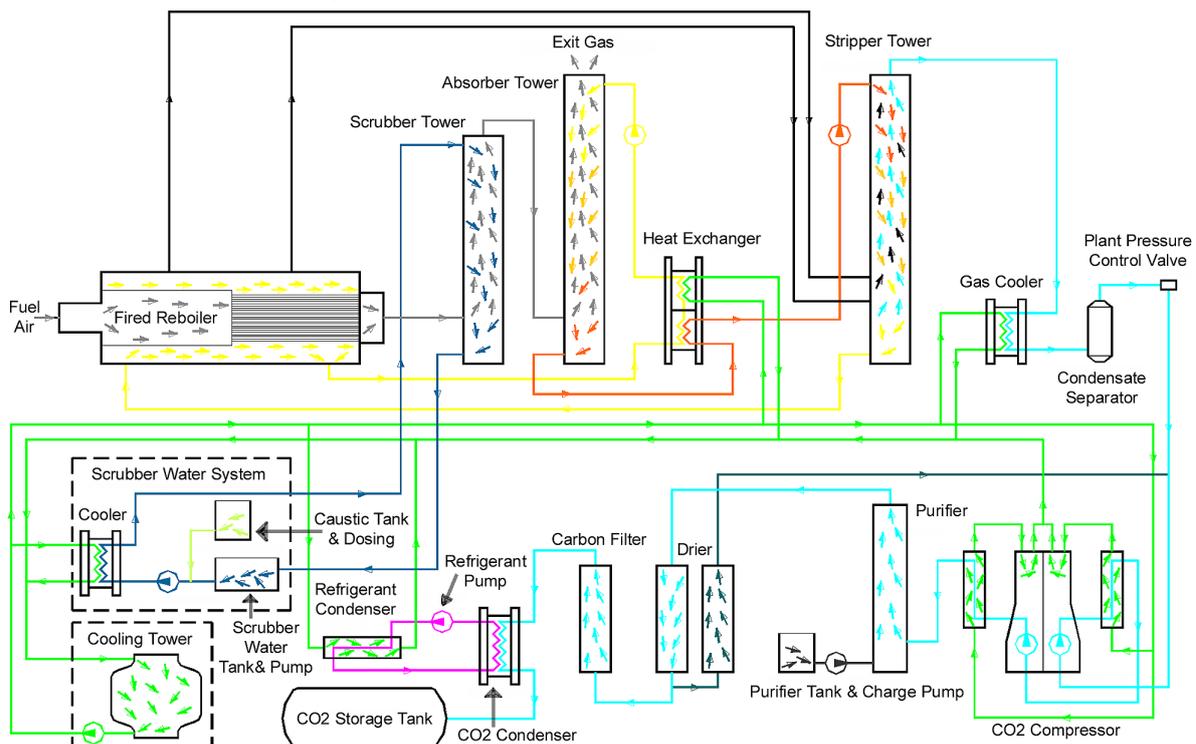


Diagram shows process streams only. Actual plant configurations may vary.

# ASCO CO<sub>2</sub> Production Plant: Your benefits

Feature	Benefit
Flexible layout	Compact, modular component design means fast and easy installation and provides an economical use of available space, covering a variety of different layouts.
Burner	Efficient, reliable combustion of fuel.
Inline scrubber water recirculation and treatment system	Designed to handle all the process scrubbing water, this system recycles, neutralises and sheds the process heat from the water all in one circuit. This significantly reduces the volume of water discharged to drain, providing an economical and environmentally friendly water system.
Process towers location	Option of indoor or outdoor installation of all process towers allows flexibility of layout in a variety of different situations. Outdoor location also reduces the required weather protection for the system.
Oil free CO <sub>2</sub> compressor	Specially designed for use with CO <sub>2</sub> gas, the oil-free compressor means there is no possibility of CO <sub>2</sub> contamination with oil.
High pressure stainless steel purifier	Longer residence time provides ultra-efficient NO <sub>x</sub> and H <sub>2</sub> S removal.
Carbon filter	A high capacity carbon filtration column is installed in the CO <sub>2</sub> gas inlet line to the liquefier, to provide further assurance of pure and odour-free CO <sub>2</sub> .
Centralized control panel	Automatic plant operation and visual display (HMI) provide one touch read-outs of process data from a centralized position.



CO<sub>2</sub> 2-Stage-Compressor



Liquefaction Unit



High Pressure Purifier



Process unit



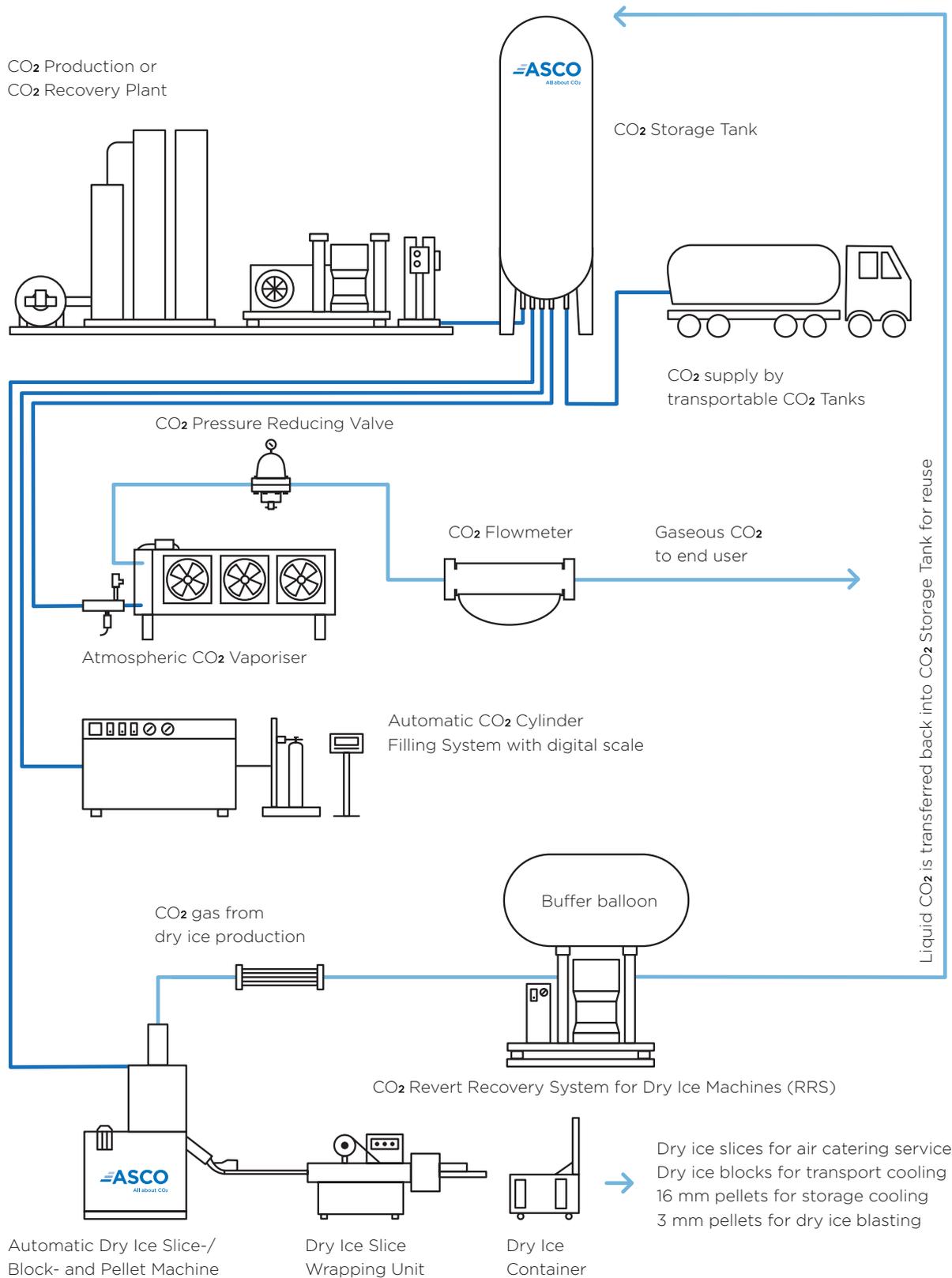
Outdoor towers



Remonitoring to allow monitoring of the CO<sub>2</sub> plant from the comfort of your own office or central control room.

# ASCO CO<sub>2</sub> Production Plant: The complete CO<sub>2</sub> solution

Complete your ASCO CO<sub>2</sub> Production Plant with some of our many accessories



All photos and drawings are used for marketing purposes only.

# CO<sub>2</sub> Recovery

## ASCO CO<sub>2</sub> Stack Gas Recovery Systems



ASCO's innovative ASCOSORB CO<sub>2</sub> Stack Gas Recovery Technology turns your vent flue gas into a usable and profitable source of CO<sub>2</sub>.

CO<sub>2</sub> gas won by a **ASCO** Stack Gas Recovery System is a by-product of flue gas production from boilers as well as from other flue gas sources offering an economic CO<sub>2</sub> source to any CO<sub>2</sub> consumer or reseller. **ASCO**, as a provider of complete CO<sub>2</sub> solutions, offers CO<sub>2</sub> Stack Gas Recovery Systems with various capacities.

The revolutionary **ASCOSORB CO<sub>2</sub> Stack Gas Recovery Technology** features the following **key benefits**:

- Reliable and economic source of CO<sub>2</sub> to the end user as opposed to self burning processes or purchasing liquid CO<sub>2</sub>
- **The ASCOSORB Technology brings to the ASCO CO<sub>2</sub> Stack Gas Recovery Plant tremendous reduction in total energy usage offering greatly reduced OPEX: only approx. 0.9 MW<sub>th</sub>/MT produced CO<sub>2</sub>**
- The **ASCOSORB** Technology brings to the CO<sub>2</sub> stack gas recovery plant innovations such as **reduced solvent consumption** again contributing reduced operating cost to the already reduced OPEX
- The specially formulated **ASCOSORB** solvent utilized with the **ASCO** CO<sub>2</sub> Stack Gas Recovery System is **resistant to any level of oxygen** typical of flue gas sources allowing greater system efficiencies and longevity of the plant
- Liquid CO<sub>2</sub> quality produced by an **ASCO** CO<sub>2</sub> Stack Gas Recovery System **meets specifications of ISBT**, food and beverage, and customer final liquid quality specifications
- **ASCO** CO<sub>2</sub> Stack Gas Recovery Systems offer a **capacity range from 285 to 11'000 kg/h (24250.84 lb/h)**

**ASCO's** CO<sub>2</sub> Stack Gas Recovery Technology extracts nearly the total volume of CO<sub>2</sub> gas content in flue gas streams. Key is the specially formulated **ASCOSORB** extraction solvent which provides the CO<sub>2</sub> Stack Gas Recovery Plant with reduced OPEX as a result of its CO<sub>2</sub> gas extraction and loading capability compared to other competitive solvent mixtures. This technology not only offers the end user a reliable CO<sub>2</sub> source but as well considered by many a green approach to the overall concept to CO<sub>2</sub> gas recovery. Combined with the specially formulated **ASCOSORB** Solvent, the ASCO CO<sub>2</sub> Stack Gas Recovery System utilizes stainless steel process towers and pumps to ensure long and effective equipment life and reliable performance for years to come.



## ASCO CO<sub>2</sub> Stack Gas Recovery Systems: Features

Feature	Benefit
Stainless steel construction	Long plant longevity
Low energy consumption	Low OPEX
Integrated amine recovery	Contributing to the already reduced OPEX
High CO <sub>2</sub> extraction	Low carbon foot print
Retrofits easily to existing CO <sub>2</sub> production plants	Modernize your existing plant by eliminating fuel burning and saving up to 70 % production costs.
Flexible layout	Compact, modular component design means fast and easy installation and provides an economical use of available space, covering a variety of different layouts.
Inline scrubber water recirculation and treatment system	Designed to handle all the process scrubbing water, this system recycles, neutralises and sheds the process heat from the water all in one circuit. This significantly reduces the volume of water discharged to drain, providing an economical and environmentally friendly water system.
Process towers location	Option of indoor or outdoor installation of all process towers allows flexibility of layout in a variety of different situations. Outdoor location also reduces the required weather protection for the system.
Oilfree CO <sub>2</sub> compressor	Specially designed for use with CO <sub>2</sub> gas, the oilfree compressor means there is no possibility of CO <sub>2</sub> contamination with oil.
High pressure stainless steel purifier	Longer residence time provides ultra-efficient NO <sub>x</sub> and H <sub>2</sub> S removal.
Carbon filter	A high capacity carbon filtration column is installed in the CO <sub>2</sub> gas inlet line to the liquefier, to provide further assurance of pure and odour-free CO <sub>2</sub> .
Centralized control panel	Automatic plant operation and visual display (HMI) provide one touch read-outs of process data from a centralized position.



CO<sub>2</sub> 2-stage-compressor



Outdoor towers



High pressure purifier

# ASCO CO<sub>2</sub> Stack Gas Recovery Systems

## General process description

Flue gas from boiler exhausts (be it existing, new or even power generators) contain combustion products like CO<sub>2</sub>, water vapor, N<sub>2</sub>, O<sub>2</sub>, CO, and possibly SO<sub>2</sub> depending on the fuel being used. This flue gas, under the **ASCOSORB** process, is first cooled and treated for SO<sub>2</sub> effectively rendering a flue gas to a proper operating temperature and reaching an acceptable level of SO<sub>2</sub> prior to entering the **ASCOSORB** process of CO<sub>2</sub> Gas extraction.

Once cooled and treated the flue gas enters the CO<sub>2</sub> stack gas recovery system for extraction of CO<sub>2</sub> gas from the flue gas, using specially formulated **ASCOSORB** absorption solvent combined with process towers and packing for best overall efficiency. These towers include the CO<sub>2</sub> gas absorber and CO<sub>2</sub> stripper. It's the combination of the specially formulated **ASCOSORB** solvents and the optimized packing technology that gives the extraction process the efficiency to nearly extract all the CO<sub>2</sub> present in the flue gas as well as be resistant to any level of O<sub>2</sub> present in the source stream. Once absorbed, the CO<sub>2</sub> gas is carried away within the special **ASCOSORB** solvent, and remaining products of combustion are vented off the top of the absorber tower. The solvent, enriched with CO<sub>2</sub>, is passed to the stripper tower which uses reboiled lean solvent combined with tower and structured packing material to liberate the CO<sub>2</sub> gas from the enriched solvent stream. The exit CO<sub>2</sub> gas from the stripper is at a controlled temperature and pressure ready for further processing.

CO<sub>2</sub> gas processing from the **ASCO** CO<sub>2</sub> Stack Gas Recovery System is completed with the efficient and high quality supply of **ASCO** compression, purification, drying and liquefaction equipment typical of supply with our production and by-product recovery plants. This ensures the liquid CO<sub>2</sub> produced from the total **ASCO** CO<sub>2</sub> Stack Gas Recovery Plant exceeds the parameters set forth by many customers and industry standards.



Process unit



Liquefaction unit

## Capacities

Available standard capacities: 285, 500 and 1'000 kg/h (628.31, 1'102.31 and 2'204.62 lb/h)

Individually engineered plants available for capacities up to 11'000 kg/h (24'250.84 lb/h)

## Utility Consumptions

**Thermal energy consumption: only approx. 0.9 mW<sub>th</sub>/MT produced CO<sub>2</sub>**

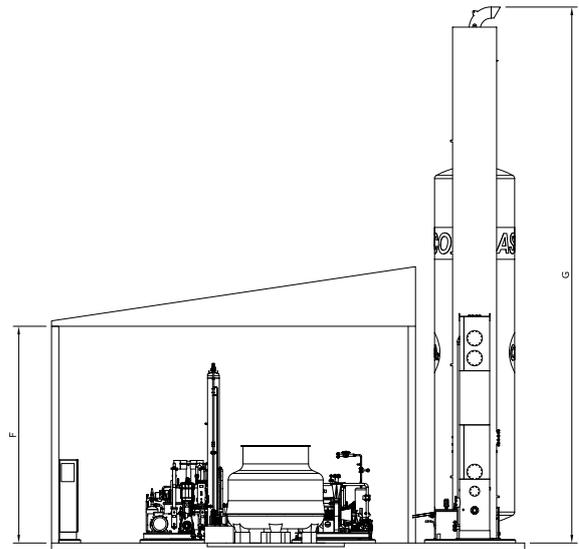
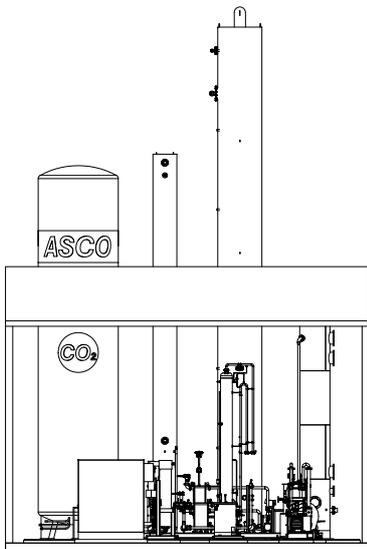
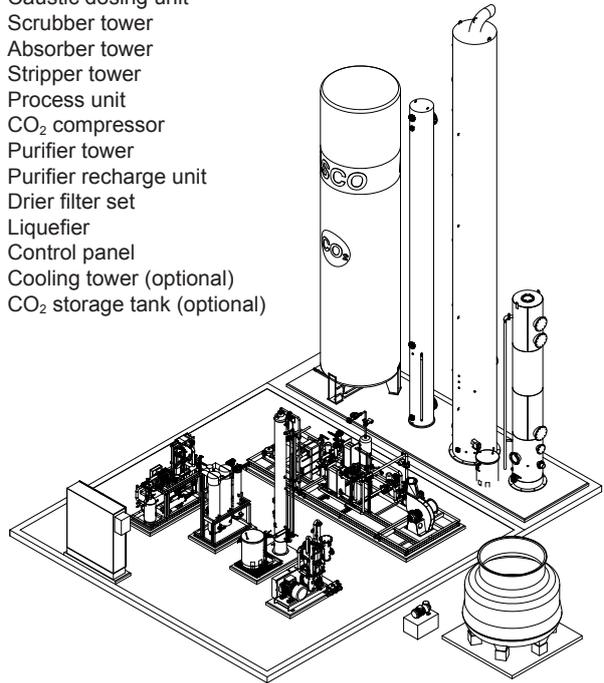
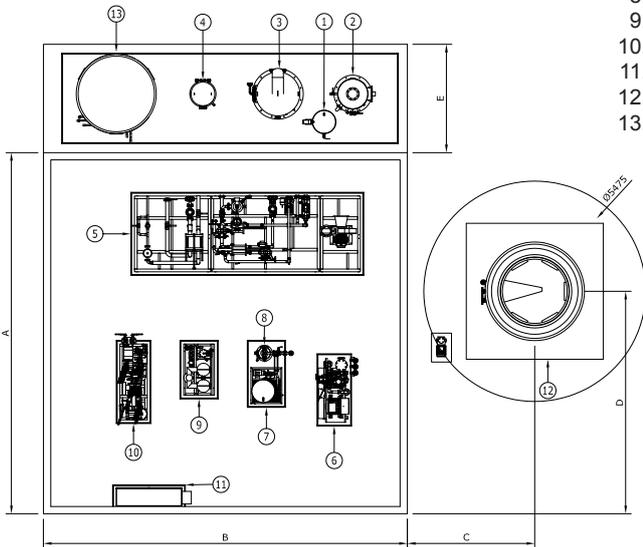
Complete information of utility consumptions provided with each **ASCO** proposal for a CO<sub>2</sub> Stack Gas Recovery System.

# ASCO CO<sub>2</sub> Stack Gas Recovery Systems

Standard Layout Proposal (dimensions in mm)

Capacity	A	B	C	D	E	F	G
<b>285 kg/h</b> <b>(628 lb/h)</b>	10'000 (394 in)	10'000 (394 in)	3'500 (138 in)	6'160 (243 in)	3'000 (118 in)	6'000 (236 in)	14'740 (580 in)
<b>500 kg/h</b> <b>(1'102 lb/h)</b>	10'000 (394 in)	10'000 (394 in)	4'900 (193 in)	6'160 (243 in)	3'000 (118 in)	6'000 (236 in)	14'740 (580 in)
<b>1'000 kg/h</b> <b>(2'205 lb/h)</b>	10'000 (394 in)	15'500 (610 in)	4'900 (193 in)	6'160 (243 in)	3'000 (118 in)	6'000 (236 in)	15'140 (596 in)

1. Caustic dosing unit
2. Scrubber tower
3. Absorber tower
4. Stripper tower
5. Process unit
6. CO<sub>2</sub> compressor
7. Purifier tower
8. Purifier recharge unit
9. Drier filter set
10. Liquefier
11. Control panel
12. Cooling tower (optional)
13. CO<sub>2</sub> storage tank (optional)



Subject to technical changes / improvements

# CO<sub>2</sub> Recovery

## ASCO CO<sub>2</sub> By-Product Recovery Systems



**ASCO's innovative CO<sub>2</sub> Gas Recovery Technology turns your vented by-product gas into profitable CO<sub>2</sub>.**

Be it for an alcoholic fermentation process (e.g. breweries, ethanol operations, distilleries or wineries), other industrial sources (e.g. ammonia production or hydrogen reforming) or natural sources, **ASCO** will find your individual CO<sub>2</sub> recovery solution.



**ASCO's By-Product CO<sub>2</sub> Gas Recovery System** can make this opportunity a reality to those interested in developing a business case and realizing the potential rewards of recovering CO<sub>2</sub> gas from these sources. Our systems, manufactured of the highest quality in materials and workmanship, offers extremely low operating costs placing the least OPEX against CAPEX providing a far greater return on investment.

### ASCO By-Product Recovery Systems: Key features

**ASCO** By-Product CO<sub>2</sub> Gas Recovery Systems enhance the overall concept for your recovery opportunity considering the following **key benefits**:

- **ASCO** CO<sub>2</sub> Gas Recovery Systems can be applicable to a variety of sources;
- Our advanced technology is strategically positioned offering lowest cost production/ton;
- The environmentally friendly technology – gas scrubbing, purifying, drying - eliminates chemical treatment and handling and offers overall reduced effluent and cost savings/ton;
- Totally automatic process – plant operations and liquid CO<sub>2</sub> tank farm management;
- The **ASCO** CO<sub>2</sub> Gas Recovery System achieves liquid CO<sub>2</sub> purity of 99.998 % from an inlet CO<sub>2</sub> gas source purity as low as 98.5%;
- Final liquid CO<sub>2</sub> quality exceeds international food and beverage standards.
- **Capacities available from 285 to 20'000 kg/h (628.32 to 44'092.45 lb/h) (other capacities on request)**

# ASCO CO<sub>2</sub> By-Product Recovery Systems

## General process description

	Alcohol sources	Industrial sources	Natural sources
From a raw gas source ↓ to 99.998% pure CO <sub>2</sub> .	CO <sub>2</sub> gas is generated as a by-product of the <b>alcoholic fermentation process</b> (e.g. breweries, ethanol operations, distilleries, wineries). This then is collectively reclaimed from the fermentation area through adequately sized collection pipe lines for common feed to the <b>ASCO CO<sub>2</sub> Gas Recovery System</b> . The gas at this point will be at low pressure and combined purity of >98.5%.	CO <sub>2</sub> gas can be generated as a by-product of <b>various industrial sources</b> (e.g. ammonia production or hydrogen reforming) and as such can be reclaimed for feed to the <b>ASCO CO<sub>2</sub> Gas Recovery System</b> .	CO <sub>2</sub> gas can be generated from <b>natural origin</b> (e.g. from natural underground wells). These source gases then can be reclaimed for feed to the <b>ASCO CO<sub>2</sub> Gas Recovery System</b> .
	The recovery plant compresses CO <sub>2</sub> gas, elevating the pressure to approximately 18 barg for CO <sub>2</sub> gas processing that being: washing, purifying, drying and CO <sub>2</sub> gas condensing. Our selection of specially designed compressors offer the best in energy utilization, dry gas compression and ease of maintenance.		
	Once compressed, CO <sub>2</sub> gas is treated for removal of impurities typical of these sources by high pressure high efficiency CO <sub>2</sub> gas washing (scrubbing) providing a CO <sub>2</sub> purity of min 99.9%.		
	<b>ASCO's</b> system design further enhances the gas quality by proper CO <sub>2</sub> gas purifying. This is accomplished by an activated desiccant bed for gas drying to a dew point of minus 40 °C at pressure (-62 °C at atmospheric pressure) followed by carbon polish filter, again subject to raw gas and process conditions. Once the operation is completed, the final gas will be odour free, colour free and taste free, preparing for the last stages of purification.		
	As a means of final purification the CO <sub>2</sub> gas is condensed (separation of non-condensable gases). CO <sub>2</sub> gas condensing is accomplished by use of an independent refrigeration system that liquefies CO <sub>2</sub> gas at approximately 18 barg and minus 24 °C. The non-condensable gases present in the CO <sub>2</sub> gas are separated and purged from the system automatically and reused for regeneration gas within the plant.		
Liquid CO <sub>2</sub> leaving the CO <sub>2</sub> condenser flows by gravity to a liquid CO <sub>2</sub> purification system to achieve a final liquid CO <sub>2</sub> purity of 99.998%. Thereafter, high quality liquid CO <sub>2</sub> is pumped to a liquid CO <sub>2</sub> storage tank for handling the liquid CO <sub>2</sub> such as bulk supply, cylinder supply, dry ice supply for chilling or dry ice supply for blast cleaning.			



# CO<sub>2</sub> gas Revert Recovery

## ASCO CO<sub>2</sub> Gas Revert Recovery Systems

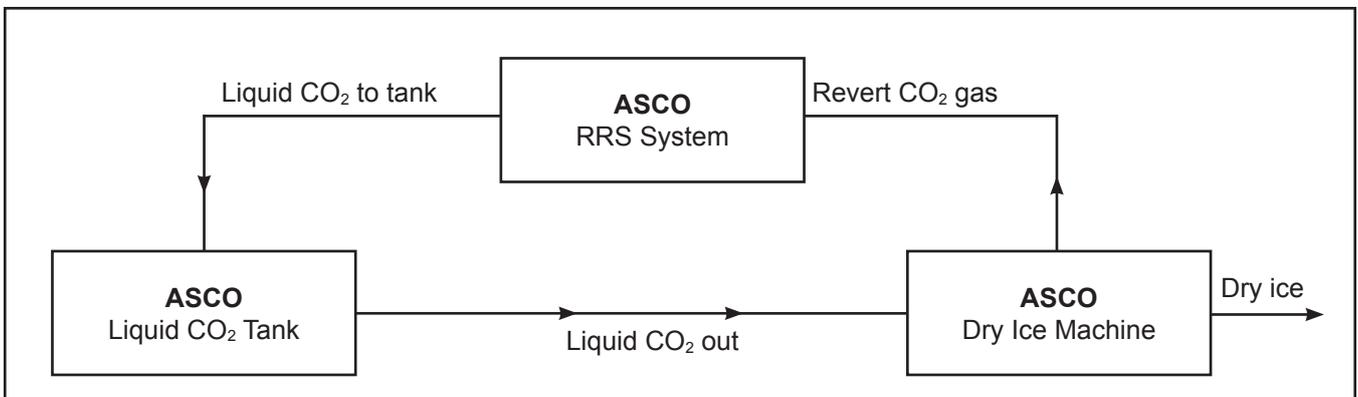


**ASCO** CO<sub>2</sub> Gas Revert Recovery Systems are engineered to efficiently recover the revert CO<sub>2</sub> gas from **ASCO** Dry Ice Pellet and Block Machines which normally direct the revert (flash) gas to the atmosphere.

### Advantages of CO<sub>2</sub> Revert Recovery Systems:

- Reducing dry ice production costs up to 50 % by recovering the normally “lost” CO<sub>2</sub> gas due to vent typical of dry ice manufacturing
- Automatic (PLC) operation
- Heavy duty, compact and efficient design
- Packaged, prepiped and prewired for timely installation

### How the ASCO CO<sub>2</sub> Revert Recovery System interconnects with ASCO Dry Ice Equipment:



### Specifications

Model	Revert CO <sub>2</sub> gas (lb/h)	Absorbed kW (HP) approx.	Est. cooling water consumption m <sup>3</sup> /h (ft <sup>3</sup> /h)	
RRS300*	300 kg/h (661)	77 (103.26)	7.94 (280.4)	Larger sizes available on request
RRS440*	440 kg/h (970)	94 (126.06)	11.64 (411.13)	
RRS560	560 kg/h (1'235)	119 (159.58)	14.82 (523.36)	
RRS1000	1'000 kg/h (2'205)	206 (276.25)	26.46 (934.43)	
RRS1500	1'500 kg/h (3'307)	340 (455.95)	39.69 (1'401.64)	
RRS2000	2'000 kg/h (4'409)	478 (641.01)	52.92 (1'868.85)	

\* available also with air cooling

## ASCO CO<sub>2</sub> Gas Revert Recovery Systems: Special features

CO <sub>2</sub> buffer balloon	Specially designed, made of foodgrade acceptable material, to provide a constant back pressure to the dry ice machine as well as provide constant supply conditions of CO <sub>2</sub> flow to the gas compressor. Local conditions may require reheating of the CO <sub>2</sub> revert gas which can be supplied as required for each application.
CO <sub>2</sub> compressor	A two-stage, watercooled, dry running CO <sub>2</sub> compressor with separate cooler for each stage compresses the revert gas up to approx. 18 to 20 barg.
CO <sub>2</sub> liquefier	Liquefies the compressed CO <sub>2</sub> gas through a standard refrigeration loop. The re-liquefied CO <sub>2</sub> is then returned to the liquid CO <sub>2</sub> storage tank for reuse in dry ice production.
Control system	A central control system automatically controls the entire process and houses the electric motor distribution, starting, operator interface and PLC control system.

### Guarantee:

Our equipment is guaranteed against faulty workmanship or materials for a period of 12 months following date of despatch.

### Modification:

We reserve the right to modify any part of the specifications without prior notice.



## ASCO CO<sub>2</sub> Gas Revert Recovery System and Automatic Dry Ice Machine



Pos. 001

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS300W (water-cooled)

part no. 900142

To recover up to **300 kg/h (661.39 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10m) (32.8ft)
- Central control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph, (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 94.1 / 77 kW (126.19 / 103.26 HP) (connected / absorbed)
- Cooling water flowrate: 7.94 m<sup>3</sup>/h (280.4 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi), dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



Pos. 002

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS440W (water-cooled)

part no. 900144

To recover up to **440 kg/h (970.03 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10m 32.8ft)
- Central control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 115.5 / 94.4 kW (154.89 / 126.59 HP) (connected / absorbed)
- Cooling water flowrate: 11.64 m<sup>3</sup>/h (411.13 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi).g, dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



Pos. 003

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS560W (water-cooled)

part no. 900145

To recover up to **560 kg/h (1'234.59 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10 m) (32.8 ft)
- Central control centre and control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 145.5 / 119 kW (195.12 / 159.58 HP) (connected / absorbed)
- Cooling water flowrate: 14.82 m<sup>3</sup>/h (523.36 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi), dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



Pos. 004

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS1000W (water-cooled)

part no. 900146

To recover up to **1'000 kg/h (2'204.62 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10 m) (32.8 ft)
- Central control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 252.5 / 206.2 kW (338.61 / 276.52 HP) (connected / absorbed)
- Cooling water flowrate: 26.46 m<sup>3</sup>/h (934.43 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi), dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



Pos. 005

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS1500W (water-cooled)

part no. 900147

To recover up to **1'500 kg/h (3'306.93 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10 m) (32.8 ft)
- Central control centre and control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 415 / 340 kW (556.52 / 455.95 HP) (connected / absorbed)
- Cooling water flowrate: 39.69 m<sup>3</sup>/h (1'401.64 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi), dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



Pos. 006

## ASCO CO<sub>2</sub> Gas Revert Recovery System RRS2000W (water-cooled)

part no. 900148

To recover up to **2'000 kg/h (4'409.25 lb/h)** of revert CO<sub>2</sub> gas from the production of dry ice.

### Scope of supply:

- CO<sub>2</sub> gas balloon buffer storage (mounted remotely or directly on the RRS)
- CO<sub>2</sub> compressor, dry running 2 stage, water cooled
- CO<sub>2</sub> liquefier, refrigerant, water cooled with stainless steel CO<sub>2</sub> condenser
- Allowance for insulated outlet CO<sub>2</sub> liquid line from the RRS to the liquid CO<sub>2</sub> storage tank (up to 10 m) (32.8 ft)
- Central control panel with operator interface
- Modularized design is prepiped, prewired and precabled for fast installation

### Utility specifications -excluding options and accessories:

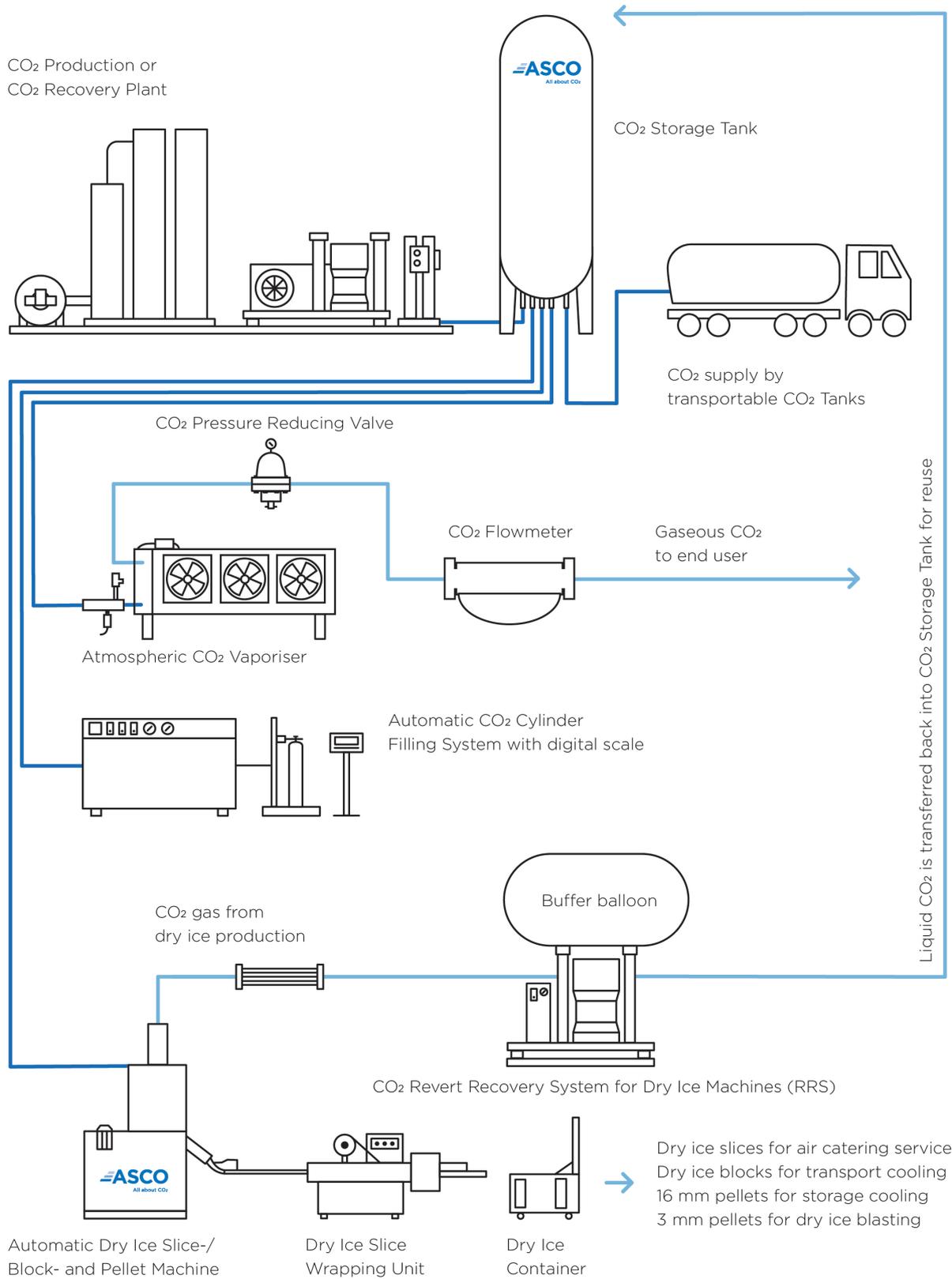
- Power supply 380-415 V, 50 Hz / 440-460 V, 60 Hz, 3 Ph (other voltages available on request)
- Power consumption at 400 V, 50 Hz: 585.5 / 478.8 kW (785.17 / 642.08 HP) (connected / absorbed)
- Cooling water flowrate: 52.92 m<sup>3</sup>/h (1'868.85 ft<sup>3</sup>/h) (based on max 32 °C inlet temperature)
- Instrument air, 6 bar (87.02 psi), dry, oil free: < 1 Nm<sup>3</sup>/h (35.3 ft<sup>3</sup>/h)

Utility consumptions are approximate and subject to detailed engineering.



# ASCO - the complete CO<sub>2</sub> Solution

Complete your ASCO CO<sub>2</sub> Production- / Recovery Plant with some of our many accessories



All photos and drawings are used for marketing purposes only.

# CO<sub>2</sub> Storage

## Vacuum insulated ASCO CO<sub>2</sub> Storage Tanks



ASCO CO<sub>2</sub> Storage Tanks include a high quality perlite vacuum insulation and are supplied complete with all pipework, valves, safety devices, liquid level indicator, pressure gauge, automatic pressure build up and pressure reducing systems allowing fast and easy installation on site.

The inner tank is made of stainless steel or carbon steel. The outer vessel has a durable protective coating to guard against corrosion.

All interconnecting pipework is made of stainless steel. Special connections are included to allow easy installation of any ancillary equipment such as vaporisers, cylinder filling systems, transfer pumps and dry ice machines etc.

- compact
- simple and safe to operate
- easily installed

### Horizontal and vertical tanks

ASCO Storage Tanks are available as horizontal or vertical versions.

### Cryogenic gases

Vertical ASCO Storage Tanks can also be configured for other liquefied cryogenic gases (N<sub>2</sub>, O<sub>2</sub>, Ar).

### Specifications

<b>Inner vessel:</b>	Stainless or carbon steel	<b>Piping:</b>	Stainless steel
<b>Outer vessel:</b>	Carbon steel	<b>Level indication:</b>	Differential pressure measuring device (outlet 4 - 20 mA)
<b>Max. working pressure (CO<sub>2</sub> Tanks):</b>	22 bar (319.08 psi)	<b>Filling connections:</b>	According to ASCO flow diagram
<b>Insulation:</b>	High quality vacuum perlite	<b>Approval:</b>	PED 2014/68/EU or AD2000 and other international codes

ASCO reserves the right to modify all specifications without prior notice.

## ASCO CO<sub>2</sub> Storage Tanks: Special features

### Advantages of ASCO vacuum insulated CO<sub>2</sub> Storage Tanks:

- Low maintenance
- Installation is straightforward
- All pipework on vacuum insulated tanks are made of stainless steel
- Vacuum insulated tanks include automatic pressure build up and pressure reducing systems
- Special connections are included to allow easy installation of vaporisers, cylinder filling systems, transfer pumps and dry ice machines
- Tanks can be ordered with different pipework arrangement for other liquefied cryogenic gases (Nitrogen, Oxygen, Argon)



### Easy Handling and easy Installation on Site:



**ASCO's** vacuum insulated Storage Tanks are designed for easy handling and installation on site.

The stainless steel pipework offers the possibility to connect the following equipment to the tank:

- CO<sub>2</sub> cylinder filling systems
- Atmospheric CO<sub>2</sub> vaporisers
- Dry ice pelletizers / block machines
- CO<sub>2</sub> production plants
- CO<sub>2</sub> recovery systems
- CO<sub>2</sub> transfer pumps

## Typical ASCO CO<sub>2</sub> Pipework: Arrangement

All pipework and valves are made of stainless steel. Automatic pressure build up and pressure reducing systems are standardly included to provide stable tank pressure condition.

### Optional:

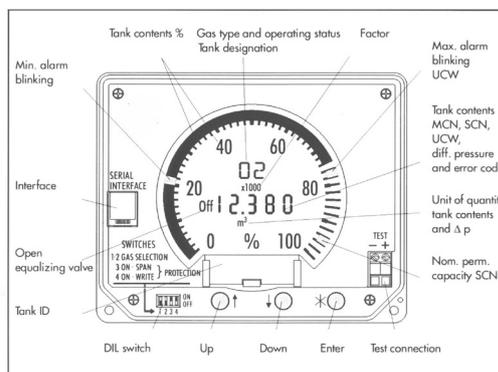
If a tank is used for storing CO<sub>2</sub> without regular withdrawal, a refrigeration unit can be supplied.



## Pressure and Level Indicator:

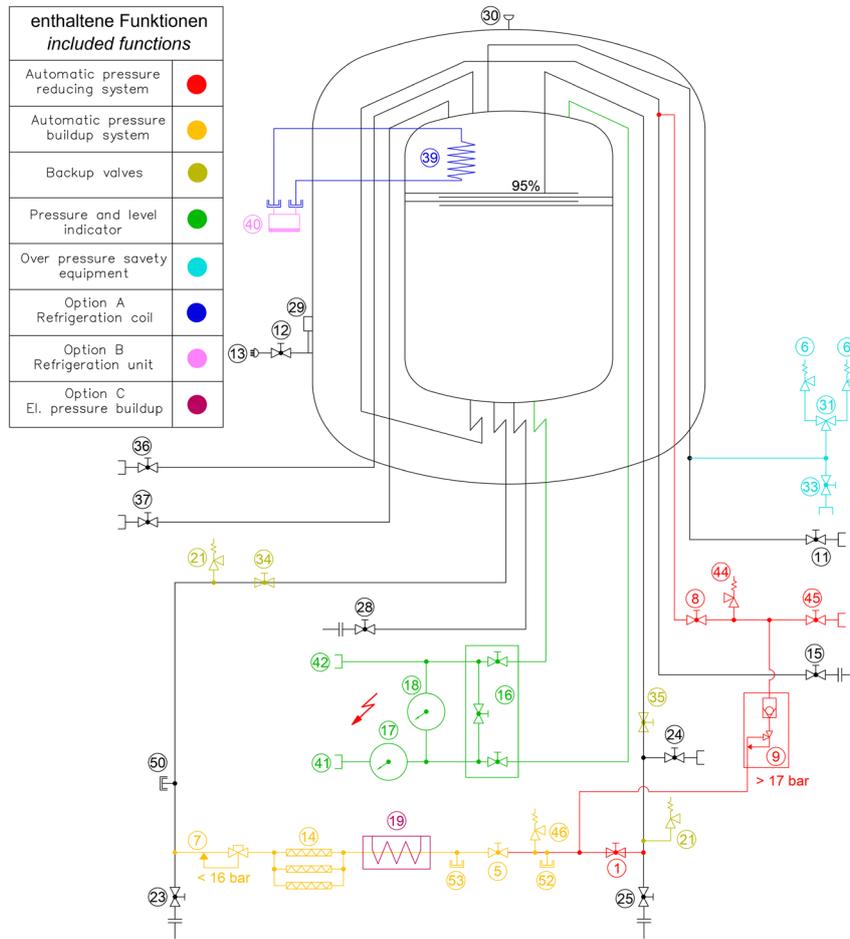
### Differential pressure indicator media 6 for liquid level indication

- Microprocessor-controlled transmitter with interface for configuration and programming on site
- Digital display (LCD) for temperatures down to  $-40^{\circ}\text{C}$  with 100% bar graph as well as alarm and warning markers
- Two-wire connection for 4-20 mA signal



# Vertical vacuum insulated ASCO CO<sub>2</sub> Tanks

Flow diagram No. 700

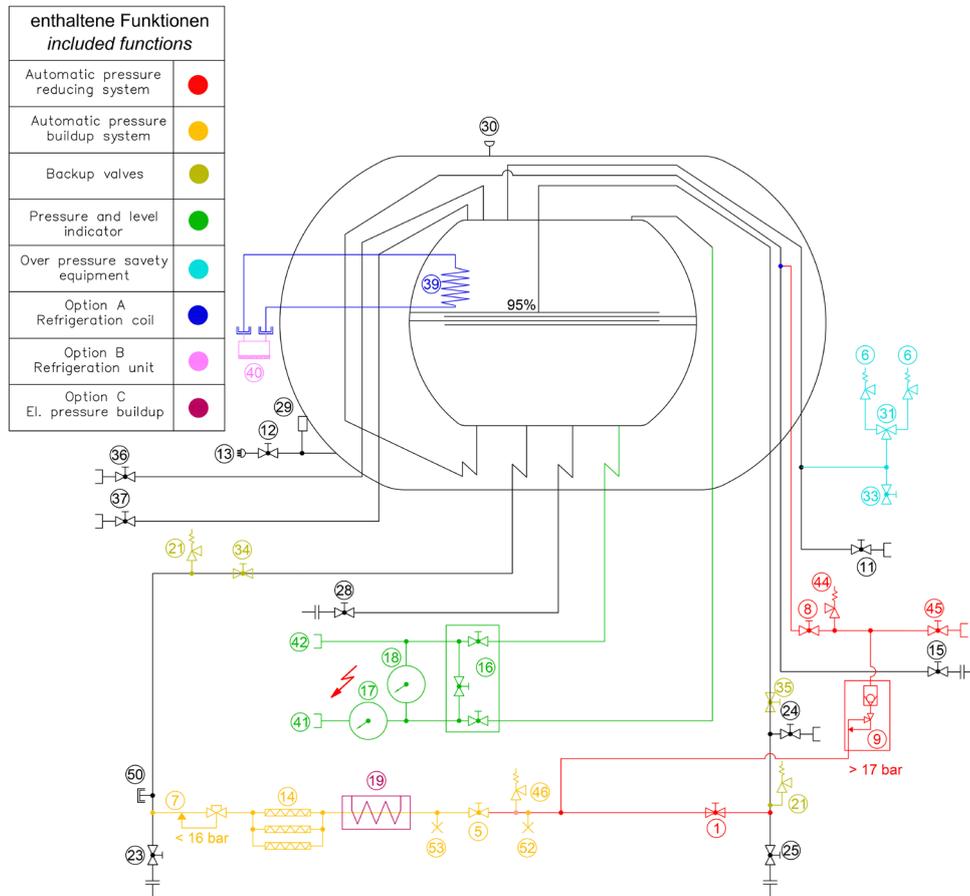


All pipework is aligned inside the tank and the connections are at the bottom of the tank.

- |    |   |    |                                     |
|----|---|----|-------------------------------------|
| 1  | Shut-off valve pressure reducing system | 28 | Valve for liquid withdrawal         |
| 5  | Shut-off valve pressure building system | 29 | Evacuation connection outer casting |
| 6  | Main safety valve                       | 30 | Bursting disk for outer tank        |
| 7  | Pressure building regulator             | 31 | Change over valve                   |
| 8  | Shut-off valve pressure reducing system | 33 | Vent valve                          |
| 9  | Pressure reducing regulator             | 34 | Back-up valve liquid line           |
| 11 | Vent valve                              | 35 | Back-up valve gas line              |
| 12 | Valve for vacuum probe                  | 36 | Valve for gas withdrawal            |
| 13 | Vacuum probe                            | 37 | Valve for gas withdrawal            |
| 14 | Vaporiser for pressure building system  | 39 | Refrigeration coil                  |
| 15 | Valve for liquid withdrawal (vaporiser) | 40 | Refrigeration unit                  |
| 16 | Three valve manifold                    | 41 | Connection for pressure measuring   |
| 17 | Pressure gauge                          | 42 | Connection for pressure measuring   |
| 18 | Liquid level indicator                  | 44 | Line safety valve                   |
| 19 | Electrical pressure building heater     | 45 | Valve for plant                     |
| 21 | Line safety valve                       | 46 | Line safety valve                   |
| 23 | Valve for liquid fill connection        | 50 | Connection for liquid withdrawal    |
| 24 | Overflow valve                          | 52 | Connection for liquid withdrawal    |
| 25 | Valve for gas fill connection           | 53 | Connection for liquid withdrawal    |

# Horizontal vacuum insulated ASCO CO<sub>2</sub> Tanks

## Flow diagram No. 750



All pipework is aligned inside the tank and the connections are at the bottom of the tank.

- |    |   |    |                                     |
|----|---|----|-------------------------------------|
| 1  | Shut-off valve pressure reducing system | 28 | Valve for liquid withdrawal         |
| 5  | Shut-off valve pressure building system | 29 | Evacuation connection outer casting |
| 6  | Main safety valve                       | 30 | Bursting disk for outer tank        |
| 7  | Pressure building regulator             | 31 | Change over valve                   |
| 8  | Shut-off valve pressure reducing system | 33 | Vent valve                          |
| 9  | Pressure reducing regulator             | 34 | Back-up valve liquid line           |
| 11 | Vent valve                              | 35 | Back-up valve gas line              |
| 12 | Valve for vacuum probe                  | 36 | Valve for gas withdrawal            |
| 13 | Vacuum probe                            | 37 | Valve for gas withdrawal            |
| 14 | Vaporiser for pressure building system  | 39 | Refrigeration coil                  |
| 15 | Valve for liquid withdrawal (vaporiser) | 40 | Refrigeration unit                  |
| 16 | Three valve manifold                    | 41 | Connection for pressure measuring   |
| 17 | Pressure gauge                          | 42 | Connection for pressure measuring   |
| 18 | Liquid level indicator                  | 44 | Line safety valve                   |
| 19 | Electrical pressure building heater     | 45 | Valve for plant                     |
| 21 | Line safety valve                       | 46 | Line safety valve                   |
| 23 | Valve for liquid fill connection        | 50 | Connection for liquid withdrawal    |
| 24 | Overflow valve                          | 52 | Connection for liquid withdrawal    |
| 25 | Valve for gas fill connection           | 53 | Connection for liquid withdrawal    |

# Vertical vacuum insulated ASCO Storage Tanks: Available standard capacities

Pos. 001

## 6.4 t (14'109.6 lb) / 6'400 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated

- diameter: 1'600 mm (62.99 in) / height: 7'500 mm (295.28 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **6'350 kg (13'999.35 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900800



Pos. 002

## 11.0 t (24'250.8 lb) / 11'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / height: 6'400 mm (251.97 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **10'540 kg (23'236.72 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **10'450 litres**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900737  
LIN, LOX, LAR 4046463



Pos. 003

## 17.0 t (37'478.6 lb) / 17'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / height: 8'950 mm (352.36 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **16'290 kg (35'913.30 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **16'150 litres (4'266.4 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900741  
LIN, LOX, LAR 4046464



## Vertical vacuum insulated ASCO Storage Tanks: Available standard capacities

Pos. 004

### 20.0 t (44'092.5 lb) / 20'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / height: 10'250 mm (403.54 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

#### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **19'160 kg (42'240.57 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

#### LIN, LOX, LAR:

- maximum net capacity of **19'000 litres (5'019.3 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub>                      900743  
LIN, LOX, LAR        4046465



Pos. 005

### 23.0 t (50'706.3 lb) vertical, vacuum insulated storage tank

Only available for CO<sub>2</sub> storage

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / height: 11'600 mm (456.69 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **22'110 kg (48'744.21 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 700

part no.

CO<sub>2</sub>                      900744



Pos. 006

### 28.0 t (61'729.4 lb) / 28'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / height: 10'350 mm (407.48 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

#### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **26'820 kg (59'127.98 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

#### LIN, LOX, LAR:

- maximum net capacity of **26'600 litres (7'027 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub>                      900745  
LIN, LOX, LAR        4046466



# Vertical vacuum insulated ASCO Storage Tanks: Available standard capacities

Pos. 007

## 32.0 t (70'547.9 lb) / 32'300 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / height: 11'600 mm (456.69 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **30'660 kg (67'593.73 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **30'690 litres (8'107.4 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900746  
LIN, LOX, LAR 4046467



Pos. 008

## 37.0 t (81'571 lb) / 36'600 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / height: 12'900 mm (507.87 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **35'450 kg (78'153.87 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **34'770 litres (9'185.3 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900747  
LIN, LOX, LAR 4046468



Pos. 009

## 41.0 t (90'389.5 lb) / 41'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / height: 14'150 mm (557.08 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **39'280 kg (86'597.58 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **38'950 litres (10'289.5 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900748  
LIN, LOX, LAR 4046469



# Vertical vacuum insulated ASCO Storage Tanks: Available standard capacities

Pos. 010

## 50.0 t (110'231.1 lb) / 50'000 l vertical, vacuum insulated storage tank

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 3'000 mm (118.11 in) / height: 11'990 mm (472.05 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)

### CO<sub>2</sub>: (available options please see flow diagram no. 700)

- maximum filling weight of **47'900 kg (105'601.42 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel

### LIN, LOX, LAR:

- maximum net capacity of **47'500 litres (12'548.2 gal)**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made of stainless steel

part no.

CO<sub>2</sub> 900750  
LIN, LOX, LAR 4046470



Pos. 011

## 60.0 t (132'277.4 lb) / 61'000 l vertical, vacuum insulated storage tank

Only available for LIN, LOX, LAR storage

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 3'000 mm (118.11 in) / height: 13'900 mm (472.05 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum net capacity of **57'950 litres**
- MAWP 18.5 bar (268.32 psi)
- inner vessel made stainless steel

part no.

CO<sub>2</sub> 900830  
LIN, LOX, LAR 4046471



Pos. 012

## 73.0 t (160'937.5 lb) / 73'000 l vertical, vacuum insulated storage tank

Only available for CO<sub>2</sub> storage.

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 3'000 mm (118.11 in) / height: 16'400 mm (645.67 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **69'930 kg (154'169.26 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 700

part no.

CO<sub>2</sub> 900751



## Vertical vacuum insulated ASCO Storage Tanks: Available standard capacities

Pos. 013

**100.0 t (220'462.3 lb) / 100'000 l vertical, vacuum insulated storage tank**

**Only available for CO<sub>2</sub> storage**

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 3'600 mm (141.73 in) / height: 15'350 mm (604.33 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **102'000 kg (224'971.51 lb)**
- safety valve setting 22 bar (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 700

**part no.**

**CO<sub>2</sub>**

**900752**



## Horizontal vacuum insulated CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 014

### 11.0 t (24'250.85 lb) / 11'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900804

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / length: 6'400 mm (251.97 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **10'540 kg (23'236.72 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



Pos. 015

### 17.0 t (37'478.6 lb) / 17'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900805

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / length: 8'950 mm (352.36 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **16'290 kg (35'919.30 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



Pos. 016

### 20.0 t (44'092.5 lb) / 20'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900906

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'200 mm (86.61 in) / length: 10'250 mm (403.54 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **19'160 kg (42'240.57 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



## Horizontal vacuum insulated CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 017

### 28.0 t (61'729.45 lb) / 28'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900807

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / length: 10'350 mm (407.48 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **26'820 kg (59'127.98 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



Pos. 018

### 32.0 t (70'547,92 lb) / 32'300 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900808

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / length: 11'600 mm (456.69 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **30'660 kg (67'593.73 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



Pos. 019

### 37.0 t (81'571.1 lb) / 36'600 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900809

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / length: 12'900 mm (507.87 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **35'450 kg (78'153.87 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar) (319.08 psi)
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



## Horizontal vacuum insulated CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 020

### 41.0 t (90'389.53 lb) / 41'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900810

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 2'500 mm (98.43 in) / length: 14'150 mm (557.09 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **39'280 kg (86'597.58 lb)**
- safety valve setting 24 bar (348.09 psi)(if stainless steel upgrade 22 bar (319.08 psi))
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750



Pos. 021

### 50.0 t (110'231.15 lb) / 50'000 l horizontal, vacuum insulated CO<sub>2</sub> storage tank

part no.

900811

Tank to be supplied complete with all pipework in stainless steel, valves, safety devices, differential pressure liquid level indicator, vacuum insulated.

- diameter: 3'000 mm (118.11 in) / length: 11'990 mm (472.05 in)
- including registration by German TÜV according to PED 2014/68/EU and AD2000 (also for CH)
- maximum filling weight of **47'900 kg (105'601.42 lb)**
- safety valve setting 24 bar (348.09 psi) (if stainless steel upgrade 22 bar (319.08 psi))
- inner vessel standardly made of carbon steel, also available in stainless steel
- available options please see flow diagram no. 750





# CO<sub>2</sub> Storage

## Polyurethane insulated ASCO CO<sub>2</sub> Storage Tanks



**ASCO** polyurethane insulated (PU) Storage Tanks are constructed in various standard sizes, ranging from 10t to 100t capacity of liquid carbon dioxide. Each unit is compactly designed, simple and safe to operate and easily installed.

The **ASCO** pressure vessels are designed and built per PED and AD2000, maximum allowable working pressure is 24 bar (348.09 psi). Tanks are supplied complete with all pipework in stainless steel, valves and safety devices (as described in our tank flow diagram).



**ASCO** PU insulated CO<sub>2</sub> Storage Tanks are available as vertical and horizontal version.

Insulated, completely pre-wired electrical system with control cabinet, level-indicator media6 or loadcell, pressure build-up heater, safety devices, valves, pipework. All our systems are completely pretested before shipment.

Capacities given is based on a 95 % full volume. Vessels are insulated with 150 to 200 mm (5.91 to 7.87 in) polyurethane foam, covered by an aluminium sheet and are primed.

The tank content can be shown either by differential pressure indicator and pressure gauge or load cells.

### Specifications

Pressure vessel:	Made of carbon steel, 24 bar (348.09 psi) design pressure
Insulation:	PU insulated, 150-200 mm (6-8 in), covered by aluminium sheet
Piping:	Stainless steel
Contents gauge:	Differential pressure measuring device (outlet 4-20 mA)
Filling connections:	According to flow diagram
Approval:	ED 2014/68/EU and AD2000

ASCO reserves the right to modify all specifications without prior notice.

## PU insulated ASCO CO<sub>2</sub> Storage Tanks: Overview standard capacities

### Available standard capacities vertical PU insulated ASCO CO<sub>2</sub> Storage Tanks:

Tank capacity (liquid CO <sub>2</sub> in kg) (lb)	Dimensions (height × diameter in mm) (in)	approx. empty weight in kg (lb)	part no.
9'800 (21'605)	5'250 × 1'800 (207 x 71 in)	4'800 (10'582)	4046602
14'700 (32'408)	7'250 × 1'800 (285 x 71 in)	5'300 (11'684)	4046603
17'650 (38'912)	8'750 × 1'800 (344 x 71 in)	6'500 (14'330)	4046604
22'550 (49'714)	10'250 × 1'800 (404 x 71 in)	7'800 (17'196)	4046605
29'500 (65'036)	8'250 × 2'400 (325 x 94 in)	9'500 (20'944)	4046606
39'150 (86'311)	9'750 × 2'400 (384 x 94 in)	11'200 (24'692)	4046607
48'900 (101'780)	12'550 × 2'400 (494 x 94 in)	13'600 (29'983)	4046608
58'700 (129'411)	14'550 × 2'400 (573 x 94 in)	14'850 (32'739)	4046609
97'850 (215'722)	14'000 × 3'200 (55 x 126 in)	25'800 (56'879)	4046610

### Available standard capacities horizontal PU insulated ASCO CO<sub>2</sub> Storage Tanks:

Tank capacity (liquid CO <sub>2</sub> in kg) (lb)	Dimensions (length × diameter in mm) (in)	approx. empty weight in kg (lb)	part no.
9'800 (21'605)	5'805 × 1'900 (229 x 75 in)	4'000 (8'818)	4046592
14'700(32'408)	7'305 × 1'900 (288 x 73 in)	5'000 (11'023)	4046593
17'650 (17'650)	8'800 × 1'900 (346 x 73 in)	6'000 (13'228)	4046594
22'550 (49'714)	10'300 × 1'900 (406 x 73 in)	7'000 (15'432)	4046595
29'500 (65'036)	11'800 × 1'900 (465 x 73 in)	8'600 (18'960)	4046596
39'150 (86'311)	10'800 × 2'400 (425 x 73 in)	10'300 (22'708)	4046597
48'900 (101'780)	14'000 × 2'400 (551 x 73 in)	13'600 (29'983)	4046598
58'700 (129'411)	15'500 × 2'400 (610 x 94 in)	15'000 (33'069)	4046599
97'850 (215'722)	13'500 × 3'000 ((531 x 118 in)	29'500 (65'036)	4046600

All horizontal PU insulated ASCO CO<sub>2</sub> Storage Tanks are delivered skid-mounted.

## PU insulated ASCO CO<sub>2</sub> Storage Tanks: Standard scope of supply

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

**Additionally either a load cell or a differential pressure indicator (Media 6) has to be chosen (see options).**

## Vertical PU insulated ASCO CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 001

### ASCO CO<sub>2</sub> VT PU Storage Tank, 10t (22'046.2 lb) TÜV/PED

10t vertical, with a maximum filling weight of **9'800 kg (21'605.30 lb)**

- diameter: 1'800 mm (70.87 in) / height: 5'250 mm (206.69 in)
- empty weight: approx. 4'800 kg (10'582.19 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046602



Pos. 002

### ASCO CO<sub>2</sub> VT PU Storage Tank, 15t (33'069.3 lb) TÜV/PED

15t vertical, with a maximum filling weight of **14'700 kg (32'407.95 lb)**

- diameter: 1'800 mm (70.87 in) / height: 7'250 mm (285.43 in)
- empty weight: approx. 5'300 kg (11'684.50 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046603



Pos. 003

### ASCO CO<sub>2</sub> VT PU Storage Tank, 18t (39'683.2 lb) TÜV/PED

18t vertical, with a maximum filling weight of **17'650 kg (38'911.59 lb)**

- diameter: 1'800 mm (70.87 in) / height: 8'750 mm (344.49 in)
- empty weight: approx. 6'500 kg (14'109.58 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046604



# Vertical PU insulated ASCO CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 004

## ASCO CO<sub>2</sub> VT PU Storage Tank, 23t (50'706.3 lb) TÜV/PED

23t vertical, with a maximum filling weight of **22'550 kg (49'714.24 lb)**

- diameter: 1'800 mm (70.87 in) / height: 10'250 mm (403.54 in) empty weight: approx. 7'800 kg (17'196.06 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046605



Pos. 005

## ASCO CO<sub>2</sub> VT PU Storage Tank, 30t (66'138.7 lb) TÜV/PED

30t vertical, with a maximum filling weight of **29'500 kg (65'036.37 lb)**

- diameter: 2'400 mm (94.49 in) / height: 8'250 mm (324.80 in)
- empty weight: approx. 9'500 kg (20'943.91 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046606



Pos. 006

## ASCO CO<sub>2</sub> VT PU Storage Tank, 40t (88'184.9 lb) TÜV/PED

40t vertical, with a maximum filling weight of **39'150 kg (86'310.98 lb)**

- diameter: 2'400 mm (94.49 in) / height: 9'750 mm (383.86 in)
- empty weight: approx. 11'200 kg (24'691.77 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046607



## Vertical PU insulated ASCO CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 007

### ASCO CO<sub>2</sub> VT PU Storage Tank, 50t (110'231.1 lb) TÜV/PED

50t vertical, with a maximum filling weight of **48'900 kg (107'806.05 lb)**

- diameter: 2'400 mm (94.49 in) / height: 12'550 mm (494.09 in)
- empty weight: approx. 13'600 kg (29'982.87 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046608



Pos. 008

### ASCO CO<sub>2</sub> VT PU Storage Tank, 60t (132'277.4 lb) TÜV/PED

60t vertical, with a maximum filling weight of **58'700 kg (139'411.35 lb)**

- diameter: 2'400 mm (94.49 in) / height: 14'550 mm (572.83 in)
- empty weight: approx. 14'850 kg (32'738.65 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046609



Pos. 009

### ASCO CO<sub>2</sub> VT PU Storage Tank, 100t (220'462 lb) TÜV/PED

60t vertical, with a maximum filling weight of **97'850 kg (215'722.32 lb)**

- diameter: 3'200 mm (125.98 in) / height: 14'000 mm (551.18 in)
- empty weight: approx. 25'800 kg (56'879.26 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046610



## Horizontal PU insulated ASCO CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 010

### ASCO CO<sub>2</sub> HT PU Storage Tank, 10t TÜV/PED

part no.

4046592

10t horizontal, with a maximum filling weight of **9'800 kg (21'605.30 lb)**

- diameter: 1'900 mm (74.80 in) / length: 5'805 mm (228.54 in)
- empty weight: approx. 4'000 kg (8'818.49 lb)
- working temperature: -40 °C to +20 °C



Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

Pos. 011

### ASCO CO<sub>2</sub> HT PU Storage Tank, 15t TÜV/PED

part no.

4046593

15t horizontal, with a maximum filling weight of **14'700 kg (32'407.95 lb)**

- diameter: 1'900 mm (74.80 in) / length: 7'305 mm (287.60 in)
- empty weight: approx. 5'000 kg (11'027.11 lb)
- working temperature: -40 °C to +20 °C



Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

Pos. 012

### ASCO CO<sub>2</sub> HT PU Storage Tank, 18t TÜV/PED

part no.

4046594

18t horizontal, with a maximum filling weight of **17'650 kg (38'911.59 lb)**

- diameter: 1'900 (74.80 in) / length: 8'800 mm (346.46 in)
- empty weight: approx. 6'000 kg (13'227.74 lb)
- working temperature: -40 °C to +20 °C



Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

Pos. 013

## ASCO CO<sub>2</sub> HT PU Storage Tank, 23t TÜV/PED

23t horizontal, with a maximum filling weight of **22'550 kg (49'714.24 lb)**

- diameter: 1'900mm (74.80 in) / length: 10'300 mm (405.51 in)
- empty weight: approx. 7'000 kg (15'432.36 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046595



Pos. 014

## ASCO CO<sub>2</sub> HT PU Storage Tank, 30t TÜV/PED

30t horizontal, with a maximum filling weight of **29'500 kg (65'036.37 lb)**

- diameter: 1'900mm (74.80 in) / length: 11'800 mm (464.57 in)
- empty weight: approx. 8'600 kg (18'959.75 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046596



Pos. 015

## ASCO CO<sub>2</sub> HT PU Storage Tank, 40t TÜV/PED

40t horizontal, with a maximum filling weight of **39'150 kg (86'310.98 lb)**

- diameter: 2'400mm (94.49 in) / length: 10'800 mm (425.20 in)
- empty weight: approx. 10'300 kg (22'707.61 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046597



## Horizontal PU insulated ASCO CO<sub>2</sub> Storage Tanks: Available standard capacities

Pos. 016

### ASCO CO<sub>2</sub> HT PU Storage Tank, 50t TÜV/PED

50t horizontal, with a maximum filling weight of **48'900 kg (107'806.04 lb)**

- diameter: 2'400mm (94.49 in) / length: 14'000 mm (551.18 in)
- empty weight: approx. 13'600 kg (29'982.87 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046598



Pos. 017

### ASCO CO<sub>2</sub> HT PU Storage Tank, 60t TÜV/PED

60t horizontal, with a maximum filling weight of **58'700 kg (129'411.35 lb)**

- diameter: 2'400mm (94.49 in) / length: 15'500 mm (610.24 in)
- empty weight: approx. 15'000 kg (33'069.34 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046599



Pos. 018

### ASCO CO<sub>2</sub> HT PU Storage Tank, 100t TÜV/PED

100t horizontal, with a maximum filling weight of **97'850 kg (215'722.34 lb)**

- diameter: 3'000mm (118.11 in) / length: 13'500 mm (531.50 in)
- empty weight: approx. 29'500 kg (65'036.37 lb)
- working temperature: -40 °C to +20 °C

Safety valve setting 24 bar (348.09 psi), vessel made of carbon steel, PU insulated

Tank to be supplied complete with all pipework in stainless steel, valves and safety devices, skid-mounted.

Incl.:

- back-up valves on filling liquid and gas line
- 2 liquid withdrawal valves
- 2 gas withdrawal valves
- refrigeration coil

part no.

4046600



## Vertical & horizontal PU insulated ASCO CO<sub>2</sub> Storage Tanks: Options

Pos. 019	<b>Refrigeration unit for ASCO CO<sub>2</sub> H/VT PU10-30t Storage Tank</b>	<b>part no.</b>	<b>4046612</b>
Pos. 020	<b>Refrigeration unit for ASCO CO<sub>2</sub> H/VT PU40-100t Storage Tank</b>	<b>part no.</b>	<b>4046613</b>
Pos. 021	<b>Heating unit for ASCO CO<sub>2</sub> H/VT PU Storage Tank</b> Heating unit to hold the pressure stable inside the tank	<b>part no.</b>	<b>4046614</b>
Pos. 022	<b>Load cell for ASCO CO<sub>2</sub> H/VT PU Storage Tank</b> Load cell instead of differential pressure indicator Media 6	<b>part no.</b>	<b>4046615</b>
Pos. 023	<b>Media 6 for ASCO CO<sub>2</sub> H/VT PU Storage Tank</b> Differential pressure indicator Media 6 for liquid level indication instead of load cell	<b>part no.</b>	<b>4046616</b>

Please note that the standard version of the tanks is NOT equipped with any filling level indication! Therefore one of the options (part no. 912724 or 912725) must be chosen.



# CO<sub>2</sub> Storage

## 20' ASCO ISO Tank Containers



**ASCO CO<sub>2</sub>** and Cryogenic 20' ISO Tank Containers include a high quality vacuum multi-laminar super insulation and are supplied complete with all pipework, valves, safety devices, liquid level indicator, pressure gauge and optional with transfer pump and filling hoses.

All tank containers are designed for transportation by road, ship and rail.

The models are also available on semi-trailer and/or with tractor.

Inner vessels and pipework are made of stainless steel - used for multipurpose transportation of CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> and Ar.

ASCO reserves the right to modify all specifications without prior notice.

## Specifications:

### 1. Main Data

Commodity	approx. 19'650 l (5'191.0 gal)
Gross water volume:	19'650
Max. allowed working pressure:	22 bar (319.08 psi)
Tare weight:	approx 8'600 kg (18'959.8 lb)
Max. gross weight:	36'000 kg (79'366.4 lb)
Max. payload:	LCO2: approx. 19'600 kg (43'210.6 lb)
	LIN: approx. 14'950 kg (32'959.1 lb)
	LOX: approx. 21'240 kg (46'826.2 lb)
	LAR: approx. 26'130 kg (57'606.8 lb)
Tolerances:	on volume 1 %, on weight 2 %
Codes and regulations:	ADR / RID / IMDG / (UN-T75) / UIC
Insulation:	Vacuum with multi-layer insulation
Height:	approx. 2'600 mm (102.36 in)
Width:	approx 2'440 mm (96.06 in)
Overall length:	6'060 mm (238.58 in)
ISO-corner castings:	20' x 8' x 8'6" ISO dimensions (508 x 203.2 x 218.44 mm)

### 2. Tank

<b>Inner Vessel</b>	
Max. allowed working pressure:	22 bar (319.08 psi)
Pressure vessel code:	AD 2000-Regelwerk
Test and calculation pressure:	29.9 bar (433.7 psi)
Design temperature:	-196 / +50 °C
Outer diameter:	2'200 mm (86.6 in)
Number of baffles:	2
<b>Outer Vessel</b>	
Design pressure:	-1 bar (-14.5 psi) (full vacuum)
Design temperature:	-20 / +50 °C
Outer diameter:	2'420 mm (95.28 in) (not protruding over the frame members)
Overall length:	6'000 mm (236.22 in) (not protruding over the frame members)
<b>Insulation</b>	
Type	vacuum + multi-layer insulation (super insulated)
<b>Materials</b>	
Inner vessel of CO <sub>2</sub> tanks:	Stainless steel type 1.4311/EN 10028-7 or equivalent
Inner vessel of cryogenic tanks:	Stainless steel type 1.4311/DIN 17440 or equivalent
Outer vessel:	carbon steel S235JRG2/EN 10025 or equivalent
Piping:	stainless steel type 340 (L)
Valves for CO <sub>2</sub> tanks:	ball valves, stainless steel, for CO <sub>2</sub>
Valves for cryogenic tanks	Cryogenic valves

### 3. Frame

The frame is of „Beam Type“, consisting 8' x 8'6"-frame at each end, connected to each end. Handling to be done by means of the corner castings only. The container can be secured by twist locks on rail and road vehicles complying to the relevant requirements of ISO 668 freight containers.

## Lockable Machinery Compartment:



All stainless steel pipework and valves neatly arranged in a lockable machinery compartment. Outside of the machinery compartment is a lockable document holder installed.

## Available Types:



ASCO's 20' ISO Tank Containers are optionally available on semi-trailer and/or tractor.

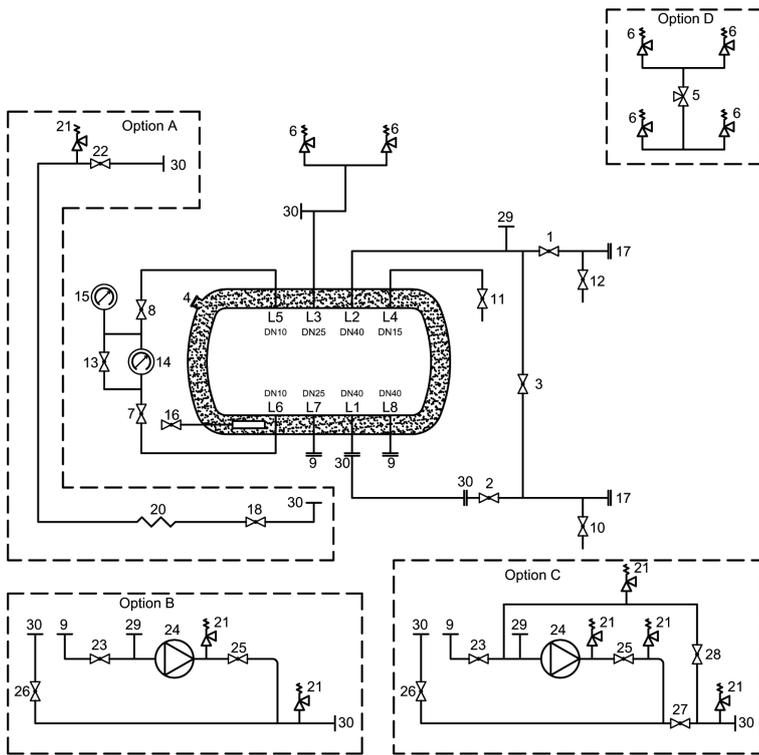
All ISO tank containers include:

- inner vessel made of **stainless steel**
- all pipe work made of **stainless steel**
- all valving necessary for proper operation (stainless steel ball valves for CO<sub>2</sub> and bronze globe valves for cryogenic)
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- transfer pump and filling hoses (optional)

Larger sizes also available. Please ask for details!

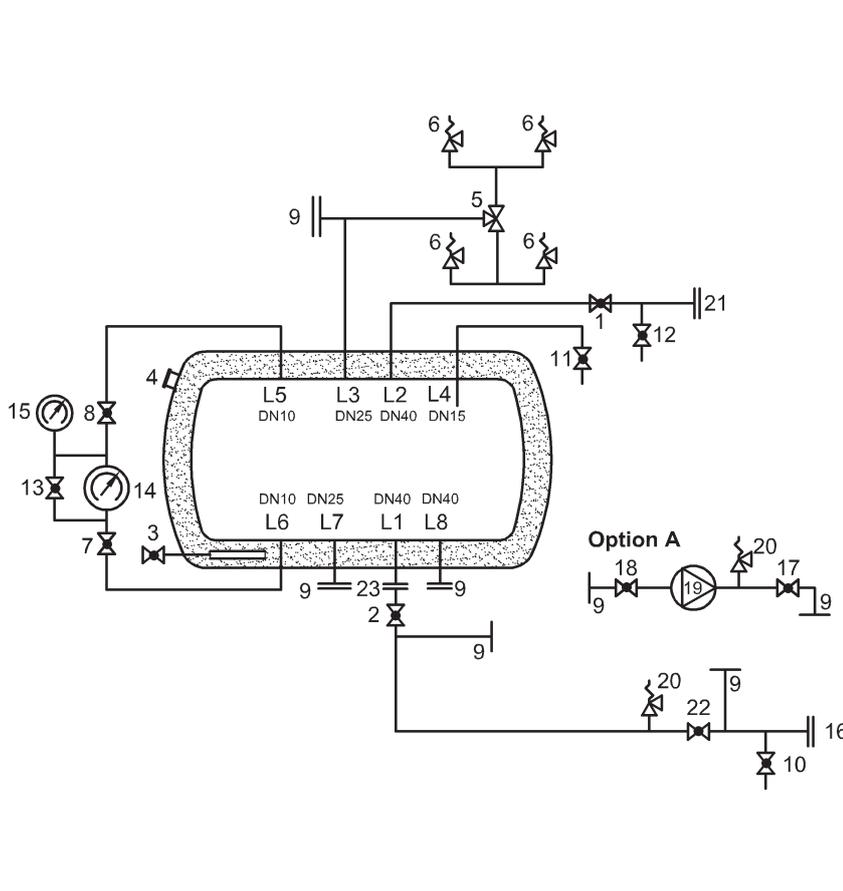
# ASCO 20' ISO Tank Container

## Typical flow diagram for 20' ASCO ISO Tank CO<sub>2</sub> Container



- 1 Vapour balance line valve
- 2 Main bottom isolation valve
- 3 Vacuum point
- 4 Bursting disc vacuum jacket
- 5 Divertor valve
- 6 Safety valve
- 7 Instrument liquid valve
- 8 Instrument gas valve
- 9 Flange connection with blindflange (without option)
- 10 Fill and discharge line purge valve
- 11 Trycock nett capacity 95% valve
- 12 Vapour line purge valve
- 13 Level gauge balance line valve
- 14 Liquid gauge level
- 15 Pressure gauge
- 16 Connection fill and discharge line (flange coupling)
- 17 Liquid from pump delivery valve
- 18 Pump isolation valve
- 19 Pump
- 20 Thermal relief valve
- 21 Connection vapour line (flange coupling)
- 22 Fill and discharge valve
- 23 Flange connection

## Typical flow diagram for 20' ASCO ISO Tank Cryogenic Container



- 1 Vapour balance line valve
- 2 Bottom fill isolation valve
- 3 Top fill isolation valve
- 4 Bursting disc vacuum jacket
- 5 Divertor valve
- 6 Safety valve
- 7 Instrument liquid valve
- 8 Instrument gas valve
- 9 Flange connection with blindflange (without option)
- 10 Fill line purge valve
- 11 Trycock nett capacity 95% valve
- 12 Vapour line purge valve
- 13 Level gauge balance line valve
- 14 Liquid gauge level valve
- 15 Pressure gauge
- 16 Vacuum point
- 17 Flange connection with blindflange
- 18 Liquid to pressure build up valve
- 19 Pump
- 20 Fin vaporiser
- 21 Thermal relief valve
- 22 Pressure build up gas return valve
- 23 Liquid to pump fill valve
- 24 Pump
- 25 Liquid from pump delivery valve
- 26 Pump by-pass valve
- 27 Liquid from pump delivery valve
- 28 Bottom fill pump isolation valve
- 29 Coupling with plug
- 30 Flange connection

## 20' ASCO ISO Tank Container: Available standard capacities

Pos. 001

### ASCO CO<sub>2</sub> 20' ISO Tank Container

Vacuum super insulated 20' ISO tank container (UN-T75) with stainless steel inner vessel, including hose box.

Gross water volume: approx. 19'650 l

Max allowed working pressure: 22 bar (319.08 psi)

Tare weight: approx. 8'600 kg (18'959.75 lb)

Max. gross weight: 36'000 kg (79'366.41 lb)

Max. payload: approx: **LCO<sub>2</sub>: 19'600 kg (43'210.60 lb)**

part no. 4046396



Optionally available on semi-trailer and/or tractor.

All ISO tank container include:

- inner vessel made of stainless steel
- all pipework made of stainless steel
- all valving necessary for proper operation
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- optionally transfer pump and filling hoses are available

Pos. 002

### Cryogenic ASCO 20' ISO Tank Container

Vacuum super insulated 20' ISO tank container (UN-T75) with stainless steel inner vessel, including hose box.

Gross water volume: approx. 19'650 l

Max allowed working pressure: 22 bar (319.08 psi)

Tare weight: approx. 8'600 kg (18'959.75 lb)

Max. gross weight: 36'000 kg (79'366.41 lb)

Max. payload: approx: **LIN: 14'950 kg (32'959.11 lb)**

**LOX: 21'240 kg (46'826.18 lb)**

**LAR: 26'130 kg (57'606.79 lb)**

part no. 4046398



Optionally available on semi-trailer and/or tractor.

All ISO tank container include:

- inner vessel made of stainless steel
- all pipework made of stainless steel
- all valving necessary for proper operation
- all necessary safety equipment
- all instruments and safety lines that form part of the tank, including pressure and level gauge
- optionally transfer pump and filling hoses are available



# CO<sub>2</sub> Storage

## Transportable ASCO CO<sub>2</sub> Tanks / ASCO CO<sub>2</sub> Semi-Trailers



**ASCO** supplies different sizes of transportable CO<sub>2</sub> tanks which can be mounted on any suitable truck or trailer locally. Transportable tanks are a cost saving alternative to conventional road tankers as the operator may use the vehicle for other duties as well as bulk CO<sub>2</sub> transport. The tank is a self-contained unit mounted on a base frame and when empty it can easily be craned on or off as required. Suitable lifting lugs are on the top of the tank.

While transportable (dismountable) CO<sub>2</sub> tanks provide cost efficiency, our CO<sub>2</sub> semi-trailers provide even more logistics efficiency.



The special design of both our transportable CO<sub>2</sub> tanks and semi-trailers allows simple operation. A lockable machinery compartment houses the transfer pump and motor, control valves, contents and pressure gauges and pipework.

### ASCO Transportable CO<sub>2</sub> Tanks and CO<sub>2</sub> Semi-Trailers: Key features

- Short loading and unloading times thanks to proven design and user-ergonomics
- Highest possible capacity and lowest tare weight without compromising safety and durability, paying back customer's investments very early
- Special insulation considering least possible evaporation rate under extreme temperatures of different countries
- Versatile and adjustable design to be in conformity with different national standards
- Easy maintenance with highly accessible equipment panel, durable accessories
- Piping instrumentation design assuring maximum efficiency and safety

## Transportable ASCO CO<sub>2</sub> Tanks/CO<sub>2</sub> Semi-Trailers: Available standard capacities

Pos. 001

### ASCO CO<sub>2</sub> TPU transportable LCO<sub>2</sub> Tank, 6 m<sup>3</sup> (211.9 ft<sup>3</sup>)

part no. 4046547

6 m<sup>3</sup> PUR insulated truck mountable LCO<sub>2</sub> transport tank  
incl. Smith MC-3H LCO<sub>2</sub> transfer pump with flexible hoses 5 m

Gross volume: 6'098 litres (1'610.9 gal)  
Net volume (% 95): 5'793 litres (1'530.3 gal)  
Empty weight: approx. 3'750 kg (8'267.33 lb)  
Max. filling weight: approx. 6'123 kg (13'498.90 lb)  
Max. total weight: approx. 9'873 kg (21'766.24 lb)  
MDMT at mAWP: -40 °  
Test Temp: min. 10 °C / max. 40 °C  
MAWP: 24 bar (348.09 psi)  
Thermal insulation: PUR insulation



Pos. 002

### ASCO CO<sub>2</sub> TPU transportable LCO<sub>2</sub> Tank, 12 m<sup>3</sup> (423.8 ft<sup>3</sup>)

part no. 4046548

12 m<sup>3</sup> PUR insulated truck mountable LCO<sub>2</sub> transport tank  
incl. Smith MC-3H LCO<sub>2</sub> transfer pump with flexible hoses 5 m

Gross volume: 12'127 litres (3'203.6 gal)  
Net volume (% 95): 11'520 litres (3'043.3 gal)  
Empty weight: approx. 4'500 kg (9'920.80 lb)  
Max. filling weight: approx. 10'638 kg (23'452.78 lb)  
Max. total weight: approx. 15'138 kg (33'373.58 lb)  
MDMT at mAWP: -40 °  
Test Temp: min. 10 °C / max. 40 °C  
MAWP: 24 bar (348.09 psi)  
Thermal insulation: PUR insulation



Pos. 003

### ASCO CO<sub>2</sub> Semi-Trailer 25 m<sup>3</sup> (882.9 ft<sup>3</sup>) PUR

part no. 4046544

incl. Smith MC-3H LCO<sub>2</sub> transfer pump with flexible hoses 5 m  
equipped with OSMAN KOC brand axles

Insulation: Polyurethan  
Gross volume: 25'000 litres (6'604.3 gal)  
Net volume (% 95): 23'750 litres (6'274,1 gal)  
MAWP: 24 bar (348.09 psi)  
Max. payload: 24'627 kg (54'293.24 lb)  
Gross vehicle weight: 35'000 kg (77'161.79 lb)  
Electrical system: 24 V  
Truck requirements: king pin height (Sattelauflegerhöhe) 1'250 mm (49.21 in)  
Tests: The designs and calculations, visual dimensions and radio-graphic control are performed under the inspection of Bureau



## Transportable ASCO CO<sub>2</sub> Tanks/CO<sub>2</sub> Semi-Trailers: Available Options:

Pos. 004

### LCO<sub>2</sub> flowmeter system

part no. 4046545

Flowmeter system for transportable tanks and semi-trailers

Electronic acquisition, display, recording, analysis, remote transmission and archiving of analog and digital input signals. The device will be installed into the tank/semi-trailer.

Pos. 005

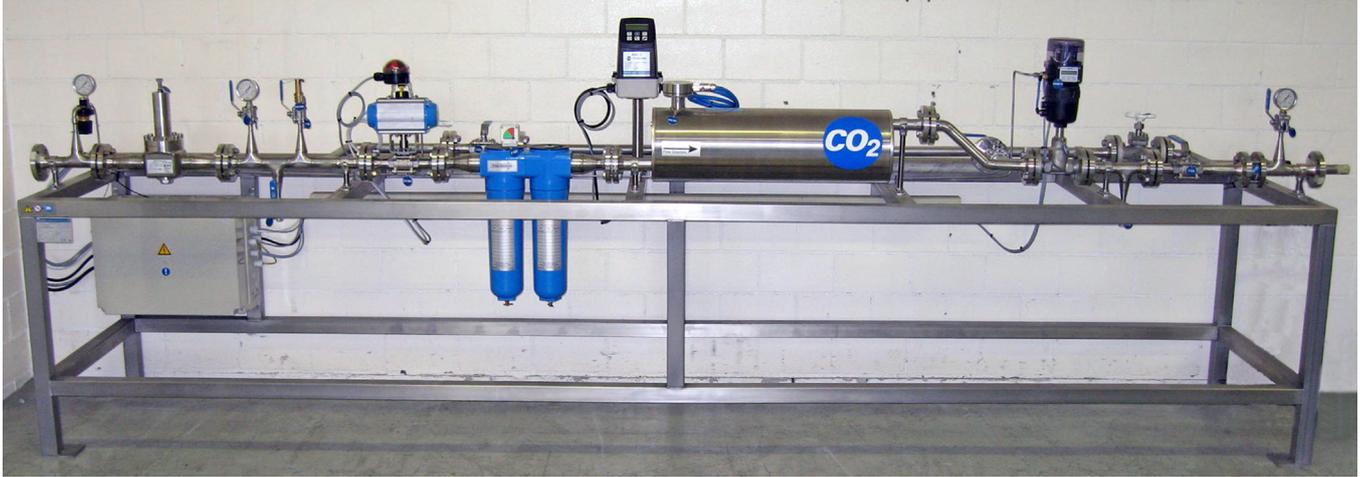
### BPW Eco Plus Suspension Axles for ASCO Semi-Trailer

part no. 4046546

Optional axle system for ASCO LCO<sub>2</sub> Semi-Trailer 24.2 m<sup>3</sup> (854.6 ft<sup>3</sup>)

# CO<sub>2</sub> Gas Dosing for Water Neutralisation

## ASCO CO<sub>2</sub> Gas Dosing Systems



**ASCO CO<sub>2</sub> Dosing System (single line)**

Wherever you need to have an exact quantity of CO<sub>2</sub> gas to be dosed, the **ASCO** CO<sub>2</sub> Gas Dosing System is ideal! Typically, the **ASCO** CO<sub>2</sub> Gas Dosing System is used together with water desalination plants.

The system is equipped with a CO<sub>2</sub> pressure reducing valve, filtration unit, CO<sub>2</sub> gas flowmeter, CO<sub>2</sub> regulating valve, pressure gauges, safety valves and a completely pre-wired control cabinet.

In case of maintenance the system provides a manual by-pass line, which also can be monitored by the flowmeter. Herefore, changing a filter cartridge or doing any other service work on the system is quick and easy!

As raw and fitting material **ASCO** uses mainly stainless steel. This makes the system very resistant and extends the products life cycle.

### Advantages of an ASCO CO<sub>2</sub> Gas Dosing System:

- easy to install
- very accurate
- 4-20 mA output signal
- robust stainless steel construction
- no auxiliary equipment like air compressor needed, only power supply is required

### Site conditions

Min. ambient air temperature:	10 °C, optional with heater for vaporiser down to 4 °C
Max. ambient air temperature:	38 °C, optional with air conditioned cabinet up to 50 °C
Humidity:	34 % to 99 %
Wind speed max:	19.03 m/s (62 ft/s), tank foundation must be recalculated by local civil engineer
Uniform building code:	seismic zone 2A
Temperature treated water:	15 to 35 °C
Side stream water pressure:	4 bar (58 psi) max.

## ASCO CO<sub>2</sub> Gas Dosing System: Components



- flanged inlet incl. counter flange
- control cabinet
- all equipment mounted on robust stainless steel frame



- pressure reducing valve for easy adjustment of inlet pressure



- **ASCO CO<sub>2</sub> Gas Flowmeter** for accurate measuring of the flow rate
- provides a 4-20 mA output signal which can be processed on the customer's main control



- actuating valve to adjust flow of CO<sub>2</sub> gas



- by-pass-line for manual operation



- filtration unit

## Static mixer / Gas dispersion system

As per customer's requirement, **ASCO** includes static mixers or a complete gas dispersion system in order to ensure a reliable solubility of the CO<sub>2</sub> gas in the customer's main stream water. The used components feature the following key benefits:

- highly efficient mixing
- low energy consumption
- no moving parts for maintenance free operation
- no direct motive power required



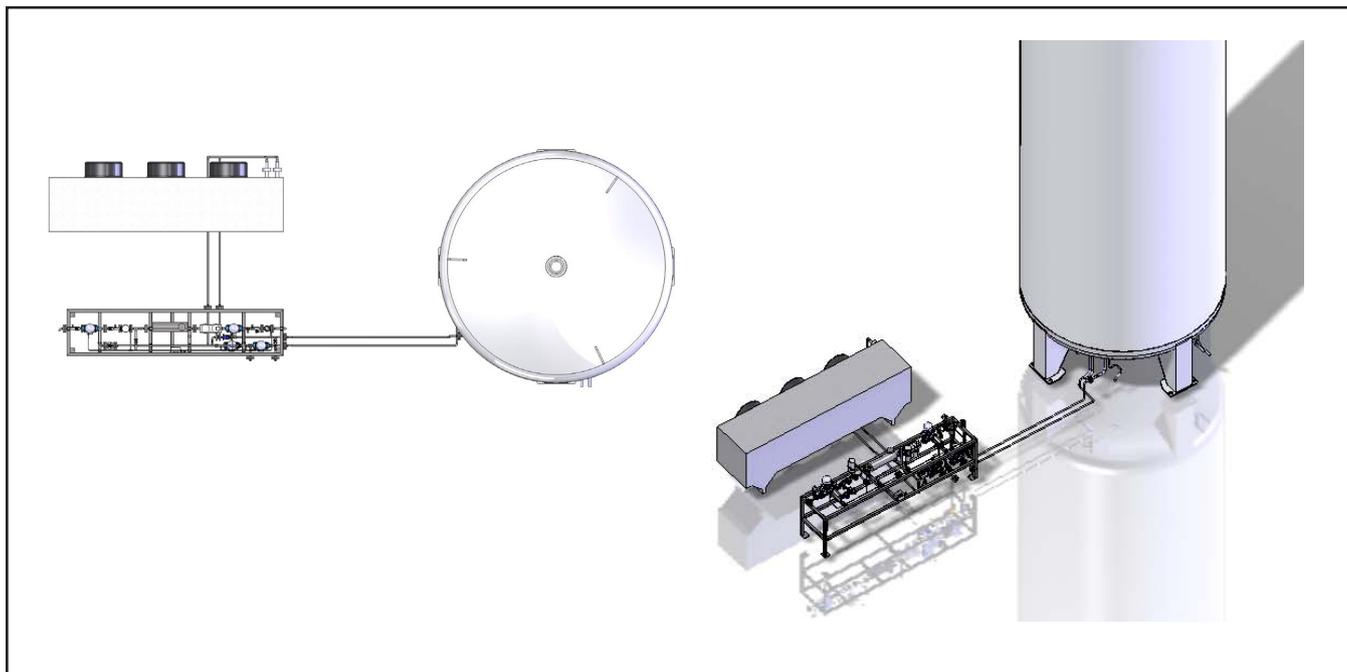
CO<sub>2</sub> feeding via side stream into the main water stream



Reliable solubility of the CO<sub>2</sub> gas thanks to special design of the static mixer

## ASCO CO<sub>2</sub> Gas Dosing System: Example layout of a single line

Please note that all systems in this catalogue are only examples. Each system is customised and requires detailed engineering.



Example layout of a complete **ASCO** CO<sub>2</sub> Gas Dosing System (single line) with CO<sub>2</sub> tank and vaporiser

**ASCO** supplies a fully preinstalled and pretested system consisting of one storage tank, one vaporiser, one dosing system and, if desired, static mixers or a complete gas dispersion system.

The pipework of the **ASCO** CO<sub>2</sub> Gas Dosing System is completely welded to minimise installation works on site. Only the connection between storage tank and vaporiser has to be welded directly on site.

All civil related works, like site planning, foundations, electrical supply, installation material, water side stream and installation on site are customer's responsibility.

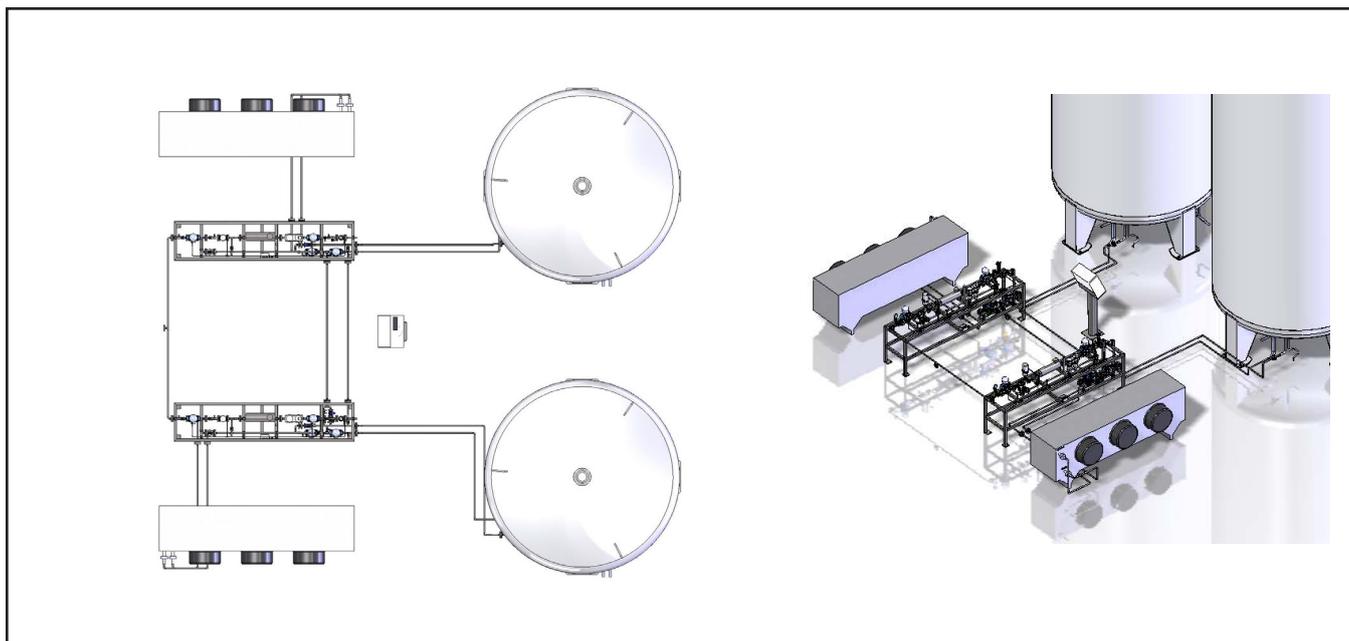
## ASCO CO<sub>2</sub> Gas Dosing System: Standard scope of supply (single line)

**ASCO** supplies a fully preinstalled and pretested system consisting of:

- 1 × **ASOC** CO<sub>2</sub> Gas Dosing System line consisting of
  - filtration unit
  - flow regulating valve
  - automatic shut off valve
  - pressure reducing valve
  - manual shut off valve
  - safety valves
  - discharge valve
  - control cabinet, prewired
  - all mounted on a stainless steel base frame
- 1 × CO<sub>2</sub> flowmeter including digital display
- 1 × CO<sub>2</sub> storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO<sub>2</sub> vaporiser (capacity has to be specified at time of order)
- 1 × static mixer or gas dispersion system (capacity has to be specified at time of order)

## ASCO CO<sub>2</sub> Gas Dosing System: Example Layout of a redundant dosing system

Please note that all systems in this catalogue are only examples. Each system is customised and requires detailed engineering.



Example layout of a complete redundant **ASCO** CO<sub>2</sub> Gas Dosing System with CO<sub>2</sub> tanks and vaporisers

**ASCO** provides a completely redundant system which automatically controls and regulates the CO<sub>2</sub> flow depending on a set point coming from the LCP with integrated HMI.

Depending on the condition of the storage tanks, vaporisers and the dosing systems, the system will detect and decide what parts need to take over the load to guarantee a continuous CO<sub>2</sub> injection into the side stream water. All operating conditions and status information are displayed on the touch panel and are available as data bloc for customers main control.

## Redundant ASCO CO<sub>2</sub> Gas Dosing System: Standard scope of supply

**ASCO** supplies a fully preinstalled and pretested system consisting of:

- 2 x **ASCO** CO<sub>2</sub> Gas Dosing System lines consisting of
  - filtration unit
  - flow regulating valve
  - automatic shut off valve
  - pressure reducing valve
  - manual shut off valve
  - safety valves
  - discharge valve
  - all mounted on a stainless steel base frame
- 2 x CO<sub>2</sub> flowmeters including digital display
- 1 x control cabinet (PLC)
- 2 x CO<sub>2</sub> storage tanks (capacity has to be specified at time of order)
- 2 x atmospheric CO<sub>2</sub> vaporisers (capacity has to be specified at time of order)
- 1 x static mixer or gas dispersion system (capacity has to be specified at time of order)
- 1 x automatic change over system

## Pos. 001

### CO<sub>2</sub> Gas Dosing System 5 - 50 kg/h (11.02 - 110.23 lb/h) (single line)

part no. 900135

- 1 × **ASCO** CO<sub>2</sub> Gas Dosing System consisting of
  - filtration unit
  - flow regulating valve
  - automatic shut off valve
  - pressure reducing valve
  - manual shut off valve
  - safety valves
  - discharge valve
  - control cabinet, prewired
  - all mounted on a stainless steel base frame
- 1 × CO<sub>2</sub> flowmeter including digital display



For a running **ASCO** CO<sub>2</sub> Gas Dosing System following equipment is necessary:

- 1 × CO<sub>2</sub> storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO<sub>2</sub> vaporiser (capacity has to be specified at time of order)
- 1 × static mixer or gas dispersion system (capacity has to be specified at time of order)

## Pos. 002

### CO<sub>2</sub> Gas Dosing System 30 - 300 kg/h (66.14 - 661.39 lb/h) (single line)

part no. 900136

- 1 × **ASCO** CO<sub>2</sub> Gas Dosing System consisting of
  - filtration unit
  - flow regulating valve
  - automatic shut off valve
  - pressure reducing valve
  - manual shut off valve
  - safety valves
  - discharge valve
  - control cabinet, prewired
  - all mounted on a stainless steel base frame
- 1 × CO<sub>2</sub> flowmeter including digital display



For a running **ASCO** CO<sub>2</sub> Gas Dosing System following equipment is necessary:

- 1 × CO<sub>2</sub> storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO<sub>2</sub> vaporiser (capacity has to be specified at time of order)
- 1 × static mixer or gas dispersion system (capacity has to be specified at time of order)

## Pos. 003

### CO<sub>2</sub> Gas Dosing System 100 - 800 kg/h (220.46 - 1'769.70 lb/h) (single line)

part no. 900137

- 1 × **ASCO** CO<sub>2</sub> Gas Dosing System consisting of
  - filtration unit
  - flow regulating valve
  - automatic shut off valve
  - pressure reducing valve
  - manual shut off valve
  - safety valves
  - discharge valve
  - control cabinet, prewired
  - all mounted on a stainless steel base frame
- 1 × CO<sub>2</sub> flowmeter including digital display



For a running **ASCO** CO<sub>2</sub> Gas Dosing System following equipment is necessary:

- 1 × CO<sub>2</sub> storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO<sub>2</sub> vaporiser (capacity has to be specified at time of order)
- 1 × static mixer or gas dispersion system (capacity has to be specified at time of order)



# CO<sub>2</sub> Vaporising

## Atmospheric ASCO CO<sub>2</sub> Vaporiser



The atmospheric **ASCO** CO<sub>2</sub> Vaporiser has been developed to drastically reduce CO<sub>2</sub> vaporisation costs. Ambient air, which is available at no cost, is used to achieve energy savings of over 95% compared to standard electric vaporisers. As each vaporiser is supplied prepped and prewired, installation can be made within minutes. Bases for the mounting on the floor are included in the delivery. In addition to our standard models, we offers **individual solutions** of modern and easy to maintain CO<sub>2</sub> vaporisers. In accordance with your requirements, we provide you with a suitable CO<sub>2</sub> vaporiser.

### Advantages of an atmospheric ASCO CO<sub>2</sub> vaporiser:

- 25 times less energy compared with electrically heated vaporisers
- Designed for continuous and automatic operation (no attendance required)
- Built-in thermostat to prevent liquid CO<sub>2</sub> from flowing through
- 2 coil system to ensure safe defrosting with built in solenoid valves
- Simple and fast installation, only electric power and CO<sub>2</sub> required
- Vaporisers with tubes in stainless steel or copper available
- Complete unit in various capacities at very reasonable prices, ready for use

### Specifications

Vaporising capacity (approx.) from liquid CO <sub>2</sub> at 17 bar (247 psi)	length/width/height mm incl. control box	in/out connections outer Ø	net weight kg approx.	power consumption	max. operating pressure
200 kg/h CU (440 lb/h)	2'200 × 900 × 1'000 (87 x 35 x 39 in)	1" PN 40	126 kg (278 lb/h)	1.58 kW (2.12 HP)	25 bar (363 psi)
200 kg/h SS (440 lb/h)	2'200 × 900 × 1'000 (87 x 35 x 39 in)	1" PN 40	126 kg (278 lb/h)	1.58 kW (2.12 HP)	25 bar (363 psi)
300 kg/h CU (661 lb/h)	3'000 × 900 × 1'000 (118 x 35 x 39 in)	1" PN 40	260 kg (573 lb/h)	2.37 kW (3.18 HP)	25 bar (363 psi)
300 kg/h SS (661 lb)	3'000 × 900 × 1'000 (118 x 35 x 39 in)	1" PN 40	260 kg (573 lb/h)	2.37 kW (3.18 HP)	25 bar (363 psi)
500 kg/h CU (1102 lb/h)	3'000 × 900 × 1'200 (118 x 35 x 39 in)	1" PN 40	320 kg (705 lb/h)	2.37 kW (3.18 HP)	25 bar (363 psi)
500 kg/h SS (1102 lb/h)	3'000 × 900 × 1'200 (87 x 35 x 47 in)	1" PN 40	320 kg (705 lb/h)	2.37 kW (3.18 HP)	25 bar (363 psi)
1'000 kg/h CU (2205 lb/h)	4'200 × 1'000 × 1'450 (165 x 39 x 57 in)	1" PN 40	510 kg (1124 lb/h)	5.37 kW (7.20 HP)	25 bar (363 psi)
1'000 kg/h SS (2205 lb/h)	4'200 × 1'000 × 1'450 (165 x 39 x 57 in)	1" PN 40	510 kg (1124 lb/h)	5.37 kW (7.20 HP)	25 bar (363 psi)

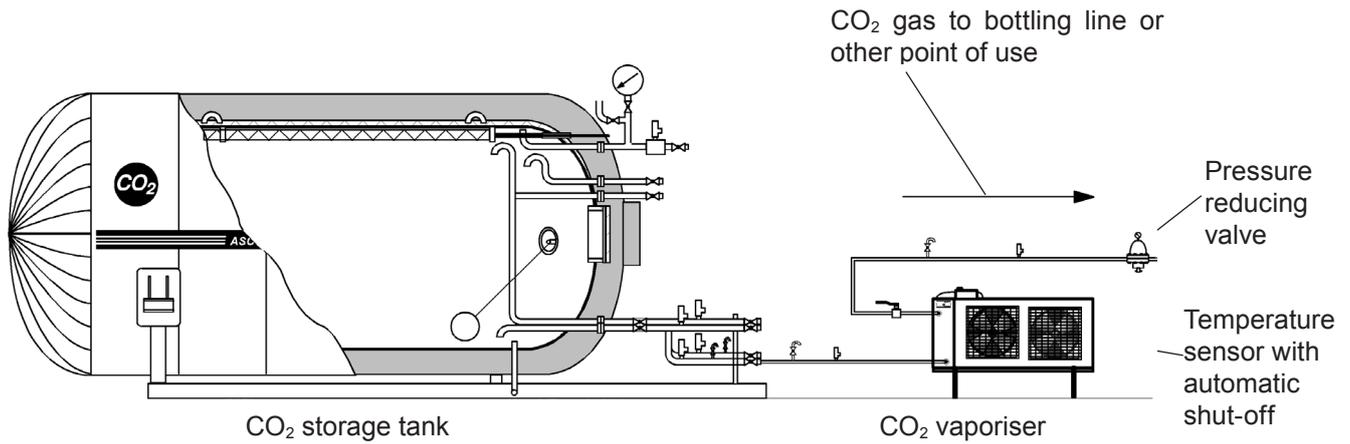
CU = with copper tubes, SS = with stainless steel tubes

**Ambient air temperature: min. +10°C, max. +45°C**

ASCO CARBON DIOXIDE INC | 5409 Highway Ave. | Jacksonville, FL 32254 | T +1 904 278-6503 | [ascoco2.com](http://ascoco2.com)

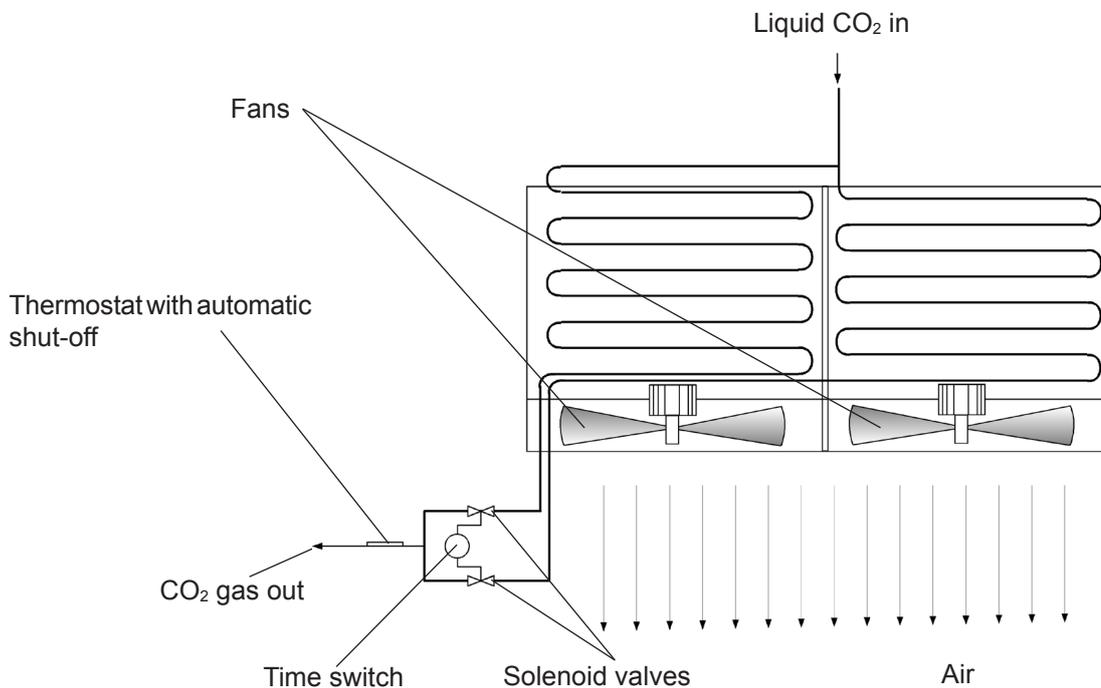
Version 3.3 (02/18)

# Atmospheric ASCO CO<sub>2</sub> Vaporisers: Description



Liquid carbon dioxide is taken from a tank, completely evaporated in the vaporiser and fed to the point of use. In order to ensure safe defrosting of the vaporiser, it is equipped with two autonomous coils, which are controlled by a solenoid valve each. While one vaporiser coil is in service, the other is being defrosted. The air blowers remain in continuous operation.

The arrangement shown above permits operation of the vaporiser at air temperatures of max. +45 °C, at least +10 °C and, at reduced capacity as low as +5 °C in order to be able to utilise the vaporiser throughout the year, the unit should be installed inside a building away from the most inclement weather, for example in a boiler room or similar.



# Atmospheric ASCO CO<sub>2</sub> Vaporisers: Description and installation

## Description

**ASCO** Atmospheric CO<sub>2</sub> Vaporisers are supplied as one unit, prewired, pretested (incl. pressure test to 35.4 bar) (513.43 psi) and ready for immediate use.

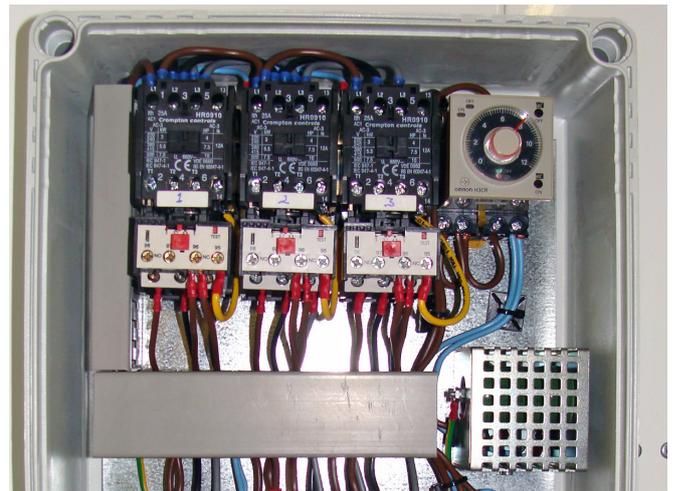
They consist of a special heat exchanger unit with copper or stainless steel tubes and aluminium fins. Air is forced through the heat exchanger by fans. Any condensate dropping from the tubes is collected by an aluminium tray mounted on the bottom of the unit, and an outlet pipe can be connected to drain. The unit also includes solenoid valves and a complete control box. A temperature sensor is also incorporated to ensure no liquid CO<sub>2</sub> can pass through the vaporiser.

## Installation

**ASCO** Vaporisers should ideally be installed in areas such as boiler houses and similar warm rooms (max. temperature of +45 °C). External installation is only recommended where ambient air temperature is above +10 °C and max. +45 °C. They also operate at +5 °C but at reduced capacity.



1'000 kg/h (2'204.62 lb/h) atmospheric ASCO CO<sub>2</sub> Vaporiser: Thermostat



1'000 kg/h (2'204.62 lb/h) Atmospheric ASCO CO<sub>2</sub> Vaporiser: Control box with timer



1'000 kg/h (2'204.62 lb/h) Atmospheric ASCO CO<sub>2</sub> Vaporiser: Air intake side



1'000 kg/h (2'204.62 lb/h) Atmospheric ASCO CO<sub>2</sub> Vaporiser: Two independent coils

## Atmospheric ASCO CO<sub>2</sub> Vaporiser: Available standard capacities

### Pos. 001

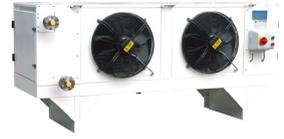
#### 200 kg/h (440.92 lb) atmospheric ASCO CO<sub>2</sub> Vaporiser

(minimum ambient air temperature required +10 °C, max. +45 °C)  
with copper or stainless steel tubes  
400 Volt, 50 Hz, 3 Ph

- air flow total: 3.4 m<sup>3</sup>/sec (120 ft<sup>3</sup>/sec)
- coil volume: 15 l (4 gal)
- net weight: approx. 126 kg (277.78 lb)
- fan speed: 1'330 rpm
- no. of fans: 2
- power cons. per fan: 0.79 kW (1.06 HP)
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 4046048  
SS part no. 4046050



### Pos. 002

#### 300 kg/h (661.39 lb/h) atmospheric ASCO CO<sub>2</sub> Vaporiser

(minimum ambient air temperature required +10 °C, max. +45 °C)  
with copper or stainless steel tubes  
400 Volt, 50 Hz, 3 Ph

- air flow total: 5.1 m<sup>3</sup>/sec (180.1 ft<sup>3</sup>/sec)
- coil volume: 22 l (5.8 gal)
- net weight: approx. 260 kg (573.20 lb)
- fan speed: 1'330 rpm
- no. of fans: 3
- power cons. per fan: 0.79 kW (1.06 HP)
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 4046052  
SS part no. 4046055



### Pos. 003

#### 500 kg/h (1'102.31 lb) atmospheric ASCO CO<sub>2</sub> Vaporiser

(minimum ambient air temperature required +10 °C, max. +45 °C)  
with copper or stainless steel tubes  
400 Volt, 50 Hz, 3 Ph

- air flow total: 5.1 m<sup>3</sup>/sec (180.1 ft<sup>3</sup>/sec)
- coil volume: 41 l (10.8 gal)
- net weight: approx. 320 kg (705.48 lb)
- fan speed: 1'330 rpm
- no. of fans: 3
- power cons. per fan: 0.79 kW (1.06 HP)
- flange connection: 1" PN40

CU = copper  
SS = stainless steel'

CU part no. 4046057  
SS part no. 4046059



## Atmospheric ASCO CO<sub>2</sub> Vaporiser: Available standard capacities

Pos. 004

### 1'000 kg/h (2204.62 lb/h) atmospheric ASCO CO<sub>2</sub> Vaporiser

(minimum ambient air temperature required +10 °C, max. +45 °C)  
with copper or stainless steel tubes  
400 Volt, 50 Hz, 3 Ph

- air flow total: 9.9 m<sup>3</sup>/sec (349.6 ft<sup>3</sup>/sec)
- coil volume: 78 l (20.6 gal)
- net weight: approx. 510 kg (1'124.36 lb)
- fan speed: 890 rpm
- no. of fans: 3
- power cons. per fan: 1.79 kW (2.40 HP)
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 4046061  
SS part no. 4046063



## Atmospheric CO<sub>2</sub> Vaporisers: Options

Pos. 001

### Dome loaded pressure reducing valve C31

for gaseous and liquid CO<sub>2</sub>  
incl. repair kit (diaphragm and O-ring)

part no. 4046817



Pos. 002

### Dome loaded pressure reducing valve C2-K32

for gaseous and liquid CO<sub>2</sub>  
incl. repair kit (diaphragm and O-ring)

part no. 4046644



Pos. 003

### Line safety assembly 1"- 25 bar (362.59 psi) welding connection

Consisting of:

- stainless steel pipe 1" 300 mm (11.81 in)
- safety valve 25 bar (362.59 psi)
- vent ball valve stainless steel 1/4"

part no. 4046831



Pos. 004

## CO<sub>2</sub> flowmeter MF15

Mass flow sensor Type MF15 (fully calibrated) assembled to process pipe DN 15, PN 40 with flange connection DIN 2635.  
Measuring range 0-1'000 kg/h ( 0- 2205lb/h) at 22 bar (319.08 psi)  
The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/h as well as totalizer and integrated keyboard.  
10 meter connection cable with plug is prewired and connected.  
Voltage 115 -230 V, 50/60 Hz

Accessories included:

- 2 pcs counterflange DN 15/PN40 welding (item no. 910101)
- 8 pcs screw m12x45, hex., inox (item no. 100020)
- 8 pcs nut M12, inox (item no. 100022)
- 2 pcs gasket DN15, 2 x 51 x 22 mm ( item no. 110150)

part no. 4062504



Pos. 005

## CO<sub>2</sub> flowmeter MF25

Mass flow sensor Type MF25 (fully calibrated) assembled to process pipe DN 25, PN 40 with flange connection DIN 2635.  
Measuring range 0-2'700 kg/h (0-5'952lb/h) at 22 bar (319.08 psi)  
The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/h as well as totalizer and integrated keyboard.  
10 meter connection cable with plug is prewired and connected.  
Voltage 115-230 V, 50/60 Hz

Accessories included:

- 2 pcs counterflange DN 25/PN40 welding (item no. 910301)
- 8 pcs screw M12x45, hex., inox (item no. 100020)
- 8 pcs Nut M12, inox (item no. 100022)
- 2 pcs gasket DN25, 2 x 71 x 35 mm (0.08 x 2.80 x 1.38in) (item no. 110151)

part no. 4062505



# CO<sub>2</sub> Cylinder Filling

## ASCO CO<sub>2</sub> Cylinder Filling System LH800AR



The ASCO LH800AR Liquid CO<sub>2</sub> Filling Pump and **ASCOMATIC K4** weighing computer has been developed as an universal unit for the filling by weight of high pressure CO<sub>2</sub> cylinders.

Like all **ASCO** Equipment, the complete **ASCOMATIC K4** Electronic Cylinder Filling and Weighing System is thoroughly factory pretested before despatch.

### Easy operation

Switch on your **ASCOMATIC K4** and the unit automatically tares itself to „0“ which will show on the indicator display.

After placing a cylinder on the platform, the display will show the accurate tare weight of the cylinder, allowing the operator to check whether the empty cylinder weight is correct.

The chosen filling weight can now be set on the display by pressing the relevant keys (when filling the same size of cylinder, the filling weight needs only be entered once).

Press the start button to commence automatic filling. The display will then show the weight being filled.

When the desired filling weight is reached and displayed, the solenoid valves of the ASCO LH800AR pump will automatically switch to run the system in by-pass. The CO<sub>2</sub> cylinder can now easily be disconnected.

### Advantages of a ASCO LH800AR:

- automatic operation
- accurate filling
- reliable design
- robust construction
- low cost investment
- easy and safe to operate

### Specifications

Dimension (L × W × H):	920 × 540 × 890 mm (36 x 21 x 35 in)
Weight net:	220 kg (485 lb)
Nominal capacity:	800 kg/h (1'764 lb/h)
Operating voltage:	400 V, 50 Hz, 3 Ph + N + PE (other voltages on request)
Max. power consumption:	4 kW (5.36 HP)
Differential pressure (max.):	110 bar (1'595 psi)
Operating pressure (max.):	130 bar (1'885 psi)
Inlet pressure (approx.):	18 bar (261 psi)
CO <sub>2</sub> inlet connection:	Ø OD 22 mm (0.87 in) (from CO <sub>2</sub> tank to pump)
CO <sub>2</sub> outlet connection:	Ø OD 15 mm (0.59 in) (from pump back to tank, by-pass)

## The complete ASCO Electronic CO<sub>2</sub> Cylinder Filling System (Twin Fill):



Using 2 filling stands you can fill a CO<sub>2</sub> cylinder while you prepare the other one on the second filling stand for filling. The twin fill control box ensures that only one filling stand is in operation at a time.

Twin fill control box and second **ASCOMATIC K4** filling stand can be added to a LH800AR at any time.

As shown above the complete **ASCO** Electronic CO<sub>2</sub> Cylinder Filling System (Twin Fill) comprises:

1. **ASCO** low to high pressure liquid CO<sub>2</sub> transfer pump type LH800AR
2. **ASCOMATIC K4** electronic weighing indicator, on its own stand.
3. A specially developed, very robust, weighing platform featuring an inbuilt high quality load cell. The platform is large enough to allow almost any cylinder to be filled.
4. Cylinder filling stand with "quick connect" and smooth moving filling head system with counterbalance.

## ASCO LH800AR: Standard scope of supply

### ASCO CO<sub>2</sub> Cylinder Filling Pump LH800AR

Complete CO<sub>2</sub> cylinder filling pump with a capacity of 800 kg/h (1'763.70 lb/h), with automatic revert and automatic shut-off

Comprising:

- pump with motor on base frame
- pulleys
- drive belt
- one safety valve 130 bar (1'885.49 psi)
- pressure gauges for tank and filling pressure
- solenoid valve
- motor switch
- electric control box

Built in a stainless steel cabinet.

3 x 400 V, 50/60 Hz.

To be used with ASCOMATIC K4 Filling/Weighing System (item no. 902270). Also designed to be used for the optional twin fill control (Item no. 902009) for 2nd ASCOMATIC K4 Scale.

part no. 900091



Pos. 001

### ASCOMATIC K4 Filling/Weighing System

Electronic CO<sub>2</sub> cylinder filling/weighing system with digital indicator, electronic weighing cell platform (375 x 525 x 2'120 mm) (14.57 x 20.67 x 83.46 in) with a capacity up to 150 kg. (330.69 lb)  
Optional: different filling heads

(without CO<sub>2</sub> cylinder)

part no. 900094



Pos. 002

### Twin fill control system for ASCO LH800AR

Prewired and ready for use to connect scale type K4 on one LH800AR. Twin fill control system fitted on LH800AR cabinet, tested including:

- 1 pce twin fill control box
- 1 set connections for hoses to filling stand
- 4 pcs cap screws 5x20 mm (0.20-0.79 in), washers, lock nuts

part no. 4043909



Pos. 003

### Filling head quick connect standard CO<sub>2</sub>

For ASCOMATIC K4

To connect to a standard CO<sub>2</sub> cylinder valve with W21.8 x 1/14" DIN 477 Nr.6, Type B thread

Spares including:

- 1 pce O-ring for quick connect filling head (part no. 902120)

Also available with pin (part no. 902241), 3/4" connection (part no. 902135) and CGA 320 ANG connection (part no. 902240)

part no. 4043971



Pos. 004

### ASCO Spare Parts Kit for LH800AR

Consisting of:

- 1 pce grease silicone, foodgrade, (135100)
- 1 pce set of packing rings (8 pcs), (902018)
- 1 pce forming tool for packing rings, (902032)
- 1 pce special tool for packing rings, (902034)
- 4 pcs O-rings ID32.93x3.53 mm (1.30 x 0.14 in), (111510)
- 1 pce O-ring for quick connect filling head, (902120)
- 2 pcs RHV cartridge in, type LH800 (902047)
- 2 pcs RHV cartridge OUT, type LH800 (902015)

part no. 4044070



Pos. 005

### Connecting Kit for LH800AR

For flexible connection of the pump with the pipework

Consisting of:

- 902244 hose 22L
- 902245 hose 15L
- 110009 coupling 15LR-G1/2"
- 110002 coupling 22LR-G3/4"
- 115057 welding socket 3/4"
- 115058 welding socket 1/2"

part no. 4044065



# CO<sub>2</sub> Transfer Pumps

## ASCO CO<sub>2</sub> Transfer Pumps: Low to Low Pressure



MC-3-SS with motor on baseframe

ASCO CO<sub>2</sub> Transfer Pumps have steel housings and long life shaft seals. The pumps have hardened steel gears and thrust washers to give long service life. The mechanical seal fitted provides leak free operation.

These economical pumps need no lubrication and no day-to-day maintenance. A unique design allows parts to adjust automatically for wear. Highest efficiency is maintained for a very long time.

Installation is simple as no chain or belt drives or gear reduction motors are required. Pumps can be directly connected to standard speed low-cost electric motors. By simply changing the shaft rotation, pumps can be used to pump in or out through the same piping.

### Specifications

#### Pump capacities (approx.)

Pump model	Differential bar	Pressure lb/in <sup>2</sup> (kg/m <sup>2</sup> )	Electrical consumption in kW	Pump capacity at 1'450 R.P.M. kg/h (50 Hz)*	Pump capacity at 1'740 R.P.M. kg/h (60 Hz)*
MC-3-SS	0	0	4.0 (5.36 HP)	17'000 (37'479 lb/h)	20'000 (44'092 lb/h)
	1.4 (20 psi)	20 (0.006)	4.0 (5.36 HP)	16'000 (35'274 lb/h)	19'000 (41'888 lb/h)
	3.5 (51 psi)	50 (0.01)	5.5 (7.38HP)	14'000 (30'865 lb/h)	16'000 (35'274 lb/h)

\* under ideal conditions

#### Pumps on baseframes with motors

Pump model	Motor size	R.P.M.		Voltage	Net weight	Weight packed
		50 Hz	60 Hz			
MC-3-SS	5.5 kW (7.38 HP)	1'450	1'740	400/440 V, 50/60 Hz, 3 ph other voltages on request	108 kg (238 lb)	130 kg (287 lb)
MC-3-SS movable	5.5 kW (7.38 HP)	1'450	1'740	400/440 V, 50/60 Hz, 3 ph other voltages on request	205 kg (452 lb)	248 kg (547 lb)

## ASCO CO<sub>2</sub> Transfer Pumps: Low to Low Pressure

Pos. 001

### ASCO CO<sub>2</sub> Transfer Pump MC-3-SS on baseframe

incl. motor and stainless steel baseframe.

Complete heavy-duty type low to low pressure CO<sub>2</sub> transfer pump with a transfer capacity up to 17'000 kg/h (37'478.58 lb/h) at 1'450 rpm (50 Hz) or 20'000 kg/h (44'092 lb/h) at 1'740 rpm (60 Hz) and differential pressure of 0 barg with a 5.5 kW (7.38 HP) motor. The pump is designed for 2 ½ inch (63.5 mm) NPT inlet and outlet ports insides of pump. Rotation is reversible.

part no. 900092



Pos. 002

### ASCO CO<sub>2</sub> Transfer Pump MC-3-SS without motor

Complete heavy-duty type low to low pressure CO<sub>2</sub> transfer pump with a transfer capacity up to 17'000 kg/h (37'478.58 lb/h) at 1'450 rpm (50 Hz) or 20'000 kg/h (44'092.45 lb/h) at 1'740 rpm (60 Hz) and differential pressure of 0 bar with a 5.5 kW (7.38 HP) motor. The pump is designed for 2 ½ inch (63.5 mm) NPT inlet and outlet ports insides of pump. Rotation is reversible.

part no. 4043949



Pos. 003

### ASCO CO<sub>2</sub> Transfer Pump MC-3-SS movable, flange connection

incl. motor and stainless steel baseframe on wheels.

Complete heavy-duty type low to low pressure CO<sub>2</sub> transfer pump with a transfer capacity up to 17'000 kg/h (37'478.58 lb/h) at 1'450 rpm (50 Hz) or 20'000 kg/h (44'092.45 lb/h) at 1'740 rpm (60 Hz) and differential pressure of 0 barg with a 5.5 kW (7.38 HP) motor. The pump is designed for DN40 flange. Rotation is reversible.

part no. 900096



Including:

- control box
- 10 m (393.70 in) cable
- handrail made in stainless steel
- flanged safety device with discharge valve
- flange connection DN40 according DIN 2635

## ASCO CO<sub>2</sub> Transfer Pumps Low to Low Pressure: Options

Pos. 001

### Filling hose SS, DN25, 1.5" - 1.5", 5.90 m (19.4 ft)

Stainless steel hose DN25 with total length of 5.90m. (19.4 ft)  
With protection wire over total length.  
Both ends flat sealed with union nutg1 1/2" in brass.

part no. 4043732



Pos. 002

### Filling hose SS, DN40, flange DN40/PN40, 5.90 m (19.4 ft)

Stainless steel hose DN40 with total length of 5.90m. (19.4 ft)  
With protection wire over total length.  
Both ends flange DN40/PN40 according DIN 2635

part no. 4043736





# CO<sub>2</sub> Testing Equipment

## ASCO CO<sub>2</sub> Gas Purity Tester

part no. 900138



The **ASCO** CO<sub>2</sub> Gas Purity Tester has been designed to measure the purity of CO<sub>2</sub> up to 99.995 % in a quick, easy and reliable way. Essential for bottling plants, breweries, beverage manufacturers and industrial gas companies.

The complete kit contains all equipment for a simple, safe and fast CO<sub>2</sub> gas purity test and is complete with easy instructions (step by step pictures on a laminated A3 sheet). The **ASCO** CO<sub>2</sub> Gas Purity Tester (stainless steel) can be used either wall-mounted or free standing.

**INSTRUCTIONS FOR ASCO CO<sub>2</sub> GAS PURITY TESTER**

**INSTRUCTIONS FOR ASCO CO<sub>2</sub> GAS PURITY TESTER**

**Step 1:** Remove the red lid on the top.

**Step 2:** Turn the 3-way valve to the position shown.

**Step 3:** Close "Flow" valve (clockwise). Connect supplied tube to CO<sub>2</sub> source (gas phase of tank or cylinder or regulated liquid from tank, never to liquid phase directly) and to CO<sub>2</sub> "Flow" valve.

**Step 4:** **Initial pressure must not exceed 0.1 bar!** Use pressure reducing valve if necessary. Open the blue and black valves at least 3 turns. Now slowly open the CO<sub>2</sub> source valve and then the "Flow" valve up to the CO<sub>2</sub> level of the flow of CO<sub>2</sub> through the tester. Keep purging to end of step 4.

**Step 5:** Close the blue valve for 2 minutes. Then open the blue valve again.

**Step 6:** Quickly close the black valve. Keep until the light purges for at least 1 minute. Then close CO<sub>2</sub> source.

**Step 7:** Close (clockwise) the CO<sub>2</sub> "Flow" control valve.

**Step 8:** Close (clockwise) the blue valve.

**Step 9:** Turn 3-way valve to the indicated position clockwise.

**Step 10:** Fill caustic potash or caustic soda in the level shown. Measure equivalent in supplied manual.

**Step 11:** Slowly open the blue valve and the caustic solution will absorb the CO<sub>2</sub> gas in the purity tester.

**Step 12:** After time 10 minutes read the indicated purity value bottom of the meniscus. Compare the value with the opposition table on the right hand side.

**Step 13:** Turn 3-way valve clockwise to indicated position to clean the tester.

**CAUTION!** When handling with caustic potash or caustic soda avoid direct contact with eyes and skin (wear protective gloves and glasses!) in the event of contact with eyes or skin rinse for at least 15 minutes with cold running water. Seek medical advice.

**Purity conversion table**

Impurities %	Purity %
0.0	99.9999999999
0.025	99.9999999750
0.05	99.9999999250
0.075	99.9999998750
0.1	99.9999998250
0.2	99.9999996500
0.3	99.9999994750
0.4	99.9999993000
0.5	99.9999991250
0.6	99.9999989500
0.7	99.9999987750
0.8	99.9999986000
0.9	99.9999984250
1.0	99.9999982500

**holes for wall mounting**  
red lid  
black valve  
CO<sub>2</sub> flow control valve  
3-way valve  
blue valve

**Standard test for free standing**

**CAUTION!** When handling with caustic potash or caustic soda avoid direct contact with eyes and skin (wear protective gloves and glasses!) in the event of contact with eyes or skin rinse for at least 15 minutes with cold running water. Seek medical advice.

Industrietechnik 2  
Carlisle/Instruments - Deutschland  
http://www.ascoc2.com

Teil. +41 (0) 71 466 80 00  
Fax +41 (0) 71 466 80 04  
E-mail: ascoc2@ascopurpure.com

Easy step by step instruction

## ASCO CO<sub>2</sub> Gas Purity Tester: Standard scope of supply

### ASCO CO<sub>2</sub> Gas Purity Tester

part no. 911003

Complete kit comprises:

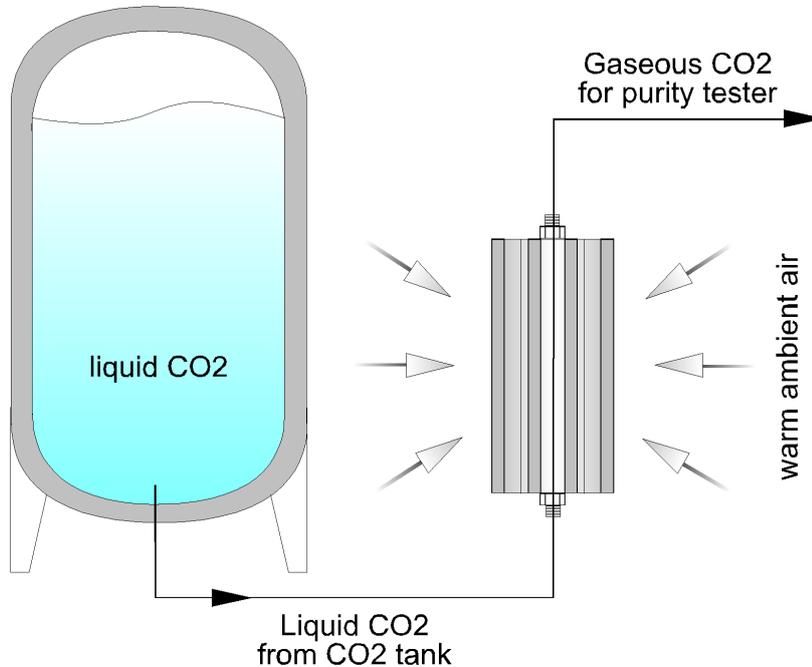
- CO<sub>2</sub> purity tester
- pair of protective gloves
- protective GLasses
- two plastic containers
- flexible hose



## Mini-Vaporiser for CO<sub>2</sub> Gas Purity Tester: Application

### CO<sub>2</sub> Mini-Vaporiser for ASCO CO<sub>2</sub> Gas Purity Tester

The mini-vaporiser vaporises liquid CO<sub>2</sub> into gaseous form. Gaseous CO<sub>2</sub> will be used to measure the CO<sub>2</sub> purity with the purity tester.



## ASCO CO<sub>2</sub> Gas Purity Tester: Options

Pos. 001

### Mini-Vaporiser for CO<sub>2</sub> Gas Purity Tester

Equipped with flow regulator  
Maximum inlet pressure 25 bar (348.09 psi)

Including:

- adaptor 1 ½ in (38.1 mm) made of stainless steel
- adaptor 1" made of stainless steel
- high pressure hose, PTFE, DN5, 6L, 2 m (6.6 ft)
- short instruction manual A3

part no. 4046324



# Testing Equipment

## ASCO CO<sub>2</sub> Carbonation Tester Type III

part no. 900900



The **ASCO** CO<sub>2</sub> Carbonation Tester is used to identify any strange odour and/or taste in CO<sub>2</sub>. With this simple, easy to use kit you can check the quality of your liquid or gaseous CO<sub>2</sub> from bulk tanks or CO<sub>2</sub> cylinders.

The set includes a CO<sub>2</sub> carbonation unit, CO<sub>2</sub> cartridge with special inner coating, adaptors made of stainless steel and emptying device for CO<sub>2</sub> cartridge and easy instructions.

Following the easy, laminated and coloured step-by-step instructions with pictures, a sample of water carbonated is tested. The carbonated water is compared for taste and smell with a non-carbonated sample of the same water.

### Advantages of a ASCO CO<sub>2</sub> Carbonation Tester:

- easy handling
- no calibration required
- ready for immediate use
- quick and cheap testing method
- for gaseous and liquid CO<sub>2</sub>

## ASCO CO<sub>2</sub> Carbonation Tester: Standard scope of supply

### ASCO CO<sub>2</sub> Carbonation Tester

part no. 911006

Complete kit comprises:

- CO<sub>2</sub> aluminium cylinder with special hard inner coating for neutral taste
- unit to carbonate water
- 2 glass bottles 0.85l
- device to empty CO<sub>2</sub> cylinder
- four adaptors:
  - 1 ½" female
  - 1" female
  - ¼" male
  - CO<sub>2</sub> female (W21.8 × 1/14")



# Testing Equipment

## ASCO CO<sub>2</sub> Dew Point Tester

part no. 4046255

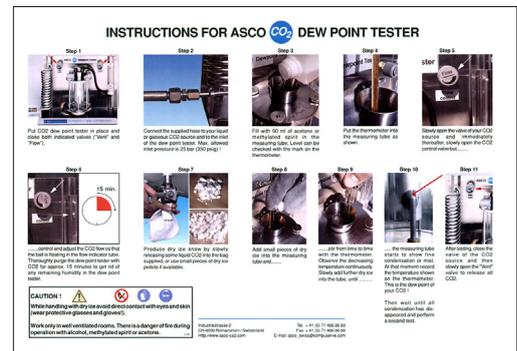


The **ASCO** CO<sub>2</sub> Dew Point Tester reliably indicates the dew point (moisture content) of your CO<sub>2</sub>.

This equipment makes it easy to measure the dew point of liquid and gaseous CO<sub>2</sub>. A laminated, illustrated step-by-step short instruction sheet in A3 format and a detailed instruction manual are supplied with each tester. The **ASCO** CO<sub>2</sub> Dew Point Tester (stainless steel) can be used either wall-mounted or free-standing.

### Advantages of a CO<sub>2</sub> Dew Point Tester:

- easy handling
- no calibration required
- ready for immediate use
- for gaseous and liquid CO<sub>2</sub>



Easy step by step instruction

## ASCO CO<sub>2</sub> Dew Point Tester: Standard scope of supply

### ASCO CO<sub>2</sub> Dew Point Tester

part no. 911017

Complete kit comprises:

- complete dew point tester
- thermometer
- pair of protective gloves
- protective glasses
- dry ice snow bag
- high pressure hose



# CO<sub>2</sub> Equipment

## ASCO CO<sub>2</sub> Flowmeter



The **ASCO** CO<sub>2</sub> Flowmeter has been developed to accurately measure CO<sub>2</sub> gas flow in closed pipes.

The power unit, which supplies 230 V, operates a microprocessor controlled flow computer and one sensor.

The **ASCO** CO<sub>2</sub> Flowmeter is a complete system which is supplied fully calibrated and wired and therefore very easy to install.

### Features

- easy to install
- very accurate (0.1 %)
- single point measurement
- no pressure and temperature compensation required
- no moving parts
- direct mass flow reading
- tension free contact alarm and fault status output
- self-testing electronics

Accurate CO<sub>2</sub> measurement can help to find CO<sub>2</sub> leaks and to achieve optimum CO<sub>2</sub> yields. Practical tests have shown that by using an **ASCO** CO<sub>2</sub> Flowmeter, CO<sub>2</sub> savings of up to 30 % can be achieved.

### Specifications

	Type MF15 part no. 4062504	Type MF25 part no. 4062505
Measuring range:	1'000 kg/h (2'205 lb/h) at 22 bar (319.08 psi)	2'700 kg/h (5'952 lb/h) at 22 bar (319.08 psi)
Nominal pipe diameter:	15 mm (0.59 in)	25 mm (1 in)
Connections (flanges DIN 2635, PN 40):	DN 15 (1/2")	DN 25 (1")
Max. working pressure:	40 bar (580 psi) (tested to 60 bar) (870 psi)	40 bar (580 psi) (tested to 60 bar) (870 psi)
Medium temperature:	-50 to +180 °C	-50 to +180 °C
Permissible ambient temperature:	-20 to +55 °C	-20 to +55 °C
Accuracy:	0.1 % of rate (above 10 kg/h) (22 lb/h)	0.1 % of rate (above 10 kg/h) (22 lb/h)
Repeatability:	± 0.5 % of rate	± 0.5 % of rate
Materials of construction:	AISI 316L/1.4435/1.4404	AISI 316L/1.4435/1.4404
Weight approx:	- sensor 6 kg (13 lb)	10 kg (22 lb)
	- controller 5 kg (11 lb)	5 kg (11 lb)

## ASCO CO<sub>2</sub>-Flowmeter MF15: Standard scope of supply

### ASCO CO<sub>2</sub> Flowmeter MF15

Mass flow sensor Type MF15 (fully calibrated) assembled to process pipe DN 15, PN 40 with flange connection DIN 2635.

Measuring range 0 - 1'000 kg/h ( 0- 2205 lb/h) at 22 bar (319.08 psi)

The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/h as well as totalizer and integrated keyboard.

10 meter connection cable with plug is prewired and connected.

Voltage 115 -230 V, 50/60 Hz

Accessories included:

- 2 pcs counterflange DN 15/PN40 welding (item no. 910101)
- 8 pcs screw M12x45, hex., inox (item no. 100020)
- 8 pcs Nut M12, inox (item no. 100022)
- 2 pcs gasket DN15, 2 x 51 x 22mm ( item no. 110150)

part no. 4062504



## ASCO CO<sub>2</sub>-Flowmeter MF25: Standard scope of supply

### ASCO CO<sub>2</sub> Flowmeter MF25

Mass flow sensor Type MF25 (fully calibrated) assembled to process pipe DN 25, PN 40 with flange connection DIN 2635.

Measuring range 0 -2'700 kg/h (0 -5'952 lb/h) at 22 bar (319.08 psi)

The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/h as well as totalizer and integrated keyboard.

10 meter connection cable with plug is prewired and connected.

Voltage 115 -230 V, 50/60 Hz

Accessories included:

- 2 pcs counterflange DN 25/PN40 welding (item no. 910301)
- 8 pcs screw M12x45, hex., inox (item no. 100020)
- 8 pcs Nut M12, inox (item no. 100022)
- 2 pcs gasket DN25, 2 x 71 x 35mm (0.08 x 2.80 x 1.38 in) (item no. 110151)

part no. 4062505



# CO<sub>2</sub> Equipment

## ASCO CO<sub>2</sub> Cylinder Valve

part no. 4046736



ASCO CO<sub>2</sub> Cylinder Valve are used on standard CO<sub>2</sub> cylinders to regulate the CO<sub>2</sub> supply.

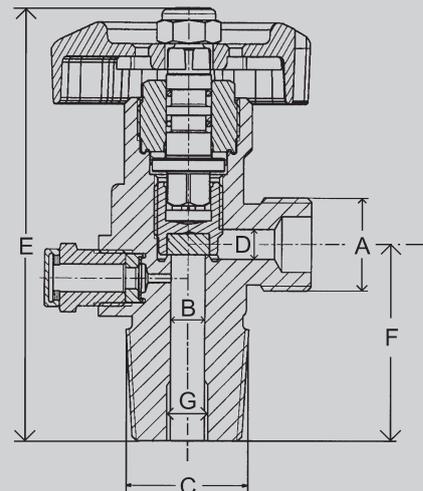
The CO<sub>2</sub> valve consists of an aluminium hand wheel and brass body. The threading is conical for safe and proper sealing.

All ASCO CO<sub>2</sub> Cylinder Valves are equipped with bursting disc for maximum safety.

### Specifications

A	=	W 21,8 x 1/14" to DIN 477
B	=	Ø 8 mm (0.31 in)
C	=	28.8 x 1/14"
D	=	Ø 7 mm (0.28 in)
E	=	112 mm (4.41 in)
F	=	47 mm (1.85 in)
G	=	M10 x 0.75 mm (0.03 in)
Bursting disc	=	190 bar (2755.72 psi)
Handwheel	=	Aluminium
Valve Body	=	Brass
Weight approx.	=	520 g (1.45 lb)

Valves to other specifications on request!



## ASCO CO<sub>2</sub> Cylinder Valve: Standard scope of supply

### ASCO CO<sub>2</sub> Cylinder Valve

in brass, with:

- O-Ring
- max. operating pressure 200 bar (2'900.75 psi)
- inner thread for syphon tube
- aluminium hand wheel
- bursting safety disc (bursting pressure 190 bar) (2755.72 psi)

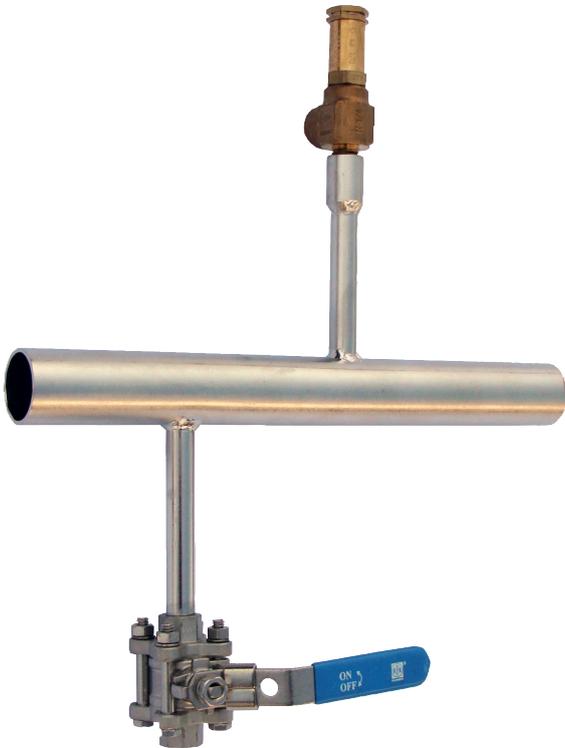
part no. 4046736



# CO<sub>2</sub> Equipment

## ASCO Line Safety Assembly

part no. 4046831



Whenever an **ASCO** CO<sub>2</sub> Vaporiser or Tank is installed, a line safety assembly must be added in case liquid CO<sub>2</sub> is trapped between 2 valves in the pipeline. If this happens the safety valve will activate to avoid damaging the pipework.

## ASCO Line Safety Assembly: Standard scope of supply

Pos. 001

### Line safety assembly 1-25 bar (362.59 psi) welding connection

part no. 4046831

Consisting of:

- stainless steel pipe 1" 300 mm (11.81 in)
- safety valve 25 bar (362.59 psi)
- vent ball valve stainless steel 1/4"



Pos. 002

### Line safety assembly 1-30 bar (435.11 psi)

part no. 4046828

Consisting of:

- stainless steel pipe 1" 250 mm (9.84 in)
- one side welding connection
- other side tank connection, silver solder
- raiser tube for safety valve
- safety valve 30 bar (435.11 psi)
- vent ball valve stainless steel 1/4"



# CO<sub>2</sub> Equipment

## ASCO CO<sub>2</sub> Pressure Reducing Valve



C31



C2-K32

The ideal and reliable high-flow CO<sub>2</sub> pressure reducing valve for use with CO<sub>2</sub> gas or liqueid.

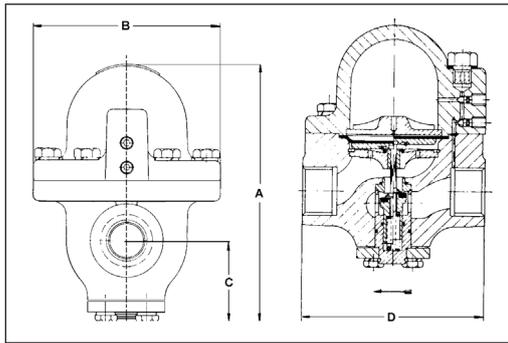
### Advantages of a CO<sub>2</sub> pressure reducing valve:

- Constructed in brass (C31) and meehanite (C2-K32) with stainless steel trim
- Abrasion and dirt resistant rubber valve seats
- Dome loading either from inlet line or separate gas supply
- Stable and noiseless operation
- Positive gas-tight shut-off
- High-flow contoured passages

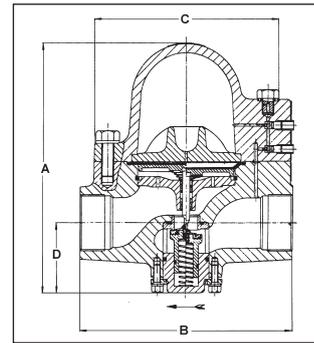
### Specifications

	Type C31 part no. 914250	Type C2-K32 part no. 914006
CO <sub>2</sub> gas output per hour calculated at inlet pressure at 18 bar (261.07 psi)		
• outlet at 5 bar (72.52 psi)	621 kg/h (1'369 lb/h)	3'142 kg/h (6'927 lb/h)
• outlet at 8 bar (116.03 psi)	621kg/h (1'369 lb/h)	3'142 kg/h (6'927 lb/h)
• outlet at 10 bar (145.04 psi)	615 kg/h (1'356 lb/h)	3'114 kg/h (6'865 lb/h)
Connection	R 1"	R 2"
Weight approx.	6 kg (13.23 lb)	19 kg (41.89 lb)
Maximum inlet pressure	100 bar (1450.38 psi)	63 bar (913.74 lb)

## ASCO CO<sub>2</sub> Pressure Reducing Valve: Dimensions



C31



C2-K32

	Type C31 part no. 914250	Type C2-K32 part no. 914006
A	170 mm (6.69 in)	263 mm (10.35 in)
B	126 mm dia. (4.96 in)	227 mm (8.94 in)
C	52 mm (2 in)	197 mm dia. (7.76 in)
D	127 mm (4.99 in)	75 mm (2.95 in)

## ASCO CO<sub>2</sub> Pressure Reducing Valve C31: Standard scope of supply

### ASCO CO<sub>2</sub> Pressure Reducing Valve C31 (Dome Loaded)

for gaseous and liquid CO<sub>2</sub>  
incl. repair kit (diaphragm and O-ring)

part no. 4046817



## ASCO CO<sub>2</sub> Pressure Reducing Valve C2-K32: Standard scope of supply

### ASCO CO<sub>2</sub> Pressure Reducing Valve C2-K32 (Dome Loaded)

for gaseous and liquid CO<sub>2</sub>  
incl. repair kit (diaphragm and O-ring)

part no. 4046644



# Safety

## ASCO CO<sub>2</sub> Gas Detectors

**ASCO CO<sub>2</sub> Gas Detectors** are used to protect personnel wherever CO<sub>2</sub> gas or dry ice is used in closed areas, for example during dry ice blasting or when producing dry ice. CO<sub>2</sub> being heavier than air effectively will create high CO<sub>2</sub> concentrations, especially in small rooms or basements where no fresh air is supplied.

**ASCO CO<sub>2</sub> Gas Detectors** ensure continuous and automatic CO<sub>2</sub> content measuring in the ambient air using infrared absorption measuring (NDIR). This technology employed the detector is very troubleresistant to temperature variations or air draughts and therefore measures very accurately. The CO<sub>2</sub> gas detectors are very simple to install and no maintenance is needed due to the reliable measuring technology. It is a complete electronic system and, therefore, has no mechanical parts inside. All components are built into a splash proof box. The sensor is connected to the detector by a 5 m (196.85 in) standard cable, which can be shortened or extended as required.

### Specifications Detector

Dimensions/weight:	160 × 65 × 130 mm (6.29 x 2.56 x 5.11 in) / approx. 600g (1.32lb)
Material box:	ABS plastic (IP54)
Resolution:	0.1 vol% CO <sub>2</sub>
Voltage:	100-240 VAC (PNE) (power supply unit with wide voltage input) 50-60 Hz
Max power consumption:	approx. 5 W
Relay preliminary alarm/alarm:	250 VAC (ohmic load), 10 A
Analog output signal:	4-20 mA, burden 200-800 Ω

### Specifications Sensor

Size/weight:	85 × 65 × 90 mm (3.35 x 2.56 x 3.54 in) / approx. 500g (1.1 lb)
Material box:	aluminium (IP43)
Gas entry:	diffusion
Measuring method:	nondispersive infrared measurement (NDIR)
Measuring range:	0-5 vol% CO <sub>2</sub>
Accuracy:	0.1 vol% CO <sub>2</sub>
Operating temperature:	-10 to +50 °C

## ASCO CO<sub>2</sub> Gas Detector: Standard scope of supply

### ASCO CO<sub>2</sub> Gas Detector IV SP/MA

Potential free relay contact provided for additional external warning lights, fan etc.  
4-20mA output, e.g. for an output signal for a remote indicator

part no. 4046230



### ASCO CO<sub>2</sub> Gas Sensor for Detector Type IV SP/MA

Incl. 5 m (196.85 in) sensor cable for the connection between detector and sensor

part no. 406231





# Dry Ice Storage

## ASCO Dry Ice Box AT126

part no. 4063246



The **ASCO** Dry Ice Box AT126 is especially designed and developed for the storage of dry ice and offers good isolation. The material used on this formstable and lightweight box makes it robust and shock resistant for frequent use.

Thanks to the clever design with integrated bases no pallet is needed to stack the dry ice boxes.

### Specifications

### AT126

Material:	expanded PP (Polypropylene)
Inner dimensions (L×W×H):	663×456×420 mm (26.1 x 17.95 in x 16.54 in)
Outer dimensions (L×W×H):	803×596×671 mm (31.6 x 23.46 x 26.4 in)
Weight empty:	10.3 kg (22.7 lb)
Cubic capacity:	approx. <b>126 litres (4.45 ft<sup>3</sup>)</b>
Average storage loss:	approx. 7.4 % / day
Capacity with pellets:	approx. 100 kg (220.6 lb)
Capacity with blocks:	approx. 155 kg (341.7 lb)

# Dry Ice Storage

## ASCO Dry Ice Container AT240

part no. 4063652



The **ASCO** Dry Ice Container made of polyethylene with foam filled cavities provides excellent insulation values.

The container has a lid with integrated hinges and a simple but very stable closing mechanism. The locking made of stainless steel is adjustable and offers the possibility to seal the container.

The integrated securable wheels allow easy handling wherever the container is needed.

### Specifications

Material:	Polyethylene with integrated foam as isolation
Locks :	Stainless steel
Weight empty:	54 kg (119 lb)
Cubic capacity:	approx. <b>240 litres (8.48 ft<sup>3</sup>)</b>
Average storage loss:	approx. 4.0% / day
Capacity with pellets:	approx. 188 kg (414 lb)
Capacity with blocks:	approx. 280 kg (617 lb)

### Dry Ice Storage: Options

#### Pos. 001

#### ASCO Dry Ice Container AT240

part no. 4063651

Dry Ice Container without wheels

Inner dimensions (L × B × H): 940 × 500 × 530 mm (37 × 19.7 × 20.9 in)  
Outer dimensions (L × B × H): 1150 × 705 × 850 mm (45.3 × 27.8 × 33.5 in)  
Working height (with open lid): 755 mm (29.7 in)

#### Pos. 002

#### ASCO Dry Ice Container AT240W

part no. 4063652

Dry Ice Container with 2 fixed wheels, 2 castor wheels (securable)

Inner dimensions (L × B × H): 940 × 500 × 530 mm (37 × 19.7 × 20.9 in)  
Outer dimensions (L × B × H): 1150 × 705 × 1020 mm (45.3 × 27.8 × 40.2 in)  
Working height (with open lid): 925 mm (36.4 in)

# Dry Ice Storage

## ASCO Dry Ice Container AT440

part no. 4064262



The specially developed foam-in-place urethane insulation of the **ASCO** Dry Ice Container AT440 provides outstanding temperature control and long lasting durability.

The special design of the cover and the bottom allows for easy stacking of the containers. Innovative gasket design between lid and container locks cold in. Furthermore, the reduced rib and label area profiles allow for increased insulation, yielding much lower sublimation rates.

The **ASCO** Dry Ice Container AT440 corresponds to Euro pallet designed to a 1'200x800 mm (47.2x31.5 in) footprint and therefore can be used ideally for storage and transport purposes.

### Specifications

Material:	Polyethylene with integrated foam as isolation
Inner dimensions (L x W x H):	1'025 x 650 x 655 mm (40.4 x 25.6 x 25.8 in)
Outer dimensions (L x W x H):	1'175 x 800 x 990 mm (46.3 x 31.5 x 38.9 in)
Working height (with open lid):	920 mm (36.2 in)
Weight empty:	60 kg (132.3 lb)
Cubic capacity:	<b>approx. 440 litres (15.54 ft<sup>3</sup>)</b>
Average storage loss:	approx. 4.1 % / day
Capacity with pellets:	approx. 344 kg (758.4 lb)
Capacity with blocks:	approx. 512 kg (1'128.8 lb)

## Dry Ice Storage: Options

Pos. 001

### Dry ice shovel big

For optimum filling of the 3 mm (1/8 in) dry ice pellets into the ASCO Dry Ice Blasting equipment

Dimensions (L x W): 270 x 180 mm (10.63 x 7.1 in)  
Wooden handle: 110 mm (4.33 in)  
Material: wood / aluminium

part no. 4046629





# Dry Ice Production

## ASCO Dry Ice Pelletizer A30P-D3

part no. 900600

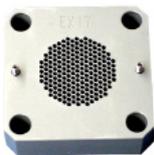


The **ASCO** Dry Ice Pelletizer A30P having a production capacity of 30 kg per hour (66.14 lb/h) is suitable for the production of small amounts of dry ice for cooling purposes.

The **ASCO** Dry Ice Pelletizer A30P is driven by a powerful hydraulic unit featuring a push button for instant start of production. All functions are controlled by a PLC. Fully automatic control of oil temperature and dry ice snowing process guarantees continuous dry ice production without any supervision right from push button start.

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice



### Extruder plate for 3 mm (1/8 in) pellets

The dry ice pelletizer A30P-D3 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in).

### Specifications

Production capacity:	30 kg/h (66.14 lb/h) at 17.5 bar (253.82 psi) CO <sub>2</sub> inlet pressure
Voltage:	400 V/50 Hz / 3 Ph + PE (other voltages on request)
Max. power consumption:	1.6 kW (2.15 HP)
Dimensions pelletizer (L x W x H):	1'150 x 600 x 700 mm (45.28 x 23.62 x 27.56 in)
incl. standard machine base (L x W x H):	1'150 x 600 x 1'300 mm (45.28 x 23.62 x 51.18 in)
Weight net incl. standard machine base:	approx. 147 kg (324 lb) (with hydraulic oil) approx. 141 kg (310.85 lb)(without hydraulic oil)
CO <sub>2</sub> inlet connection:	1/2" BSP female
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (13- 21 bar) (188.5-304.6 psi)

(We recommend to choose additionally a machine base as option to the pelletizer, see following pages)

## ASCO Dry Ice Pelletizer A30P-D3: Special features

### Function and Applications

The **ASCO** Dry Ice Pelletizer A30P requires a liquid CO<sub>2</sub> supply (pressure 13-21 bar (188- 304 psi) and power supply of 400V/50Hz/3Ph + PE (other voltages available on request). The machine features instant push button start and all functions are controlled by an inbuilt PLC. Dry ice snow is produced in the snowing chamber, pressed and then extruded by a powerful hydraulic unit. Hard, dense dry ice pellets are produced within less than one minute after push button start. To ensure continuous, reliable operation of the pelletizer, oil temperature, cycle time, motor overload, CO<sub>2</sub> inlet pressure and hydraulic pressure are all monitored and displayed on the control panel.

**Remark:** Can only be run with low pressure tank (15-21 bar / 217-305 psi) - not with cylinders.

### Options

The **ASCO** Dry Ice Pelletizer A30P-D3 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in). Such pellets are used especially for dry ice blasting purposes. Optional extruder plates for pellets with a diameter of 6 mm (1/4 in) , 10 mm (3/8 in) and 16 mm (5/8 in) are available. The A30P, however, can also be delivered standardly equipped with extruder plates for 6, 10 or 16 mm (1/4, 3/8 or 5/8 in) pellets.

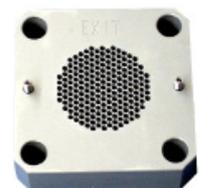
<b>Pellet size</b>				
	3 mm (1/8 in)	6 mm (1/4 in)	10 mm (3/8 in)	16 mm (5/8 in)
<b>Operating range</b>	Dry ice blasting	Cooling purposes	Cooling purposes	Cooling purposes

## ASCO Dry Ice Pelletizer A30P-D3: Standard scope of supply

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for **blasting purposes**

part no. **4044517**



## ASCO Dry Ice Pelletizer A30P-D3: Options

Pos. 001

### Extruder plate for 6 mm (1/4 in) pellets

Pellets for cooling purposes

part no. 4044519



Pos. 002

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for cooling purposes

part no. 4044518



Pos. 003

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for cooling purposes

part no. 4044516



Pos. 004

### Standard machine base

For filling of dry ice storage containers or an ASCOJET 1701

Increases the total height by 600 mm (23.62 in)

part no. 4063029



Pos. 005

### Higher machine base

For filling of higher storage containers or dry ice blasting units

Increases the total height by 800 mm (31.5 in)

part no. 4044520



Pos. 006

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. 4044521





# Dry Ice Production

## ASCO Dry Ice Pelletizer A55P-D3

part no. 900103



The **ASCO** Dry Ice Pelletizer A55P having a production capacity of 55 kg per hour (121.25lb/h) is ideal for building up a smaller dry ice production.

The **ASCO** Dry Ice Pelletizer A55P is driven by a powerful hydraulic unit featuring a push button for instant start of production. All functions are controlled by a PLC. Fully automatic control of oil temperature and dry ice snowing process guarantees continuous dry ice production without any supervision right from push button start.

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice



### Extruder plate for 3 mm (1/8 in) pellets

The **ASCO** Dry Ice Pelletizer A55P-D3 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in).

### Specifications

Production capacity:	55 kg/h (121.25lb/h) at 17.5 bar (253.8 psi) CO <sub>2</sub> inlet pressure
Voltage:	400 V / 50 Hz / 3 Ph + PE (other voltages on request)
Max. power consumption:	1.6 kW (2.15 HP)
Dimensions pelletizer (L x W x H):	1'150 x 600 x 700 mm (45.28 x 23.62 x 27.56 in)
incl. standard machine base (L x W x H):	1'150 x 600 x 1'300 mm (45.28 x 23.62 x 51.18 in)
Weight net incl. standard machine base:	approx. 147 kg (324 lb) (with hydraulic oil) approx. 141 kg (310.85 lb) (without hydraulic oil)
CO <sub>2</sub> inlet connection:	1/2" BSP female
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (13-21 bar) (188.5-304.6 psi)

(We recommend to choose additionally a machine base as option to the pelletizer, see following pages)

## ASCO Dry Ice Pelletizer A55P-D3: Special features

### Function and Applications

The **ASCO** Dry Ice Pelletizer A55P requires a liquid CO<sub>2</sub> supply (pressure 13-21 bar / 188.5-304.6 psi) and power supply of 400 V / 50 Hz /3 Ph + PE (other voltages available on request). The machine features instant push button start and all functions are controlled by an inbuilt PLC. Dry ice snow is produced in the snowing chamber, pressed and then extruded by a powerful hydraulic unit. Hard, dense dry ice pellets are produced within less than one minute after push button start. To ensure continuous, reliable operation of the pelletizer, oil temperature, cycle time, motor overload, CO<sub>2</sub> inlet pressure and hydraulic pressure are all monitored and displayed on the control panel.

### Options

The **ASCO** Dry Ice Pelletizer A55P-D3 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in). Such pellets are used especially for dry ice blasting purposes. Optional extruder plates for pellets with a diameter of 6 mm (1/4 in), 10 mm (3/8 in) and 16 mm (5/8 in) are available. The A55P, however, can also be delivered standardly equipped with extruder plates for 6, 10 or 16 mm (1/4, 3/8 or 5/8 in) pellets.

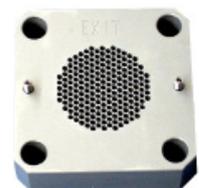
Pellet size				
	3 mm (1/8 in)	6 mm (1/4 in)	10 mm (3/8 in)	16 mm (5/8 in)
Operating range	Dry ice blasting	Cooling purposes	Cooling purposes	Cooling purposes

## ASCO Dry Ice Pelletizer A55P-D3: Standard scope of supply

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for **blasting purposes**

part no. **4044517**



## ASCO Dry Ice Pelletizer A55P-D3: Options

Pos. 001

### Extruder plate for 6 mm (1/4 in) pellets

Pellets for cooling purposes

part no. 4044519



Pos. 002

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for cooling purposes

part no. 4044518



Pos. 003

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for cooling purposes

part no. 4044516



Pos. 004

### Standard machine base

For filling of dry ice storage containers or an ASCOJET 1701

Increases the total height by 600 mm (23.62 in)

part no. 4063029



Pos. 005

### Higher machine base

For filling of higher storage containers or dry ice blasting units

Increases the total height by 800 mm (31.5 in)

part no. 4044520



Pos. 006

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. 4044521



### ASCO Automatic Dry Ice Filling System

For a higher level of automation the pelletizer can be combined with an automatic filling system. The optional automatic filling system, with the appropriate control system, allows a pre-set low dry ice level to automatically start the dry ice pelletizer, with automatic stop at the pre-set high level. Such automatic filling system is the optimum solution wherever the automatic production of an exact dry ice quantity is needed.

The automatic filling system can also be added to the pelletizer at a later stage if required.



Pos. 008

### ASCO Automatic Dry Ice Filling System small A55P

part no. 4044613

Platform of 600 x 800 mm (23.62 x 31.5 in)

For the automatic filling of all ASCOJET Dry Ice Blasting Units and similar sized blasting machines or smaller dry ice storage containers (e.g. AT126).

# Dry Ice Production

## ASCO Dry Ice Pelletizer A120P-D3

part no. 901010



The **ASCO** Dry Ice Pelletizer A120P is a compact, powerful and versatile machine producing high quality dry ice pellets in five different sizes (1.7, 3, 6, 10 and 16 mm) (1/16, 1/8, 1/4 and 5/8 in). Having a production capacity of 120 kg/h (264.55 lb/h) this dry ice machine guarantees quality and flexibility in the daily working process.

The **ASCO** Dry Ice Pelletizer A120P is driven by a powerful hydraulic unit featuring a push button for instant start of production. All functions are controlled by a PLC. Fully automatic control of oil temperature and dry ice snowing process guarantees continuous dry ice production without any supervision right from push button start.

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice



### Extruder plate for 3 mm (1/8 in) pellets

The dry ice pelletizer A120P is standardly equipped with an extruder plate for pellets with a diameter of 3 mm (1/8 in).

### Specifications

Production capacity:	120 kg/h* (264.55 lb/h) at 17.5 bar (253.8 psi) CO <sub>2</sub> inlet pressure
Voltage:	400 V / 50 Hz / 3 Ph + PE (other voltages on request)
Max. power consumption:	4 kW (5.36 HP)
Dimensions (L x W x H):	1'320 x 700 x 1'430 mm (51.97 x 27.56 x 56.29 in)
Weight net:	approx. 340 kg (749.57 lb) (without hydraulic oil) approx. 360 kg (793.66 lb) (with hydraulic oil)
Weight packed	approx. 450 kg (992 lb) (without hydraulic oil)
CO <sub>2</sub> inlet connection:	1/2" BSP female
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (13-21 bar) (188.5-304.6 psi)

\* 1.7 mm (1/16 in) dry ice pellets can be produced at a max. production capacity of 95 kg/h (209.44 lb/h)

## ASCO Dry Ice Pelletizers A120P-D3: Special features

### Function and applications

The **ASCO** Dry Ice Pelletizer A120P requires a liquid CO<sub>2</sub> supply (pressure 13-21 bar) (188.5-304.6 psi) and power supply of 400 V / 50 Hz / 3 Ph + PE (other voltages available on request). The machine features instant push button start and all functions are controlled by an inbuilt PLC. Dry ice snow is produced in the snowing chamber, pressed and then extruded by a powerful hydraulic unit. To ensure continuous, reliable operation of the pelletizer, oil temperature, oil level, cycle time, motor overload, CO<sub>2</sub> inlet pressure and hydraulic pressure are all monitored and displayed on the control panel.

### Options

The **ASCO** Dry Ice Pelletizer A120P is standardly equipped with an extruder plate for pellets with a diameter of 3 mm (1/8 in). 3 mm (1/8 in) pellets are used especially for dry ice blasting purposes. Optional extruder plates for Pellets in four other sizes are available. Of course, the A120P can also be delivered standardly equipped with the following extruder plates.

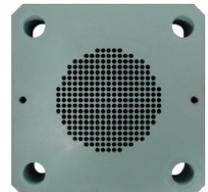
<b>Pellet size</b>					
	1.7 mm (1/16 in)	3 mm (1/8 in)	6 mm (1/4 in)	10 mm (3/8 in)	16 mm (5/8 in)
<b>Operating range</b>	Dry ice blasting (structured surfaces)	Dry ice blasting	Cooling purposes	Cooling purposes	Cooling purposes

## ASCO Dry Ice Pelletizer A120P-D3: Standard scope of supply

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for **blasting purposes**

part no. 4044839



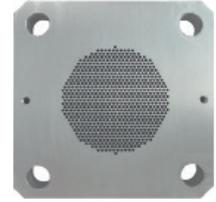
## ASCO Dry Ice Pelletizer A120P-D3: Options

Pos. 001

### Extruder plate for 1.7 mm (1/16 in) pellets

Pellets for **blasting purposes**

part no. 4044843



Pos. 002

### Extruder plate for 6 mm (1/4 in) pellets

Pellets for **cooling purposes**

part no. 4045031



Pos. 003

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for **cooling purposes**

part no. 4045030



Pos. 004

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for **cooling purposes**

part no. 4044837



Pos. 005

### Machine base

For filling of higher storage containers or dry ice blasting units

Increases the total height by 200 mm (7.87 in)

part no. 4044838



Pos. 006

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. 4044491



## ASCO Automatic Dry Ice Filling System

For a higher level of automation the pelletizer can be combined with an automatic filling system. The optional automatic filling system, with the appropriate control system, allows a pre-set low dry ice level to automatically start the dry ice pelletizer, with automatic stop at the pre-set high level. Such automatic filling system is the optimum solution wherever the automatic production of an exact dry ice quantity is needed.

The automatic filling system can also be added to the pelletizer at a later stage if required.



### Pos. 008

Version 1

part no. 900112

## ASCO Automatic Dry Ice Filling System small

Platform of **600 x 800 mm (23.62 x 31.49 in)**

For the automatic filling of all ASCOJET Dry Ice Blasting Units and similar sized blasting machines or smaller dry ice storage containers (e.g. AT131)

### Pos. 009

Version 2

part no. 404486

## ASCO Automatic Dry Ice Filling System large

Platform of **1'200 x 1'200 mm (47.24 x 47.24 in)**

For the automatic filling of larger dry ice blasting machines or larger dry ice storage containers

# Dry Ice Production

## ASCO Dry Ice Pelletizer P28-D3

part no. 900760



The **ASCO** Dry Ice Pelletizer P28 is a compact and powerful dry ice machine. Having a production capacity of 280 kg/h (617.3 lb/h) it meets the demands for higher dry ice quantities plus quality and flexibility in the daily working process.

The **ASCO** Dry Ice Pelletizer P28 is driven by a powerful hydraulic unit featuring instant push button start. All functions are controlled by a Siemens PLC S7-1200 with touch screen. Fully automatic control of oil temperature and dry ice snowing process guarantees continuous dry ice production without any supervision right from push button start.

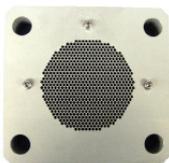
To maximise the CO<sub>2</sub> to dry ice conversion ratio the dry ice pelletizer can be connected to an **ASCO** Revert Gas Recovery System.

Touch screen for good overview and easy operation



### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice



### Extruder plate for 3 mm (1/8 in) pellets

The ASCO Dry Ice Pelletizer P28 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in).

### Specifications

Production capacity:	280 kg/h (617.3 lb/h) +/- 5% at 15-20 bar (217.6-290 psi) CO <sub>2</sub> inlet pressure
Voltage:	400 V / 50 Hz / 3 Ph + PE (other voltages on request)
Max. power consumption:	5.6 kW (7.51 HP)
Dimensions (L x W x H):	1'560 x 800 x 1'450 mm (61.42 x 31.50 x 57.09 in)
Weight net:	approx. 490 kg (1'080.26 lb) (with hydraulic oil) approx. 440 kg (970.03 lb) (without hydraulic oil)
Weight packed:	approx. 550 kg (1'212.54 lb) (without hydraulic oil)
CO <sub>2</sub> inlet connection:	1" BSP female
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (15-20 bar) (217.56-290.08 psi)

## ASCO Dry Ice Pelletizer P28-D3: Function and applications

The **ASCO** Dry Ice Pelletizer P28 requires a liquid CO<sub>2</sub> supply (pressure 15-20 bar) (217.6-290. psi) and power supply of 400 V / 50 Hz /3 Ph + PE (other voltages available on request). The machine features instant push button start and all functions are controlled by an inbuilt PLC. Dry ice snow is produced in the snowing chamber, pressed and then extruded by a powerful hydraulic unit. Hard, dense dry ice pellets are produced shortly after push button start.

To ensure continuous, reliable operation of the pelletizer, oil temperature, oil level, cycle time, injection time, operation hours, due date of service, motor overload, amount dry ice produced since last start, CO<sub>2</sub> inlet pressure and hydraulic pressure are all monitored and displayed on the touch screen of the P28's PLC.

### Options

The **ASCO** Dry Ice Pelletizer P28 is standardly equipped with an extruder plate for the production of pellets with a diameter of 3 mm (1/8 in). Such pellets are used especially for dry ice blasting purposes. Optional extruder plates for the production of 10 mm (3/8 in) and 16 mm (5/8 in) pellets (for cooling purposes) are also available. The P28, however, can also be delivered standardly equipped with such an extruder plate.

<b>Pellet size</b>			
	3 mm (1/8 in)	10 mm (3/8 in)	16 mm (5/8 in)
<b>Operating range</b>	Dry ice blasting	Cooling purposes	Cooling purposes

## ASCO Dry Ice Pelletizer P28-D3: Key features

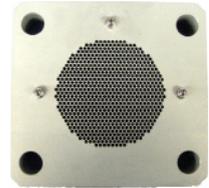
- **PLC SIEMENS-S7-1200** - controls the complete process, injection and hydraulic
- **Siemens touch screen 7"** - with different access levels and information regarding the started production
- **Independent performance** - very constant production, independent of pressure and temperature in the range of 15-20 bar (217.56 -290.1 psi).
- **Integrated production control system**- definition and supervision of production quantity
- **High process reliability** - optimised process monitoring provides optimal performance and increases process reliability
- **Easy maintenance / optimal service planning** - comprehensive error history, indication on touch screen when next service is due
- **Minimum floor space for high production performance**

## ASCO Dry Ice Pelletizer P28-D3: Standard scope of delivery

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for blasting purposes

part no. 4044250



## ASCO Dry Ice Pelletizer P28-D3: Options

Pos. 001

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for cooling purposes

part no. 4044255



Pos. 002

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for cooling purposes

part no. 4044253



Pos. 003

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. 4063235





# Dry Ice Production

## ASCO Dry Ice Pelletizer P450

part no. 900124

**Technical specifications still subject to change**



The **ASCO** Pelletizer P450 is a compact high-capacity pelletizer for the production of densely compressed dry ice pellets and has a production capacity of 450 kg/h (992 lb/h).

The **ASCO** dry ice pelletizer P450 incorporates a heavy duty type hydraulic system controlled by an integrated PLC with touch screen interface. Fully automatic control of oil temperature and dry ice snowing process warranties continuous dry ice production without any supervision right from the start at the press of a button. Using high quality components like Atos, Siemens, Schneider, Proface etc. for the hydraulic system ensures reliable operation and, therefore, very little maintenance is necessary.

The available extruder plates can be quickly exchanged manually.

To maximise the CO<sub>2</sub> to dry ice conversion ratio the dry ice pelletizer can be connected to an **ASCO** Revert Gas Recovery System.

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice

**Standardly equipped without extruder plate.**

Please refer to the options below.

### Specifications

Dimension (L x W x H):	1'700 x 1'100 x 3'700 mm (66.93 x 43.3 x 145.67 in)
Weight net:	approx. 1'700 kg (3'747.86 lb)
Production capacity:	450 kg/h (992 lb/h)
Voltage:	400 Vac, 50 Hz, 3 Ph + PE (other voltages on request)
Max power consumption:	7.5 kW (10.06 HP)
CO <sub>2</sub> inlet connection:	1 × 1/2" BSP female CO <sub>2</sub> liquid 1 × 1/4" BSP female CO <sub>2</sub> gas
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (15-20 bar) (217.56-290 psi)

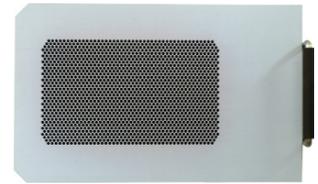
## ASCO Dry Ice Pelletizer P450: Options

Pos. 001

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for **blasting purposes**

part no. 4045146

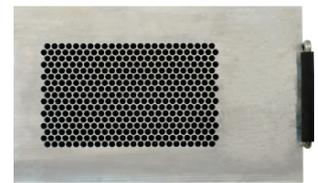


Pos. 002

### Extruder plate for 6 mm (1/4 in) pellets

Pellets for **cooling purposes**

part no. 4045147

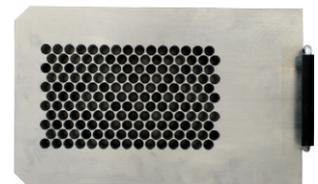


Pos. 003

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for **cooling purposes**

part no. 4045148

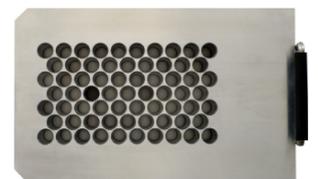


Pos. 004

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for **cooling purposes**

part no. 4045149

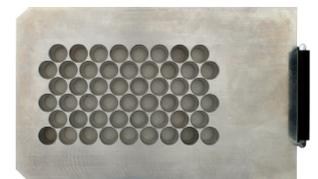


Pos. 005

### Extruder plate for 19 mm (3/4 in) pellets

Pellets for **cooling purposes**

part no. 4045150



Pos. 006

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. 4045187



# Dry Ice Production

## ASCO Dry Ice Pelletizer P700

part no. 900122

**Technical specifications still subject to change**



The **ASCO** Pelletizer P700 is a compact high-capacity pelletizer for the production of densely compressed dry ice pellets and has a production capacity of 700 kg/h (1543.24 lb/h)

The **ASCO** Dry Ice Pelletizer P700 incorporates a heavy duty type hydraulic system controlled by an integrated PLC with touch screen interface. Fully automatic control of oil temperature and dry ice snowing process warranties continuous dry ice production without any supervision right from the start at the press of a button. Using high quality components like Atos, Siemens, Schneider, Proface etc. for the hydraulic system ensures reliable operation and, therefore, very little maintenance is necessary.

The available extruder plates can be quickly exchanged manually.

To maximise the CO<sub>2</sub> to dry ice conversion ratio the dry ice pelletizer can be connected to an **ASCO** Revert Gas Recovery System.

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice

**Standardly equipped without extruder plate.**

Please refer to the options below.

### Specifications

Dimension (L x W x H):	1'700 x 1'100 x 3'700 mm (66.93 x 43.3 x 145.67 in)
Weight net:	approx. 1'700 kg (3'747.86 lb)
Production capacity:	700 kg/h (1'543.24 lb/h)
Voltage:	400 Vac, 50 Hz, 3 Ph + PE (other voltages on request)
Max power consumption:	13 kW (17.43 HP)
CO <sub>2</sub> inlet connection:	1 × 1/2" BSP female CO <sub>2</sub> liquid 1 × 1/4" BSP female CO <sub>2</sub> gas
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (15-20 bar) (217.56-290 psi)

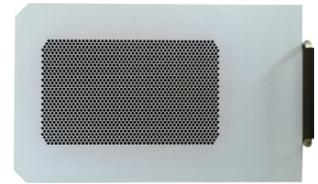
## ASCO Dry Ice Pelletizer P700: Options

Pos. 001

### Extruder plate for 3 mm (1/8 in) pellets

Pellets for **blasting purposes**

part no. 4045146

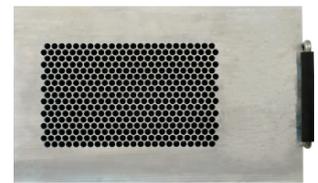


Pos. 002

### Extruder plate for 6 mm (1/4 in) pellets

Pellets for **cooling purposes**

part no. 4045147

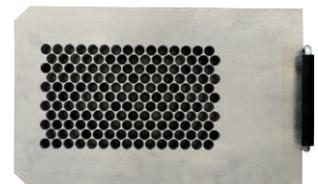


Pos. 003

### Extruder plate for 10 mm (3/8 in) pellets

Pellets for **cooling purposes**

part no. 4045148

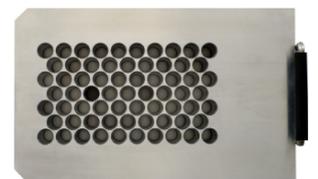


Pos. 004

### Extruder plate for 16 mm (5/8 in) pellets

Pellets for **cooling purposes**

part no. 4045149

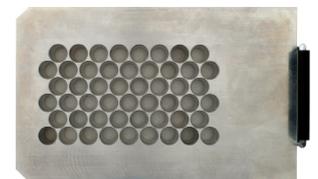


Pos. 005

### Extruder plate for 19 mm (3/4 in) pellets

Pellets for **cooling purposes**

part no. 4045150



Pos. 006

### Spare parts kit

Containing a selection of recommended spares for approx. one to two years of normal operation

part no. Art.-Nr. 4062406



# Dry Ice Production

## ASCO Automatic Dry Ice Machine BP420

part no. 900127

*Technical specifications still subject to change*



ASCO's state-of-the-art automatic Dry Ice Machine BP420 produces 10 different slice thicknesses and 2 different types of pellets at the push of a button.

The dies for the production of different sizes of dry ice do not have to be changed manually as they are already built in and can be controlled at the touch screen panel. Depending on the setting the production capacity ranges from 240 to 400kg/h (529 to 881.85lb/h).

The automatic, dry ice block, slice and pellet machine **ASCO** BP420 is a fully Siemens PLC SIMATIC ET-200S controlled and supervised hydraulically driven unit.

The **ASCO** Dry Ice Machine BP420 features high density, fully automatic dry ice production for slices in 10 different thicknesses changeable by 1 mm. Standard slice dimensions are 210 x 125 x 20-70 mm (8.27 x 4.9 x 0.78-2.76 in). In addition it is possible to produce two different pellets sizes with a diameter of 3, 6, 10 or 16 mm (1/8, 1/4, 3/8 or 5/8 in). Other slice/pellet dimensions are available on request.

To maximise the CO<sub>2</sub> to dry ice conversion ratio the dry ice machine can be connected to an **ASCO** Revert Gas Recovery System.



Touch screen for good overview and easy operation

### Benefits of an in-house dry ice production:

- if for dry ice blasting: more efficient cleaning results, because: the fresher the dry ice, the more efficient the cleaning
- shorter production stops
- reduction of dry ice lost due to sublimation
- decreased logistics expense connected with purchasing and disposing of dry ice

### Specifications

Dimensions (L x W x H):	approx. 2'540 x 1'100 x 3'750 mm (99.99 x 43.3 x 174.64 in)
Weight:	approx. 1'900 kg
Voltage:	400 V / 50 Hz / 3 Ph + PE (other voltage available on request)
Average power consumption:	6 kW (8.05 HP)
CO <sub>2</sub> source:	CO <sub>2</sub> storage tank, liquid phase (15-20 bar) (217.56-290 psi)

## ASCO Automatic Dry Ice Machine BP420: Key features

- **SIEMENS PLC SIMATIC ET-200S** - controls the whole process, injection and hydraulic for continuous automatic operation
- **New ASCO HMI** - multilingual 7" touch screen with different access levels, adjustable parameters, on-line production and product information as well as history file for supervisor
- **Profibus network** for fast communication between PLC and the numerically controlled hydraulic piston pump for a precise control of the flow and pressure to optimize the dry ice quality
- **Linear encoder** - for precise position control of piston and shutter plate (PCO)
- **Independent oil cooling and filtration system (ICFS)** - to increase lifetime of hydraulic equipment and to reduce oil consumption
- **10 different slice thicknesses and 2 pellet sizes** - possible at the push of a button (to be specified at time of order)
- **Auto-compensation** - of CO<sub>2</sub> pressure and temperature variation of CO<sub>2</sub> storage tank (ACPT) to ensure slice thickness control fully automatic
- **Anodized high grade aluminium pressing chamber** - to protect the chamber against corrosion and reduce the cost of maintenance
- **Slide incl. slice speed reducing device** to appropriately decelerate the produced blocks for further processing
- **CO<sub>2</sub> gas recovery possible**
- **Easy operation and maintenance**
- Simple and quick installation
- European standard CE
- Quality components, e.g. Siemens, ATOS
- Robust construction

### Slice, block and pellet information

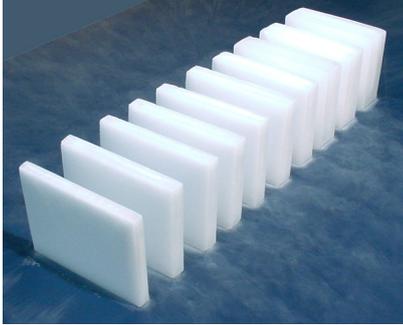
Dry ice product	Standard block / slice dimensions 210 × 125mm (8.27 x 4.9 in)										Pellets
	20 (0.8 in)	22 (0.9 in)	25 (1 in)	30 (1.2 in)	35 (1.4 in)	40 (1.6 in)	45 (1.8 in)	50 (1.9 in)	60 (2.4 in)	70 (2.8 in)	
Thickness in mm (Thickness in in)	20 (0.8 in)	22 (0.9 in)	25 (1 in)	30 (1.2 in)	35 (1.4 in)	40 (1.6 in)	45 (1.8 in)	50 (1.9 in)	60 (2.4 in)	70 (2.8 in)	all diameters
Weight in gr/slice (Weight in lb/slice)	820 (1.8 lb)	900 (2.0 lb)	1'020 (2.2 lb)	1'210 (2.7 lb)	1'410 (3.1 lb)	1'620 (3.6 lb)	1'820 (4.0 lb)	2'020 (4.5 lb)	2'420 (5.3 lb)	2'830 (6.2 lb)	-
Capacity in kg/h (Capacity in lb/h)	240 (529 lb/h)	250 (551 lb/h)	300 (661.4 lb/h)	240 (529 lb/h)	270 (595.3 lb/h)	300 (661.4 lb/h)	330 (727.5 lb/h)	350 (771.6 lb/h)	330 (727.5 lb/h)	390 (859.8 lb/h)	400 (881.8 lb/h)

This choice of sizes is only an extract and helps as production indication. The thickness of the blocks is adjustable by 1 mm from 20 to 70 mm (0.78 to 2.75 in). Our machines can be made to produce almost any size of slices / blocks upon special request. If you have a special need, please let us know.

Standard pellets sizes are diameters of 3, 6, 10 or 16 mm (1/8, 1/4, 3/8 or 5/8 in). Other sizes are available on request.

## Automatic ASCO Dry Ice Machine BP420: Applications

Airline catering (20-25mm thickness) (0.78-1 in), transport cooling (thicker blocks) or pellets for other cooling or for dry ice blasting purposes: The automatic **ASCO** Dry Ice Machine BP420 produces high quality dry ice blocks, slices and pellets to cover all different market requests.



### Catering services

10 different slice thicknesses

- Airline trolleys
- Transport cooling
- etc.



### Cooling

6, 10 and 16 mm pellets (1/8, 1/4, 3/8 in)

- Food transportation
- Fishing industry
- Ice cream industry
- Laboratories
- Wineries
- etc.



### Dry ice blasting

3 mm pellets (1/8 in)

- Foundries
- Tyre production
- Rubber-, food- and printing industry
- etc.

## Automatic ASCO Dry Ice Machine BP420: Options

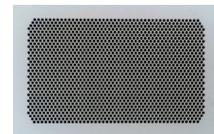
Pos. 001

### Upgrade D3mm (1/8 in)

To produce 3 mm (1/8 in) pellets in addition to blocks with the same machine at the press of a button.

Capacity with 3 mm (1/8 in) pellets = 400 kg/h (881.85lb/h)

part no. 22858



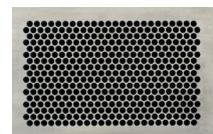
Pos. 002

### Upgrade D6mm (1/4 in)

To produce 6 mm (1/4 in) pellets in addition to blocks with the same machine at the press of a button.

Capacity with 6 mm (1/4 in) pellets = 400 kg/h (881.85lb/h)

part no. 22861



## Automatic ASCO Dry Ice Machine BP420: Options

Pos. 003

### Upgrade D10mm (3/8 in)

To produce 10 mm (3/8 in) pellets in addition to blocks with the Same machine at the press of a button.

Capacity with 10 mm (3/8 in) pellets = 400 kg/h (881.85 lb/h)

part no. 22859



Pos. 004

### Upgrade D16mm (5/8 in)

To produce 16 mm (5/8 in) pellets in addition to blocks with the same machine at the press of a button.

Capacity with 16 mm (5/8 in) pellets = 400 kg/h (881.85 lb/h)

part no. 22860



Pos. 005

### Set of spares

Recommended set of spare parts for approx. one to two years normal operation.

part no. 4045162



Pos. 006

### ASCO Passive Saw for ASCO Dry Ice Machine BP420

Passive saw to divide dry ice blocks up to 25 mm (0.98 in) thickness

Consisting of:  
Conveyor belt and one saw blade to cut the blocks into two.  
Power connection: 400V/50Hz"

part no. 900720



Pos. 007

### Spare blade incl. Holder for Passive Saw

Allows the integration of a second blade to divide the dry ice slice into three pieces.

part no. 4062692

# Dry Ice Production

## ASCO Dry Ice Reformer A700R

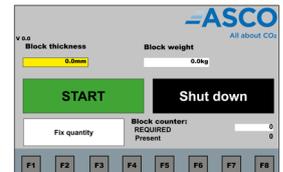
part no. 901026



The **ASCO** Dry Ice Reformer A700R has been developed for producing dense dry ice blocks in various sizes by compressing dry ice pellets. **Be it in combination with an existing or with a new dry ice pelletizer, the ASCO Dry Ice Reformer A700R is a very convenient tool to complement the dry ice pellet business with dry ice blocks.**

The compact machine is driven by a powerful and unique hydraulic unit featuring instant push button start. All functions are controlled by a Siemens PLC S7-1200. A touch screen provides good overview and easy operation, a comprehensive monitoring, easy maintenance and optimal service planning. An integrated production control system allows to define and supervise the amount of blocks or weight to be produced.

Touch screen for good overview and easy operation



### Specifications

Dimensions (L × W × H):	1'140 × 1'140 × 1'620 mm (44.88 x 44.88 x 637.87 in)
Weight net:	approx. 510 kg (1124.4 lb) (without hydraulic oil) approx. 580 kg (1278.68 lb) (with hydraulic oil)
Voltage:	400 Vac / 50 Hz / 3 Ph + PE (other voltages on request)
Total power installed:	9.5 kW (12.74 HP)
Max. average power consumption:	< 3 kW (4.02 HP)
Standby mode:	0.6 kW (0.80 HP)
Basis media:	3 mm (1/8 in) dry ice pellets
Dry ice density blocks:	≥ 1.54 kg/dm <sup>3</sup> (96.14 lb/ft <sup>3</sup> )
Standard block/slice sizes:	210 × 125 mm (8.3 x 4.92 in), thickness 16 to 60 mm (5/8 to 2.36 in) resp. weight 650 to 2'430 g (1.43 to 5.36 lb) (thickness and weight stepless adjustable)
Production capacity*:	200 to 700 kg/h (440 - 1543.24 lb) (depending on block size)

	Standard block /slice size 210 × 125 mm (8.27 x 4.92 in)									
Thickness in mm** (Thickness in in)	16 (0.6)	18 (0.7)	20 (0.8)	22 (0.9)	25 (1)	30 (1.2)	40 (1.6)	50 (2)	60 (2.4)	
Weight in g/block approx. (Weight in lb/block approx)	650 (1.4)	730 (1.6)	810 (1.8)	890 (2)	1'010 (2.2)	1'220 (2.7)	1'620 (3.6)	2'030 (4.5)	2'430 (5.4)	
Performance in kg/h approx. (Performance in lb/h approx)	200 (440.9)	220 (485)	240 (529)	260 (573.2)	300 (661.4)	360 (793.7)	480 (1'058)	600 (1'322.8)	700 (1'543)	

\* The indications regarding production capacity are based on the use of 3 mm pellets, freshly produced on ASCO dry ice pelletizers.  
\*\* This choice of sizes is only an extract and helps as production indication. The thickness or the weight of the blocks is alternatively stepless adjustable.

## ASCO Dry Ice Reformer A700R: Function and applications

The **ASCO** Dry Ice Reformer A700R is started on the touch screen panel. All functions are controlled by the inbuilt PLC. Dry ice pellets with a diameter of 3 mm (1/8 in) are filled into the dry ice hopper. From there they are conveyed to the pressing chamber automatically, where they are predosed and compressed into high-quality dry ice blocks.

To ensure continuous, reliable operation of the reformer, oil level, cycle time, operation hours, due date of service, motor overload, amount of produced dry ice blocks since last start and hydraulic pressure are all monitored and displayed on the touch screen of the A700R's PLC.

### Dry Ice Reformer A700R: Key features

- **PLC SIEMENS-S7-1200** - controls the complete process, filling of the pressing chamber and the hydraulic with its main and side cylinder.
- **Siemens colour touch screen 7"** - with different access levels and information regarding the started production.
- **Integrated production control system** - definition and supervision of amount of blocks or weight to be produced.
- **Alternatively thickness or weight of blocks stepless adjustable** (16 to 60 mm (0.63 to 2.4 in) resp. 650 to 2'430 g (1.43 to 5.36 lb). Corresponding calculation happens automatically.
- **Integrated block thickness control** - differing block thicknesses (e.g. if too little dry ice pellets are in the hopper) can be displayed on the touchscreen and on a separate digital output.
- **High process reliability** - optimal process monitoring provides optimal performance and high process reliability.

## Automatic Dry Ice Reformer A700R: Options

Pos. 001

### ASCO Passive Saw for Dry Ice Reformer A700R

Passive saw to divide dry ice blocks up to 25 mm (0.98 in) thickness consisting of: Conveyor belt and one saw blade to cut the Blocks into three.

Power connection: 400V/50Hz"

part no. 900721



Pos. 002

### Spare Blade incl. Holder for Passive Saw

Allows the integration of a second blade to divide the dry ice slice into three pieces.

part no. 4062692

Pos. 003

### Podium for Dry Ice Pelletizer

Customized podium to elevate a dry ice pelletizer to directly charge the ASCO Dry Ice-Reformer A700R with pellets.

part no. 4063845



Pos. 004

### ASCO Pellet Feeder for Dry Ice Reformer A700R

Z-Conveyor to feed the ASCO Dry Ice Reformer A700R with pellets from a dry ice pelletizer.

part no. 4063846





# Dry Ice Production / Wrapping

## ASCO Automatic Wrapping Machine APM50

part no. 4045176



This automatic **ASCO** Wrapping Machine APM50 for is specially designed for the use of dry ice slices and / or blocks. All parts in contact with the product are made of stainless steel. Automatic pitch change on conveyor and all motors are torque controlled. The temperature for welding is shown on the display and is electronically controlled. The control panel consists of various instruments and visual alarms and is equipped with a self-diagnostic device.

### Specifications

Dimensions (L x W x H):	4'240 × 900 × 1'800 mm (166.93 x 35.43 x 70.87 in)
Performance:	3 - 15 packs/minute
Wrapping material:	Polypropylene MD447/40 (standard),
Product size:	up to 210 mm × 125 mm (8.27 x 4.9 in) and 20-22 mm (0.79-0.87 in) thickness (has to be specified at time of order)
Version:	standard is right-hand (looking at the machine frontally the products enter from right and the packs go away from left)
Air supply:	6 bar (87 psi)
Air consumption:	20 litres/minutes of filtered & dry compressed air
Film reel:	max. width 520 mm (20.47 in) reel outside diameter 350 mm (13.78 in) reel inside diameter 70 - 76 mm (2.76 - 2.99 in)
Voltage:	400 V / 50 Hz / 3 Ph
Max. power consumption:	6 kW (8.05 HP)
Auxiliary circuits:	24 VDC
Net weight:	approx. 780 kg (1'719.61 lb)

## Automatic ASCO Wrapping Machine APM50: Special features

The machine is supplied as follows:

- **Main frame manufactured in anticorrosive steel plates painted RAL 9007**
- **With stainless steel side covers**
- **Adjustable feet for level regulation**
- **Infeed conveyor** - stainless steel surface with longitudinal profiles (AISI 304), metallic pushers and area for control.
- **Unwinding group** - single reel-holder, rack type wrapping material feed-roll unit with lever brake and perforator by pills with possibility to connect/disconnect.
- **N. 1 fixed forming box**
- **Longitudinal sealing group** - made by 3 sets of rolls, diameter 100 mm (3.94 in): first cold for film traction; second warm for sealing, automatic opening at machine, stop and self-closing at machine re-start; 3rd cold for film traction and longitudinal fin folding. At machine stop activation of a blow of fresh-air to cool the surface. Removable stainless steel surface for easy servicing/cleaning.
- **Transversal sealing group** - rotary sealing unit with inclined knife complete of: super-rapid steel blades and jaws heating-up by means of resistances, cover safety protection for the whole group and motorised brush at crimpers exit.
- **Out-feed belt** - drive by longitudinal sealing group.
- **Safety devices** - timed machine stop with open jaws, low voltage control push-button panel and protections and safety devices in accordance to laws in force (CE).
- **Control panel** - complete with display for vision/setting of pack length and packaging speed, safety lights indicators, switches for emergency, start/stop, intermittent motion and electronic thermostats for sealing temperatures setting.

## Automatic ASCO Wrapping Machine APM50: Standard scope of supply

### Automatic ASCO Wrapping Machine APM50

part no. 4045176

Automatic ASCO Wrapping Machine type APM50 for wrapping of dry ice blocks with size up to 210 mm x 125 mm (8.27 x 4.92 in and 20-22 mm (0.79-0.87 in) thickness (has to be specified at time of order).

Included equipment see above.



Pos. 001

### Rotary table for ASCO Wrapping Machine

Low quantity buffering device complete with:

- metallic support with three legs
- rotating table
- motor

part no. 4045179





# Dry Ice Production / Bagging

## ASCO Dry Ice Pellets Bagging Machine

part no. 4064032



ASCO offers a simple and well-priced alternative for bagging dry ice pellets into bags. The **ASCO Dry Ice Pellets Bagging Machine** convinces by a very good price-performance ratio due to the robust construction and a reliable operation. The machine is easy to maintain and self-explanatory in its application. The fast format change significantly reduces downtime which guarantees an efficient work flow.

The capacity of this machine is individually adjustable beginning with 500 up to 2'800 g (1.1-6.2 lb) per bag. The bagging is done manually with the corresponding measuring shovels including a foot pedal for easy operation.

In addition to the **ASCO Dry Ice Pellets Bagging Machine**, ASCO also offers individual solutions for the convenient bagging of dry ice pellets. According to your wishes and requirements, we are pleased to offer you the right machine.

### Specifications

Dimensions (L x W x H):	800 x 850 x 1'500 mm (31.5 x 33.5 x 59.1 in)
Net weight:	145 kg (319.7 lb)
Power supply:	230 V (0.31 hp)
Power consumption:	0,5 kW (0.67 hp)
Length of packaging:	50 - 330 mm (1.9 - 12.9 in)
Width of packaging:	180/230 mm (7.1/9.1 in)
Pneumatic supply:	40l/min. up to 6 bar (634 US gpm up to 87 psi)

## ASCO Dry Ice Pellets Bagging Machine: Options

Pos. 001

### Packaging foil for ASCO Dry Ice Pellets Bagging

part no. 4064145

#### Big

Material: PE micro perforated  
Strength: 25 µm (0,000984 in)  
Width : 510 mm (20.1 in)  
Weight: 10 kg (22 lb)/roll

Pos. 002

### Packaging foil for ASCO Dry Ice Pellets Bagging

part no. 4064146

#### Small

Material: PE micro perforated  
Strength: 25 µm (0,000984 in)  
Width : 410 mm (16.1 in)  
Weight : 10 kg (22 lb)/roll

## ASCO Dry Ice Pellets Bagging Machine: Options

Pos. 003

### Dry ice shovel small

For optimum filling of the 3 mm (0.1 in) dry ice pellets  
Dimensions (LxW): 160 × 95 mm (6.3 × 3.7 in)  
Material: wood / aluminium

part no. 4064382



Pos. 004

### Dry ice shovel medium

For optimum filling of the 3 mm (0.1 in) dry ice pellets  
Dimensions (LxW): 180 × 115 mm (7.1 × 4.5 in)  
Material: wood / aluminium

part no. 4064380



Pos. 005

### Dry ice shovel big

For optimum filling of the 3 mm (0.1 in) dry ice pellets  
Dimensions (LxW): 270 × 180 mm (10.6 × 7.1 in)  
Material: wood / aluminium

part no. 4046629



# Dry Ice Production / Wrapping

## ASCO Passive Saw for Dry Ice Slices

part no. 900720



The **ASCO** Passive Saw divides dry ice blocks up to a thickness of 25 mm into two or three parts.

This allows the production of smaller, non-standard, high-quality block sizes. While the production cycle remains unchanged, the block output doubles or triples while the block quality remains the same and no extra time is needed. If necessary, the saw blade can be removed or a second one can be added for trisection.

The handling of the **ASCO Passive Saw** is simple, safe and fast while offering absolute system security by means of the existing production process is not influenced in any way. This massively increases the flexibility of any dry ice production.

### Specifications

Dimensions (L × W × H):	1300x500x1200 mm (51.2x19.7x47.2 in)
Weight net:	250 kg (551.2 lb)
Capacity:	20 blocks / min. ( 1 block in 3 sec.)
Voltage:	400V, 50 Hz. / 3 Ph
Max. power consumption:	0.37 kW (0.50 HP)

## ASCO Passive Saw for Dry Ice Slices: Options

Pos. 001

### ASCO Passive Saw for automatic ASCO Dry Ice Machine BP420

part no. 900720

The saw height is adapted to the automatic ASCO Dry Ice Machine BP420.



Pos. 002

### ASCO Passive Saw for Dry Ice Reformer A700R

part no. 900721

The saw is adapted to the Dry Ice Reformer A700R. The dry ice blocks are transported to the appropriate height of the saw with the help of a Z conveyor.



Pos. 003

### Additional saw blade with holder for ASCO Passive Saw

part no. 4062692

Allows the introduction of a second saw blade device for dividing the dry ice blocks into three parts.



# ASCO Dry Ice Blasting Technology

## General information

### What is CO<sub>2</sub>?

Carbon dioxide or CO<sub>2</sub> is an odourless, inert gas approximately 1½ times heavier than air and 0.03 % is normally present in the earth's atmosphere. It is also found in great quantities in volcanoes, earth cracks, other sources and in the metabolism of plants, animals, and human beings.

Commercially, CO<sub>2</sub> can be recovered as a by-product from various chemical industries and is usually stored in a tank after recovery. Carbon dioxide can exist in three forms:

- in gaseous form (for the beverage and food industries)
- in liquid form (in a storage tank under pressure)
- in solid form (called dry ice, for cooling, blasting etc.)

### What is dry ice?

Dry ice is produced from liquid carbon dioxide. Inside a pelletizer, the liquid carbon dioxide is expanded under controlled conditions. This physical change forms dry ice snow. This snow is then pressed through an extruder plate into round, hard pellets (elongated grains with a diameter of 3 mm or 1.7 mm) (0.12 in or 0.07 in). Dry ice has a temperature of approx. -79°C.



### Cleaning method

The ASCO Dry Ice Blasting machine accelerates the pellets with compressed air to a speed of approx. 300 m/s (984.25 ft/s). The pellets hit the object to be cleaned. The surface is shock-frozen in a fraction of a second. Due to the cracking of the surface, the pellets can reach under the dirt and remove it using their kinetic energy. Immediately after impact, the pellets sublime without leaving any moisture behind. Since the hardness of the pellets is only approx. 2 Mohs, the cleaning is virtually non-abrasive, and the surface quality is maintained.

<p><b>The thermo shock</b> As a result of the sudden and intense temperature shock on the surface, the coating or impurity contracts.</p>	<p><b>The cracking</b> As a result of the contraction the coating cracks and the material becomes brittle due to the cold.</p>	<p><b>The cleaning</b> The dry ice pellets hit the surface with great speed and remove the detached coating and clean the surface material.</p>

# General Information

## Where can this unique cleaning method be applied?

The ASCO Dry Ice Cleaning Technology is a gentle non-abrasive cleaning method suitable on almost all surfaces especially for mold cleaning in foundries, in the tire manufacturing, the plastic injection molding industry and the cleaning of machinery in general but especially in the food manufacturing process. Basically, it easily removes all materials, which react to differences in temperature or kinetical energy or a combination of both of them like release agent, plastic, synthetic and food residues, foam (e.g. PU), paint, varnish, adhesives, wax, bitumen, etc. without damaging or altering the surface. Another benefit is that it reduces the amount of waste material considerably.

## What are the advantages over other cleaning methods?

Wherever conventional cleaning methods cause long and expensive down-time of equipment, machinery and/or labor, this modern technique considerably reduces down-time. The often costly and intensive after-treatment of the cleaned surfaces is no longer necessary.

Another major benefit is that the removal and disposal of contaminated blasting media is completely eliminated as the dry ice pellets simply sublimate back to the atmosphere.

### Increased productivity – cost saving

- Since this cleaning technology is dry and non-abrasive, it can be applied directly onto the object to be cleaned. Thus down time can be reduced to a minimum. Time is saved and cooling down or the other way around heating up of tools is obsolete.
- Cleaning of machinery, tools, molds, conveyors etc. can be done without removing them from the machine.
- Cleaning even during the running process is no problem.
- Another benefit is that it reduces the amount of waste material considerably, especially for hazardous waste.

### Increased quality – non-abrasive

- The hardness of dry ice pellets can be compared with the hardness of chalk. Therefore the surface structure of the cleaning surface is not being damaged nor altered in any way.
- A gentle but nevertheless effective cleaning technology.
- Suitable for very sensitive and fine-structured surfaces (CD-stamp, wafer, polished surfaces)
- Fine edges and delicate structures remain unchanged.
- Non scrubbing (Steel brushes, scraper)

### Dry

- Cleaning with dry ice is a dry and non-conductive cleaning process.

### Health

- By eliminating the use of solvents and hazardous chemicals the dry ice cleaning method is safe for people and environment.

### Environment friendly

- The dry ice sublimates on impact onto the surface. Only the removed contaminant remains. It is not necessary to dispose the cleaning media – it reduces waste dramatically!
- No sewage – or cleaning and filtration of waste water
- No contamination by hazardous additives, chemicals etc.
- No remains of the cleaning media
- Non toxic
- No use of water, therefore no breeding ground for germs

### Powerful – a fast cleaning technology

- Powerful – hardly no loss of pressure by extending the hoses up to 75 m (246 ft) length and 35 m (115 ft) height.
- Direct cleaning for instance onto hot molds without having to cool them down first.
- Normally, no disassembling of the machine parts is necessary.
- ASCO dry ice blasting is the perfect solution for many different applications in various industries.

### Compact and mobile

- The equipment is light, mobile, maintenance-free, reliable and easy to operate.

# Necessary Equipment

## Dry Ice Blasting Unit



Depending on the application, the appropriate dry ice blasting unit can be chosen. Our range consists of five different ASCO models with different performances and features.

Various nozzles (barrel, flat and angled nozzles) with different air flows are available to allow even higher flexibility.

## Dry Ice Pelletizer



Dry ice pellets with a diameter of 3 mm (0.12 in) are standardly used for the dry ice blasting technology. This size of dry ice can usually be bought from a local gas company. To ensure a ready supply of high quality pellets, having in-house your own dry ice machine is a definite advantage.

## Air Compressor



In order to give the dry ice pellets the necessary speed and blasting effect, compressed air must be fed to the blasting unit.

Depending on the application, compressed air between 2-20 (29-290 psi) bar and an air flow between 1-15 m<sup>3</sup>/min (35.31-529.72 ft<sup>3</sup>/min) is required.

# Technical Specifications of Blasting Air

To reach a certain cleaning performance, a corresponding air pressure and volume is needed. generally, the more air volume is used, the more powerful the units are. ASCO Dry Ice Blasting Units have enough power for each application, thus minimising production down times.

Below please find a list showing the standard air consumption of each unit. These figures are valid for the use with the standard nozzle and can vary if other nozzles are used:

Working pressure	Air consumption (m <sup>3</sup> /min.)					
	ASCO Nanojet	ASCOJET 1208	ASCOJET 1701	ASCOJET 1708	ASCOJET 2008 Combi Pro (OHP additive)*	ASCOJET 2008 Combi Pro (HP)*
<b>2 bar (29 psi)</b>	< 0.4 (14 ft <sup>3</sup> /min)	1.1 (39 ft <sup>3</sup> /min)	-	-	-	-
<b>3 bar (44 psi)</b>	0.4 (14 ft <sup>3</sup> /min)	1.6 (57 ft <sup>3</sup> /min)	-	-	-	-
<b>4 bar (58 psi)</b>	0.7 (25 ft <sup>3</sup> /min)	2.1 (75 ft <sup>3</sup> /min)	3.7 (131 ft <sup>3</sup> /min)	3.7 (131 ft <sup>3</sup> /min)	3.7 (131 ft <sup>3</sup> /min)	4.5 (159 ft <sup>3</sup> /min)
<b>6 bar (87 psi)</b>	0.9 (32 ft <sup>3</sup> /min)	2.9 (103 ft <sup>3</sup> /min)	4.6 (162 ft <sup>3</sup> /min)	4.6 (162 ft <sup>3</sup> /min)	4.6 (162 ft <sup>3</sup> /min)	5.5 (194 ft <sup>3</sup> /min)
<b>7 bar (102 psi)</b>	1.0 (35 ft <sup>3</sup> /min)	3.5 (124 ft <sup>3</sup> /min)	5.0 (177 ft <sup>3</sup> /min)	5.0 (177 ft <sup>3</sup> /min)	5.0 (177 ft <sup>3</sup> /min)	6.0 (212 ft <sup>3</sup> /min)
<b>8 bar (116 psi)</b>	1.2 (42 ft <sup>3</sup> /min)	4.0 (142 ft <sup>3</sup> /min)	5.4 (191 ft <sup>3</sup> /min)	5.4 (191 ft <sup>3</sup> /min)	5.4 (191 ft <sup>3</sup> /min)	6.5 (230 ft <sup>3</sup> /min)
<b>10 bar (145 psi)</b>	1.8 (64 ft <sup>3</sup> /min)	5.1 (181 ft <sup>3</sup> /min)	6.2 (219 ft <sup>3</sup> /min)	6.2 (219 ft <sup>3</sup> /min)	6.2 (219 ft <sup>3</sup> /min)	7.5 (265 ft <sup>3</sup> /min)
<b>16 bar (232 psi)</b>	-	-	-	-	-	10.5 (371 ft <sup>3</sup> /min)
<b>20 bar (290 psi)</b>	-	-	-	-	-	14.5 (512 ft <sup>3</sup> /min)

\*OHP additive: Combination blasting with blasting gun additive OHP (Blasting nozzle additive)

\*HP: Double hose system with blasting gun HP (High Performance Barrel Nozzle HP255)

**Note:** These figures are valid for each unit equipped with its standard gun. If the above consumption rates do not suit your requirements, please inform us when asking for a quote.

In order to ensure the perfect function of our blasting equipment, **ISO-standard 8573-1 must be complied within the following areas:**

	class	Maximum reference value
<b>Oil content</b>	class 3	max. residual oil content 0.001 ppm (1 mg/m <sup>3</sup> )
<b>Particle size and density</b>	class 3	max. particle size 5µm 0.005 ppm (density 5 mg/m <sup>3</sup> )
<b>Pressure dew point</b>	class 4	max. residual water content 5953 ppm (5.953g/m <sup>3</sup> ) and pressure condensation point of +3 °C

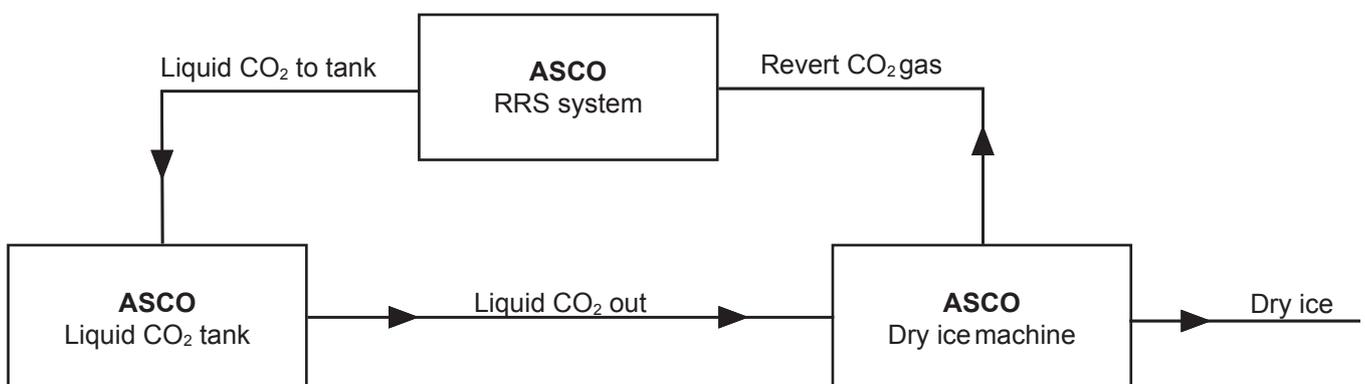
# CO<sub>2</sub> Revert Recovery System



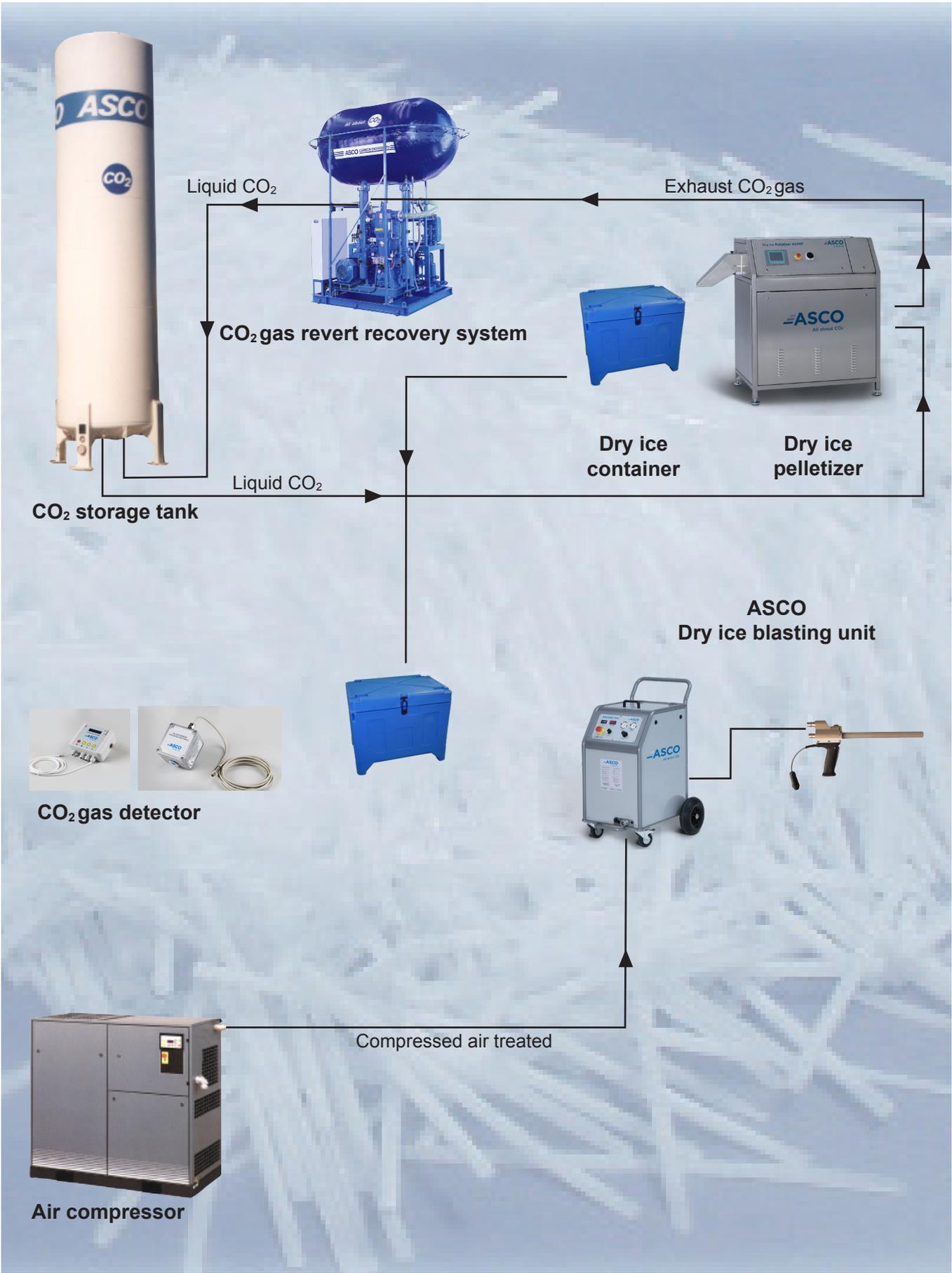
When dry ice is produced the conversion rate from liquid CO<sub>2</sub> to dry ice is approx. 40-45%. With a CO<sub>2</sub> Revert Recovery System, however, most of the otherwise lost CO<sub>2</sub> can be recovered to give a final conversion rate of approx. 90-95%. It goes without saying that with such a CO<sub>2</sub> Recovery System the dry ice production costs can be reduced enormously.

ASCO offers several CO<sub>2</sub> Revert Recovery Systems for its different dry ice pelletizers with a recovery capacity from 70 to 2'500 kg (98.43lb) CO<sub>2</sub> gas per hour. ASCO Dry Ice Pelletizers are made so that a CO<sub>2</sub> recovery system can easily be connected. We will be pleased to help you choose the right CO<sub>2</sub> Revert Recovery System.

- Reducing dry ice costs up to 50 % by recovering the normally „lost“ CO<sub>2</sub> gas
- Automatic (PLC) operation
- Compact design
- Skid mounted for easy installation
- Heavy duty construction



# Overview Dry Ice Blasting System

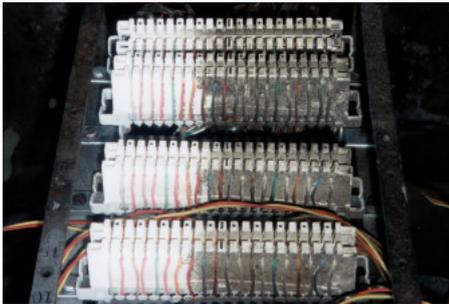


# Applications

Nowadays, the ASCO dry ice blasting technology is used in most industries, specially where a dry, environmentally friendly, powerful and non-abrasive cleaning method is required. Below is an extract from our application list outlining the most common uses. Please call us if more information about applications is required.

Aircraft	Pharmaceutical industry
Automotive industry	Power plants
Chemicals industry	Printing industry
Cleaning companies/facility management	PU-production
Electric components	Repair of fire damage
Food industry	Rubber industry
Foundries	Ship building
Injection moulding	Tyre manufacturing
Paper industry	etc.

Dry ice blasting technology can be used wherever paint, varnish, resin, wax, oil, grease, release agent etc. has to be removed without damaging the surface. Even delicate parts like switch boards and other electric components can be cleaned.



Cleaning of a switch board of a national Telecommunication Company. In this way short circuits can be avoided.

Cleaning of an industrial fan in a hotel kitchen. Due to the thick layer of greasy residues, the fan no longer operated efficiently.



Dry ice cleaning in the paper industry: The removal of paper residues and lubrication oil from paper production machines also eliminates fire hazard.

# Applications

## Foundries



Cleaning of a hotingot mould without dismantling



Core box cleaning in a grey iron foundry

## Plastics industry



Cleaning of a mould in PU-production



Injection moulds before and after cleaning

## Rubber industry



Moulds for the production of tennis balls



Tyre mould

## Food industry



Removal of cheese and tomato residues in a pizza bakery



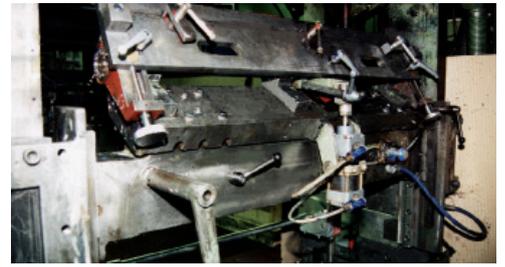
Cleaning of a hot waffle iron

# Applications

## Printing industry



Printing machine before ...



... and after cleaning

## Façade cleaning



Stonewall before and after cleaning



Wooden façade before and after cleaning

## Fire damage



Fire damage before ...



... and after cleaning

# More than just a cleaning method

In the field of the dry ice blasting technology ASCO has specialised in offering individual and complete solutions for the specific needs of customers. These individual solutions can start with a single dry ice blasting machine. ASCO's policy is then to help and advise its customers on how to achieve their best dry ice cleaning solution.

Solutions can include:

- **Development of an in-house dry ice production**
- **Noise control booths**
- **Automated dry ice cleaning**
- **Safety concepts**
- **Customized products like special blasting guns or nozzles**
- **etc.**

**ASCO Dry Ice Blasting is therefore a cleaning method that can be individually tailored to increase quality and flexibility in your daily working process.**



Automated mould cleaning in the plastics industry. This robot technology can also be applied to cleaning other moulds like ingot moulds and core boxes.

Automated spraying on and removal of release agent in the PU-production: The robot can be programmed for spraying on the release agent and for removing it with dry ice.



# Dry Ice Blasting Unit

## ASCO Nanojet

complete (fully adjustable)

part no. 900911 & 4064272



The **ASCO Nanojet** has been specially developed for the plastics industry. It has an integrated pellet grinder in which the dry ice pellets are crushed into finest particles. With the **ASCO Nanojet** a lot of smallest pellets hit on the surface to be cleaned which ensures a precise, fast and consistent surface cleaning. Together with the newly developed gun nozzle and the optional blasting gun with integrated cutter for even finer dry ice pellets, the **ASCO Nanojet** is the **perfect all-round package for almost all applications**. The integrated grounding roll ensures safe handling during the blasting process. Further benefits are the very low noise level and the significantly reduced compressed air consumption of the **ASCO Nanojet**.

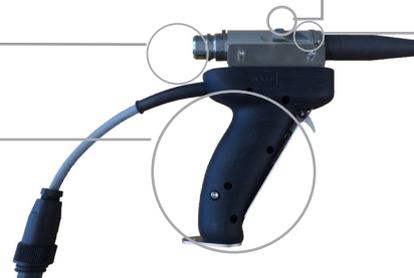
### Powerful and very handy blasting gun:

Thanks to a **quick connect coupling** the gun can be attached to the blasting unit very easily.

Increased security thanks to the **locking pin**, which makes a sudden opening of the locking mechanism of the nozzle impossible.

A **quick exchange system** allows nozzles to be changed within seconds without any tools.

The **ergonomic gun handle** ensures very easy handling and comfortable operation when blasting over longer periods. The newly developed safety mechanism is ideal for left and right-hander.



### Specifications

Material:	frame and cover sheets made of powder-coated steel
Dimensions (L x W x H) incl. wheels and folded handle:	635 x 480 x 830-1'130 mm (variable) (25 x 18.90 x 32.68-44.49 in)
Weight empty:	approx. 62 kg (136.69 lb)
Content of pellet hopper:	approx. 6 kg (13.22 lb)
Blasting pressure:	2 - 10 bar (29.01-145.04 psi) (adjustable)
Dry ice consumption:	5 - 20 kg/h (11-44 lb/h) (stepless)
Max. power consumption:	250 W (0.34 HP) nominal
Voltage:	110 V, 50 Hz, 1 Ph (other voltages on request)
Connection:	Input: claw coupling Chicago 3/4"

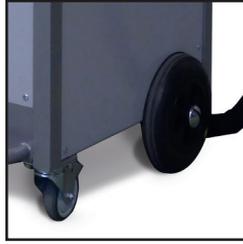
### ASCO Nanojet tool case part no. 4064272



## Special features of ASCO Nanojet:



Powerful and handy blasting gun with quick connect coupling



Highly manoeuvrable



Quick connect coupling at blasting hose



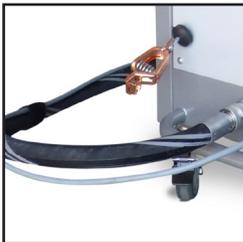
Lightweight and compact



Integrated holding device for hose



Vertically adjustable handle for easy handling



Integrated grounding roll for more safety



Insulated pellet hopper with 6kg (13.22lb) capacity



Control panel for easy overview

## Standardly included in the delivery of ASCO Nanojet basic (part no. 900911):

### Blasting gun OHSK

Standard for the ASCO Nanojet  
 Length: 20 cm (7.87 in)  
 Weight: 0.8 kg (1.76 lb)

including

**Barrel nozzle 704.09/08/K for OHSK gun**

Standard for Nanojet blasting gun (exclusively for Nanojet)

Powerful nozzle with extremely low air consumption  
 Outlet opening: approx. Ø 8 mm (0.35 in)  
 Length: 9 cm (3.54 in)  
 Inner diameter: 4 mm (0.16 in)  
 Material: plastic

OHSK

part no. 4047128



part no. 4064141



**Hose assembly 5 m (16.4 ft) ID 13 mm (0.51 in) for OHSK/OHC gun**

Standard for the ASCO Nanojet, can also be used as an extension of the hose assembly incl. control cable, grounded

OHS  
OHC

part no. 4047111



**Standardly included in delivery of ASCO Nanojet tool case (part no. 4064272):**

**High performance barrel nozzle 705.09/08/K**

Standard for the blasting gun OHSK

Powerful nozzle with very low air consumption  
Outlet opening: approx. Ø 8 mm (0.31 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 5 mm (0.2 in)  
Material: plastic

OHS

part no. 4047089



**Angled nozzle 704.16/08/90°K**

A powerful nozzle for confined spaces with very low air consumption

Outlet opening: approx. Ø 8 mm (0.31 in)  
Length: 16 cm (6.23 in)  
Inner diameter: 4 mm (0.16 in)  
Material: plastic

OHS

part no. 4064464



**Dry ice blasting gun OHC with integrated cutter**

Standard for the ASCO Nanojet  
Length: 20 cm (7.87 in)  
Weight: 0.8 kg (1.76 lb)

OHC

part no. 4063744



**Special wrench for cutter grid**

To easily change the grid of the OHC gun

OHC

part no. 4047109

**Barrel nozzle 807.09/09/K for OHC gun**

Standard equipment to OHC gun

Outlet opening: approx. Ø 9 mm (0.35 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 7 mm (0.28 in)  
Material: plastic

OHC

part no. 4047120



### Tool case ASCO Nanojet

Empty tool case with matching insert

OHS  
OHC

part no. 4064492



### Lighting kit for dry ice blasting gun

Compact torch  
LED light 160 lumen, 160 cm (63 in)  
Up to 25 hours battery life

Length: 10.6 cm (4.2 in)  
Weight: 120g (0.35lb)

OHS  
OHP  
HP

part no. 4064129



## Options for ASCO Nanojet:

Pos. 001

### Barrel nozzle 707.09/10/K

Thanks to an inner diameter of only 7 mm (0.27 in) in the barrel nozzle has a very economical air consumption but is nevertheless powerful.

Outlet opening: approx.  $\varnothing$  10 mm (0.39 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 7 mm (0.28 in)  
Material: plastic

OHS

part no. 4047277



Pos. 002

### Barrel nozzle 707.15/12/K

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful.

Outlet opening: approx.  $\varnothing$  12 mm (0.47 in)  
Length: 15 cm (5.91 in)  
Inner diameter: 7 mm (0.28 in)  
Material: plastic

OHS

part no. 4047278



Pos. 003

### Protective sleeve for one hose system 165 mm (6.5 in)

To protect the control cable and blasting hose from dirt and damages

Available in metres

OHS  
OHP

part no. 4047265



Pos. 004

### Spare parts kit ASCO Nanojet

Containing the most important parts to ensure quick reaction for continuous operation

part no. 4063501



## Options for ASCO Nanojet:

Pos. 005

### Barrel nozzle 807.09/09 for OHC gun

Alternative nozzle for OHC gun made of aluminium

Outlet opening: approx.  $\varnothing$  9 mm (0.35 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 7 mm (0.28 in)  
Material: Aluminium

OHC

part no. 4047124



Pos. 006

### Angled nozzle 807.16/10/90°/K for OHC gun

Nozzle to clean in narrow spaces

Outlet opening:  $\varnothing$  10 mm (0.39 in)  
Length: 16 cm (6.31 in)  
Inner diameter: 7 mm (0.28 in)  
Material: plastic

OHC

part no. 4047110



Pos. 007

### Flat nozzle 807.14/30/K for OHC gun

Thanks to an inner diameter of only 7 mm (0.28 in) the flat nozzle has a very economical air consumption but is nevertheless powerful. Suitable for blasting large areas.

Outlet opening: approx. 30 mm  $\times$  1.6 mm (1.18  $\times$  0.06 in)  
Length: 14 cm (5.51 in)  
Inner diameter: 7 mm (0.28 in)  
Material: plastic

OHC

part no. 4047119





# Dry Ice Blasting Unit

## ASCOJET 1208

complete (fully adjustable)

part no. 900961



The **ASCOJET 1208** features a new modern frame design and self-explanatory pictogram. This powerful blasting machine is very easy to use and is particularly suitable for use in industries.

Key benefits of the **ASCOJET 1208** is its lightness (only approx. 48 kg/106.9 lb). The newly integrated grounding roll and protective grating in the pellet hopper guarantee safer handling during the blasting process.

### Powerful and very handy blasting gun:

Thanks to a **quick connect coupling** the gun can be attached to the blasting unit very easily.

Increased security thanks to the **locking pin**, which makes a sudden opening of the locking mechanism of the nozzle impossible.



The **ergonomic gun handle** ensures very easy handling and comfortable operation when blasting over longer periods. The new developed safety button is ideal for left and right-hander.

A **quick exchange system** allows nozzles to be changed within seconds without any tools.

### Specifications

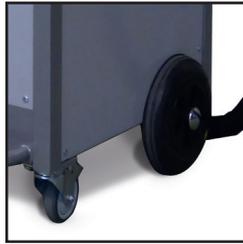
Material:	frame made of steel, lateral and rear housing panels made of aluminium, powder coated
Dimensions (L x W x H) incl. wheels and folded handle:	635 x 480 x 830-1'130 mm (variable) (25 x 18.90 x 32.68-44.49 in)
Weight empty:	approx. 48.5 kg (106.9 lb)
Content of pellet hopper:	approx. 9 kg (19.84 lb)
Blasting pressure:	0 - 10 bar (0 - 145 psi) (adjustable)
Dry Ice consumption:	20 - 40 kg/h (44 - 88.2 lb/h)(stepless)
Max. power consumption:	250 W (0.33 HP) nominal
Voltage:	110 V, 50/60 Hz, 1 Ph (other voltages on request)
Connection:	Input: claw coupling Chicago 3/4"



## Special features of ASCOJET 1208:



Powerful and handy blasting gun with quick connect coupling



Highly manoeuvrable



Quick connect coupling at blasting hose



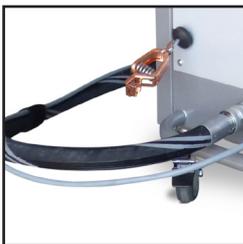
Very lightweight and compact



Integrated holding device for hose



Vertically adjustable handle for easy handling



Integrated grounding wire for more safety



Insulated pellet hopper with 9kg (19.84 lb) capacity



Control panel for easy overview

## ASCOJET 1208: Standard scope of supply

### Blasting gun OHS6

Standard for the ASCOJET1208  
 Length: 26 cm (10.24 in)  
 Weight: 1.0 kg (2.2 lb)  
 Blasting pressure: 0 - 10 bar (0 - 145 psi)

OHS

part no. 4063745



### High performance barrel nozzle 707.15/12

Standard for the blasting gun OHS  
 Powerful nozzle with low air consumption  
 Outlet opening: approx. Ø 12 mm (0.47 in)  
 Length: 15 cm (5.9 in)  
 Inner diameter: 7 mm (0.28 in)

OHS

part no. 4047321



### Hose assembly 5m for OHS gun ID16 mm (196.85 in ID 0.63 in)

Standard for the ASCOJET 1208, can also be used as an extension of the hose assembly incl. control cable, grounded

OHS

part no. 4047104



## ASCOJET 1208: Options

Pos. 001

### Lighting kit for dry ice blasting gun

Compact torch  
LED light 160 lumen, 160 cm (63 in)  
Up to 25 hours battery life

Length: 10.6 cm (4.2 in)  
Weight: 120 g (0.35 lb)

OHS  
OHP  
HP

part no. 4064129



Pos. 002

### Barrel nozzle 707.09/10

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx.  $\varnothing$  10 mm (0.39 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 7 mm (0.28 in)

OHS  
OHP

part no. 4047228



Pos. 003

### Flat nozzle 709.23/45

Powerful nozzle suitable for blasting large areas

Outlet opening: approx. 45x3.5 mm (1.77x0.14 in)  
Length: 23 cm (9 in)  
Inner diameter: 9 mm (0.35 in)

OHS  
OHP

part no. 4047216



Pos. 004

### Pellet cutter OHS

For sensitive blasting applications

With safety quick connect coupling, 2.5 m (8.2 ft) hose and control cable, grounded

OHS

part no. 4047026



Pos. 005

### Protective sleeve for one hose system 165 mm (6.5 in)

To protect the control cable and blasting hose from dirt and damages

Available in meters

OHS  
OHP

part no. 4047265



Pos. 006

### Protective hood for ASCOJET 1208

The newly developed hood for our blasting equipment protects the control elements from contamination. The transparent cover can be opened for easy view on and access to the operation elements. For cleaning the hood can easily be taken off.

part no. 4064528

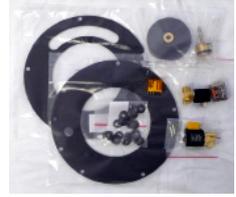


Pos. 007

### Spare parts kit ASCOJET 1208

Containing the most important parts to ensure quick reaction for continuous operation

part no. 4064527



Pos. 008

### Compressed air hose 7.5 m (24.6 ft) / ID 25 mm (1 in)

Connecting hose between air compressor and dry ice blasting machine, incl. claw coupling and safety ring for fast and easy connection / disconnection

Material: Fabric hose / metal

Dimension: 7.5 m (24.6 ft)

Weight: 2.4 kg (5.29 lb)

part no. 4045955



# Dry Ice Blasting Unit

## ASCOJET 1701

complete (fully adjustable)

part no. 901030



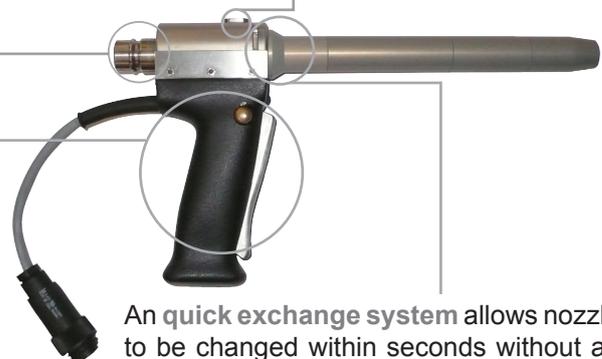
The **ASCOJET 1701** is a compact, mobile dry ice blasting unit featuring a handy one hose system which has been specially developed to maintain efficient cleaning with contaminants which are harder to remove.

This powerful unit is suitable for industrial end users like foundries, tyre manufacturers, food industry and printing industry who require high performance and easy handling.

### Powerful and handy blasting gun:

Thanks to a **quick connect coupling** the gun can be attached to the blasting unit very easily.

Increased security thanks to the **locking pin**, which makes a sudden opening of the locking mechanism of the nozzle impossible.



The **ergonomic gun handle** ensures very easy handling and comfortable operation when blasting over longer periods. The new developed safety button is ideal for left and right-hander.

An **quick exchange system** allows nozzles to be changed within seconds without any tools.

### Specifications

Material:	frame, lateral, rear and front housing panels made of aluminium, powdercoated
Dimensions (L x W x H) incl. wheels and handle:	930 x 600 x 1'100 mm (36.6 x 23.6 x 43.3 in)
Weight empty:	approx. 84 kg (185.2 lb)
Content of pellet hopper:	approx. 23 kg (50.7 lb)
Blasting pressure:	0 - 10 bar (0 - 145 psi) (adjustable)
Dry ice consumption:	25 - 80 kg/h (55.1 - 176.4 lb/h)(stepless)
Max. power consumption:	600 W (0.80 HP) nominal
Voltage:	110 V, 60 Hz, 1 Ph (other voltages on request)
Connection:	Input: 1" BSP, claw coupling Chicago



## ASCOJET 1701: Special features



Powerful and handy blasting gun with quick connect coupling



Highly manoeuvrable



Integrated grounding roll for more safety



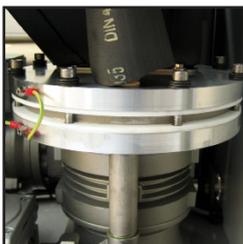
Lightweight and compact



Quick connect coupling at blasting hose



Box for gun, nozzles and tools



Distributor unit for pulsation-free blasting



Insulated pellet hopper with 23 kg (50.7 lb) capacity



Control panel for easy overview

## Standardly included in the delivery of ASCOJET 1701:

### Blasting gun OHP

Standard for the ASCOJET 1701

Length: 33 cm (12.9 in)

Weight: 1.05 kg (2.32 lb)

Blasting pressure: 0 - 10 bar (0 - 145 psi)

part no. 4063749



OHP

including the corresponding blasting nozzle  
**High performance barrel nozzle 709.23/15**

Standard for the blasting gun OHP

Most powerful nozzle of the ASCOJET single-hose system

Outlet opening: approx. Ø 15 mm (0.59 in)

Length: 23 cm (9 in)

Inner diameter: 9 mm (0.35 in)

part no. 4047144



### Hose assembly 7.5 m (24.6 ft) for OHP gun

Standard for the ASCOJET 1701, can also be used as an extension of the hose assembly  
incl. control cable, grounded

OHP

part no. 4045987



## ASCOJET 1701: Options

Pos. 001

### Lighting kit for dry ice blasting gun

Compact torch  
LED light 160 lumen, 160 cm (63 in)  
Up to 25 hours battery life

Length: 10.6 cm (4.2 in)  
Weight: 120 g (0.35 lb)

OHP  
OHS  
HP

part no. 4064129



Pos. 002

### Tool case OHP basic

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 4047312), fits to OHP gun

Consists of 6 nozzles:  
part no. 4045402, 4045403, 4047216, 4047141, 4047219,  
4047220

OHP

part no. 4045870



Pos. 003

### High performance barrel nozzle 709.17/14

Powerful and handy nozzle

Outlet opening: approx. Ø 14 mm (0.54 in)  
Length: 17 cm (6.69 in)  
Inner diameter: 9 mm (0.35 in)

OHP

part no. 4045402



Pos. 004

### Barrel nozzle short 709.09/11

Powerful nozzle to clean in narrow spaces

Outlet opening: approx. Ø 11 mm (0.43 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 9 mm (0.35 in)

OHP

part no. 4045403



Pos. 005

### Flat nozzle 709.23/45

Powerful nozzle suitable for blasting large areas

Outlet opening: approx. 45 x 3.5 mm (1.77 x 0.14 in)  
Length: 23 cm (8.97 in)  
Inner diameter: 9 mm (0.35 in)

OHS  
OHP

part no. 4047216



Pos. 006

### Barrel nozzle special 709.42/15

The nozzle is designed to allow for a comfortable working position of the person in charge and is very powerful

Outlet opening: approx. Ø 15 mm (0.59 in)  
Length: 42 cm (16.54 in)  
Inner diameter: 9 mm (0.35 in)

OHP

part no. 4047141



## ASCOJET 1701: Options

Pos. 007

### Angled nozzle 709.28/11/45°

A powerful nozzle for very confined spaces and difficult to reach spots

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 28 cm (10.92 in)

Inner diameter: 9 mm (0.35 in)

OHP

part no. 4047219



Pos. 008

### Angled nozzle 709.25/11/75°

A powerful nozzle for very confined spaces and difficult to reach spots

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 25 cm (9.84 in)

Inner diameter: 9 mm (0.35 in)

OHP

part no. 4047220



Pos. 009

### Tool case OHP basic empty

Empty tool case with matching insert

OHP

part no. 4045873



Pos. 010

### Pellet cutter OHP

For sensitive blasting applications

With safety quick connect coupling, 2.5 m (8.2 ft) hose and control cable, grounded

OHP

part no. 4047257



Pos. 011

### Converter coupling ASCOJET 1701 - 1208

This converter coupling makes it possible that the OHS gun with the corresponding blasting hose of the ASCOJET 1208 can be connected to the ASCOJET 1701

Length: 7.8 cm (3.04 in)

Weight: 0.2 kg (0.44 lb)

Outlet opening: approx. Ø 34 mm (1.34 in)

OHS

part no. 4047040



Pos. 012

## Blasting gun OHS

Standard for the ASCOJET 1208  
 Length: 26 cm (10.24 in)  
 Weight: 1.0 kg (2.2 lb)  
 Blasting pressure: 0 - 7 bar (0 - 101.53 psi)

part no. 4047129



OHS

including the corresponding blasting nozzle  
**High performance barrel nozzle 708.15/13**

Standard for the blasting gun OHS  
 Powerful nozzle with low air consumption  
 Outlet opening: approx. Ø 13 mm (0.51 in)  
 Length: 15 cm (5.9 in)  
 Inner diameter: 8 mm (0.31 in)

part no. 4047025



Pos. 013

## Hose assembly 5m (16.4 ft) ID 16 mm (0.62 in) for OHS gun

Standard for the ASCOJET 1208, can also be used as an extension of the hose assembly incl. control cable, grounded

part no. 4047104



OHS

Pos. 014

## Tool case OHS/OHP pro

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 4047129), fits to OHS and OHP gun

Consists of 6 nozzles:  
 part no. 4047028, 4047228, 4047216, 4047321, 4047222, 4047223

part no. 4045871



OHS  
 OHP

Pos. 015

## Barrel nozzle 707.09/10

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx. Ø 10 mm (0.39 in)  
 Length: 9 cm (3.54 in)  
 Inner diameter: 7 mm (0.28 in)

part no. 4047228



OHS  
 OHP

Pos. 016

## Barrel nozzle 707.15/12

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx. Ø 12 mm (0.47 in)  
 Length: 15 cm (5.9 in)  
 Inner diameter: 7 mm (0.28 in)

part no. 4047321



OHS  
 OHP

## ASCOJET 1701: Options

Pos. 017

### Angled nozzle 708.28/10/45°

A powerful nozzle for confined spaces with low air consumption

Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 28 cm (10.97 in)

Inner diameter: 8 mm (0.31 in)

OHS  
OHP

part no. 4047222



Pos. 018

### Angled nozzle 708.25/10/75°

A powerful nozzle for confined spaces with low air consumption

Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 25 cm (9.84 in)

Inner diameter: 8 mm (0.31 in)

OHS  
OHP

part no. 4047223



Pos. 019

### Tool case OHS/OHP pro empty

Empty tool case with matching insert

OHS  
OHP

part no. 4045874



Pos. 020

### Protective sleeve for one hose system 165 mm (6.5 in)

To protect the control cable and blasting hose from dirt and damages

Available in meters

OHS  
OHP

part no. 4047265



Pos. 021

### Spare parts kit ASCOJET 1701

Spare parts kit containing the most important spare parts to ensure quick reaction for continuous operation

part no. 4047140



Pos. 022

### Compressed air hose 7.5 m (24.6 ft) / ID 25 mm (1 in)

Connecting hose between air compressor and dry ice blasting machine, incl. claw coupling and safety ring for fast and easy connection / disconnection

Material: Fabric hose / metal

Dimension: 7.5 m (24.6 ft)

Weight: 2.4 kg (5.29 lb)

part no. 4045955



# Dry Ice Blasting Unit

## ASCOJET Combi blaster 1708

complete (fully adjustable)

part no. 900901



The **ASCOJET Combi blaster 1708** is the first ASCOJET dry ice blasting unit which allows the use of an additional blasting material in the dry ice stream and therefore offers the best combination of gentle cleaning with dry ice pellets and the additional abrasive effect of a carefully selected additive.

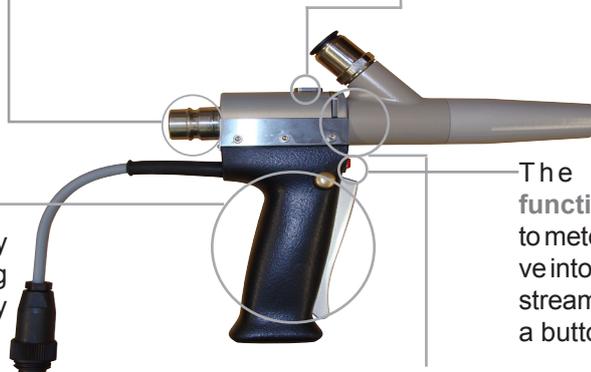
Powerful, handy, minimal secondary pollution and reduced noise emission thanks to a low air consumption - The **ASCOJET Combi blaster 1708** is perfectly suitable for industrial end users of all kinds.

### Powerful and handy blasting gun:

Thanks to a **quick connect coupling** the gun can be attached to the blasting unit very easily.

Increased security thanks to the **locking pin**, which makes a sudden opening of the locking mechanism of the nozzle impossible.

The **ergonomic gun handle** ensures very easy handling and comfortable operation when blasting over longer periods. The newly developed safety button is ideal for left and right hander.



The **ON/OFF function** enables to meter the additive into the blasting stream by pushing a button.

### Specifications

Material:	frame, lateral, rear and front housing panels made of aluminium, powdercoated
Dimensions (L x W x H) incl. wheels and handle:	930 x 600 x 1'100 mm (36.6 x 23.6 x 43.3 in)
Weight empty:	approx. 84 kg (185.19 lb)
Content of pellet hopper:	approx. 23 kg (50.7 lb)
Content of box for additive:	approx. 5 kg (11 lb) (depending on additive)
Blasting pressure with additive:	4 - 8 bar (58 - 116 psi) (adjustable)
Blasting pressure w/o additive:	0 - 10 bar (0 - 145 psi) (adjustable)
Dry ice consumption:	25 - 80 kg/h (55.12 - 176.37 lb/h) (stepless)
Additive consumption:	approx. 30 kg/h (66.14 lb/h) (depending on blasting pressure)
Max. power consumption:	600 W (0.80 HP) nominal
Voltage:	110V, 60 Hz, 1 Ph (other voltages on request)
Connection:	Input: 1" BSP, claw coupling Chicago

A **quick exchange system** allows nozzles to be changed within seconds without any tools.



## Special features of ASCOJET Combi blaster 1708:



Powerful and handy blasting gun with quick connect coupling



Highly manoeuvrable



Integrated holding device for hose



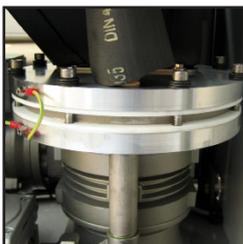
Lightweight and compact



Quick connect coupling at blasting hose



Box for additive with approx. 5 kg (11.02 lb) capacity



Distributor unit for pulsation-free blasting



Insulated pellet hopper with 23 kg (50.71 lb) capacity



Control panel for easy overview

## Standardly included in the delivery of ASCOJET Combi blaster 1708:

### Blasting gun additive OHP4

Standard for the ASCOJET 1708  
incl. protective glove additive (part no. 4061690)

part no. 4061694



### Blasting nozzle additive

Standard for the ASCOJET 1708

part no. 4061580



### Hose assembly 7.5 m (24.6 ft) for OHP gun additive

Standard for the ASCOJET 1708

part no. 4061696



## ASCOJET Combi blaster 1708 WITH Additive: Options

Pos. 001

### Spare parts kit ASCOJET Combi blaster 1708

Spare part kit containing the most important spare parts to ensure quick reaction for continuous operation.

Art.-Nr. 4047140



## ASCOJET Combi blaster 1708 WITHOUT Additive: Options

Pos. 001

### Tool case OHP basic

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 918364), fits to OHP gun

Consists of 6 nozzles:  
part no. 4045402, 4045403, 4047216, 4047141, 4047219, 4047220

OHP

part no. 4045870



Pos. 002

### High performance barrel nozzle 709.17/14

Powerful and handy nozzle

Outlet opening: approx. Ø 14 mm (0.55 in)

Length: 17 cm (6.69 in)

Inner diameter: 9 mm (0.35 in)

OHP

part no. 4045402



Pos. 003

### High performance barrel nozzle 709.23/154

Powerful and handy nozzle

Standard for the blasting gun OHP

Most powerful nozzle of the ASCOJET single-hose system

Outlet opening: approx. Ø 15 mm (0.59 in)

Length: 23 cm (8.97 in)

Inner diameter: 9 mm (0.35 in)

OHP

part no. 4047144



Pos. 004

### Barrel nozzle short 709.09/11

Powerful nozzle to clean in narrow spaces

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 9 cm (3.54 in)

Inner diameter: 9 mm (0.35 in)

OHP

part no. 4045403



Pos. 005

### Flat nozzle 709.23/45

Powerful nozzle suitable for blasting large areas

Outlet opening: approx. 45 × 3.5 mm (1.77 × 0.14 in)

Length: 23 cm (8.97 in)

Inner diameter: 9 mm (0.35 in)

OHS  
OHP

part no. 4047216



## ASCOJET Combi blaster 1708 WITHOUT Additive: Options

Pos. 006

### Barrel nozzle special 709.42/15

part no. 4047141

The nozzle is designed to allow for a comfortable working position of the person in charge and is very powerful

Outlet opening: approx. Ø 15 mm (0.59 in)

Length: 42 cm (16.54 in)

Inner diameter: 9 mm (0.35 in)

OHP



Pos. 007

### Angled nozzle 709.28/11/45°

part no. 4047219

A powerful nozzle for very confined spaces and difficult to reach spots

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 28 cm (10.97 in)

Inner diameter: 9 mm (0.35 in)

OHP



Pos. 008

### Angled nozzle 709.25/11/75°

part no. 4047220

A powerful nozzle for very confined spaces and difficult to reach spots

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 25 cm (9.84 in)

Inner diameter: 9 mm (0.35 in)

OHP



Pos. 009

### Tool case OHP basic empty

part no. 4045873

Empty tool case with matching insert

OHP



Pos. 010

### Pellet cutter OHP

part no. 4047257

For sensitive blasting applications

With safety quick connect coupling, 2.5 m (8.2 ft) hose and control cable, grounded

OHP



Pos. 011

### Converter coupling ASCOJET 1701 - 1208

part no. 4047040

This converter coupling makes it possible that the OHS gun with the corresponding blasting hose of the ASCOJET 1208 can be connected to the ASCOJET 1701

Length: 7.8 cm (3.04 in)

Weight: 0.2 kg (0.44 lb)

Outlet opening: approx. Ø 34 mm (1.34 in)

OHS



## ASCOJET Combi blaster 1708 WITHOUT Additive: Options

Pos. 012

### Blasting gun OHS

Standard for the ASCOJET 1208

Length: 26 cm (10.24 in)

Weight: 1.0 kg (2.2 lb)

Blasting pressure: 0 - 7 bar (0 - 101.53 psi)

part no. 4047129



OHS

including the corresponding blasting nozzle  
**High performance barrel nozzle 708.15/13**

Standard for the blasting gun OHS

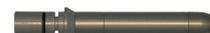
Powerful nozzle with low air consumption

Outlet opening: approx. Ø 13 mm (0.51 in)

Length: 15 cm (5.9 in)

Inner diameter: 8 mm (0.31 in)

part no. 4047025



Pos. 013

### Hose assembly 5m (16.4 ft) for OHS gun

Standard for the ASCOJET 1208, can also be used as an extension of the hose assembly  
incl. control cable, grounded

part no. 4047104



OHS

Pos. 014

### Tool case OHS/OHP pro

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 917757), fits to OHS and OHP gun

Consists of 6 nozzles:

part no. 4047028, 4047228, 4047216, 4045402, 4047222, 4047223

part no. 4045871



OHS  
OHP

Pos. 015

### Barrel nozzle short 708.09/11

Powerful nozzle to clean in narrow places with low air consumption

Outlet opening: approx. Ø 11 mm (0.43 in)

Length: 9 cm (3.54 in)

Inner diameter: 8 mm (0.31 in)

part no. 4047028



OHS  
OHP

Pos. 016

### Barrel nozzle 707.09/10

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 9 cm (3.54 in)

Inner diameter: 7 mm (0.28 in)

part no. 4047228



OHS  
OHP

## ASCOJET Combi blaster 1708 WITHOUT Additive: Options

Pos. 017

### Barrel nozzle 707.15/12

part no. 4047321

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

OHS  
OHP



Outlet opening: approx. Ø 12 mm (0.47 in)

Length: 15 cm (5.9 in)

Inner diameter: 7 mm (0.28 in)

Pos. 018

### Angled nozzle 708.28/10/45°

part no. 4047222

A powerful nozzle for confined spaces with low air consumption

OHS  
OHP



Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 28 cm (10.97 in)

Inner diameter: 8 mm (0.31 in)

Pos. 019

### Angled nozzle 708.25/10/75°

part no. 4047223

A powerful nozzle for confined spaces with low air consumption

OHS  
OHP



Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 25 cm (9.84 in)

Inner diameter: 8 mm (0.31 in)

Pos. 020

### Tool case OHS/OHP pro empty

part no. 4045874

Empty tool case with matching insert

OHS  
OHP



Pos. 021

### Protective sleeve for one hose system 165 mm (6.5 in)

part no. 4047265

To protect the control cable and blasting hose from dirt and damages

OHS  
OHP



Available in meters

Pos. 022

### Compressed air hose 7.5 m (24.6 ft) / ID 25 mm (1 in)

part no. 4045955

Connecting hose between air compressor and dry ice blasting machine, incl. claw coupling and safety ring for fast and easy connection / disconnection

Material: Fabric hose / metal

Dimension: 7.5 m (24.6 ft)

Weight: 2.4 kg (5.29 lb)



## ASCOJET Combi blaster 1708 WITHOUT Additive: Options

Pos. 023

### Claw coupling with 25mm (1 in) male thread

For fast connection and disconnection of the air line to the blasting equipment

part no. 4045944



Pos. 024

### Lighting kit for dry ice blasting gun

Compact torch  
LED light 160 lumen, 160 cm (63 in)  
Up to 25 hours battery life

Length: 10.6 cm (4.2 in)  
Weight: 120g (0.35lb)

OHP  
OHS  
HP

part no. 4064129





# Dry Ice Blasting Unit

## ASCOJET 2008 Combi Pro complete (fully adjustable)

part no. 901051



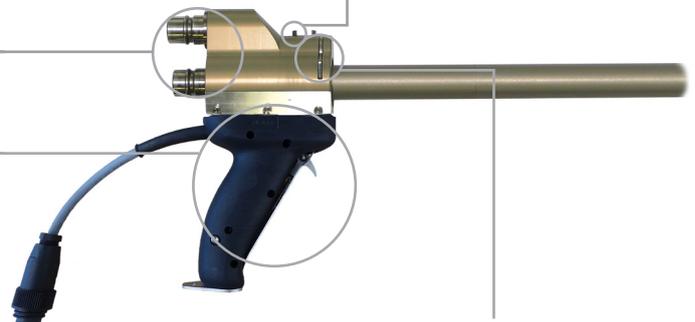
The **ASCOJET 2008 Combi Pro** combines a powerful double hose system, which can be optionally used as a one-hose system, with the option of cleaning with dry ice pellets and the additional abrasive effect of an additive. Thus, users can choose from two blasting options, namely pure dry ice blasting or combination blasting.

Designed specifically for the high-end sector, the **ASCOJET 2008 Combi Pro** is ideal for maximum performance and time savings.

### Powerful and handy blasting gun:

Thanks to a **quick connect coupling** the gun can be attached to the blasting unit very easily.

Increased security thanks to the **locking pin**, which makes a sudden opening of the locking mechanism of the nozzle impossible.



The **ergonomic gun handle** ensures very easy handling and comfortable operation when blasting over longer periods. The new developed safety button is ideal for left and right-hander.

### Specifications

Material:	frame, lateral, rear and front housing panels made of aluminium, powdercoated
Dimensions (L x W x H) (inkl. wheels and handle):	930 x 600 x 1100 mm (36.6 x 23.6 x 43.3 in)
Weight empty:	approx. 89 kg (196.2 lb)
Content of pellet hopper:	approx. 23 kg (50.7 lb)
Content of box for additive:	approx. 12 kg (26.5 lb) (dep. on additive)
Blasting pressure with additive:	4 - 8 bar (58 - 116 psi) (adjustable)
Blasting pressure w/o additive:	0 - 20 bar (0 - 290 psi) (adjustable)
Blasting pressure air:	0 - 20 bar (0 - 290 psi) (adjustable)
Blasting pressure dry ice:	0 - 10 bar (0 - 145 psi) (adjustable)
Dry ice consumption:	30 - 100 kg/h (66.14 - 220.46 lb/h) (stepless)
Additive consumption:	approx. 30 kg/h (66.14 lb/h) (depending on blasting pressure)
Voltage:	110V, 60 Hz, 1 Ph (other voltages on requ.)
Max. power consumption:	600 W (0.80 HP) nominal
Connection:	Input: 1" BSP, claw coupling Chicago

A **quick exchange system** allows nozzles to be changed within seconds without any tools.

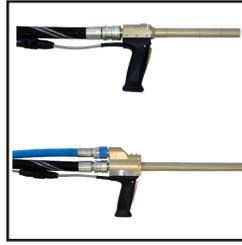


The dry ice blasting unit **ASCOJET 2008 Combi Pro** is standardly equipped with a HP tool case and the suitable nozzles, a HP6 gun as well as a 7,5 m (24.6 ft) double hose.

## ASCOJET 2008 Combi Pro: Special features



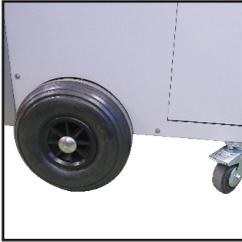
Double hose system for maximum performance



Optional 1- or 2-hose- system



Container for additive with approx. 12 kg (26.5 lb) capacity



Highly manoeuvrable



Integrated grounding roll for more safety



Optimum pellet flow thanks to maintenance-free electric vibrator

## ASCOJET 2008 Combi Pro: Standard scope of supply

### Blasting gun HP

Standard for the ASCOJET 2008 Combi Pro

Length: 45 cm (17.72 in)

Weight: 1.75 kg (3.86 lb)

Blasting pressure: 0-20 bar (0-290 psi)

part no. 4063750



including the corresponding blasting nozzle

### High performance barrel nozzle HP255

Standard for the blasting gun HP

Powerful nozzle

Outlet opening: approx. Ø 20 mm (0.79 in)

Length: 33 cm (12.99 in)

Inner diameter: 14 mm (0.55 in)

HP

part no. 4045393



### Blasting gun additive OHP

Standard for the ASCOJET 2008 Combi Pro

incl. protective glove additive (part no. 4061690)

part no. 4063751



including the corresponding blasting nozzle

### Blasting nozzle additive

Standard for the ASCOJET 2008 Combi Pro

part no. 4061580



### Hose assembly 7.5 m (24.6 ft) for HP gun

Standard for the ASCOJET2008 Combi Pro. Can also be used as an extension of the hose assembly.  
Incl. buckling protection on both sides of the compressed air hose,  
incl. control cable, grounded

HP

part no. 4046952



### Hose assembly 7.5 m (24.6 ft) for OHP gun additive

Standard for the ASCOJET 1708

OHP

part no. 4061696



## ASCOJET 2008 Combi Pro: Options

Pos. 001

### Tool Case HP

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 917182), fits the HP gun

Consists of 3 nozzles:  
part no. 4045394, 4046903, 4045395

part no. 4064576



Pos. 002

### Lighting kit for dry ice blasting gun

Compact torch  
LED light 160 lumen, 160 cm (63 in)  
Up to 25 hours battery life

Length: 10.6 cm (4.2 in)  
Weight: 120 g (0.35 lb)

OHS  
OHP  
HP

part no. 4064129



Pos. 003

### High performance barrel nozzle HP275

Increases the cleaning performance with same working pressure

Outlet opening: approx.  $\varnothing$  24 mm (0.95 in)  
Length: 32 cm (12.59 in)  
Inner diameter: 15 mm (0.59 in)

HP

part no. 4045394



Pos. 004

### Flat nozzle 213.32/60

Newly designed nozzle with optimized geometry for better performance on large areas

Outlet opening: approx. 60 x 5 mm (2.36 x 13/64 in)  
Length: 33 cm (12.99 in)  
Inner diameter: 13 mm (0.51 in)

HP

part no. 4046903



Pos. 005

## Barrel nozzle long HP2

The nozzle is designed to allow for a comfortable working position of the person in charge

Outlet opening: approx. Ø 20 mm (0.79 in)

Length: 52 cm (20.47 in)

Inner diameter: 14 mm (0.55 in)

HP

part no. 4045395



Pos. 006

## Protective sleeve for double hose system 220 mm (8.67 in)

To protect the control cable and blasting hose from dirt and damages

Available in meters

HP

part no. 40447266



Pos. 007

## Blasting gun OHP

To use the ASCOJET 2008 Combi Pro as a one hose system along with the hose assembly OHP (part no. 4045987)

Length 33 cm (12.99 in)

Weight: 1.05 kg (2.31 lb)

Blasting pressure: 0 - 10 bar (0 - 145 lb)

OHP

part no. 4063749



including the corresponding blasting nozzle  
**High performance barrel nozzle 709.23/15**

Standard for the blasting gun OHP

Most powerful nozzle of the ASCOJET single-hose system

Outlet opening: approx. Ø 15 mm (0.59 in)

Length: 23 cm (9 in)

Inner diameter: 9 mm (0.35 in)

part no. 4047144



Pos. 008

## Hose assembly 7.5 m (24.6 ft) ID 16 mm (0.63 in) for OHP gun

To be used with blasting gun OHP (part no. 4047312).

Can also be used to extend the hose assembly

incl. control cable, grounded

OHP

part no. 4045987



Pos. 009

## Tool case OHP basic

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 4063749), fits the OHP gun

Consists of 6 nozzles:

part no. 4045402, 4045403, 4047216, 4047141, 4047219, 4047220

OHP

part no. 4064567



**Pos. 010**

**High performance barrel nozzle 709.17/14**

part no. 4045402

To be used with the blasting gun OHP (part no. 4063749)  
Powerful and handy nozzle

OHP



Outlet opening: approx. Ø 14 mm (0.55 in)  
Length: 17 cm (6.69 in)  
Inner diameter: 9 mm (0.35 in)

**Pos. 011**

**Barrel nozzle short 709.09/11**

part no. 4045403

Powerful nozzle to clean in narrow spaces,  
to be used with the blasting gun OHP (part no. 4063749)

OHP



Outlet opening: approx. Ø 11 mm (0.43 in)  
Length: 9 cm (3.54 in)  
Inner diameter: 9 mm (0.35 in)

**Pos. 012**

**Flat nozzle 709.23/45**

part no. 4047216

Powerful nozzle suitable for blasting large areas

OHS  
OHP



Outlet opening: approx. 45 x 3.5 mm (1.77 x 0.14 in)  
Length: 23 cm (9 in)  
Inner diameter: 9 mm (0.35 in)

**Pos. 013**

**Barrel nozzle special 709.42/15**

part no. 4047141

The nozzle is designed to allow for a comfortable working  
position of the person in charge

OHP



Outlet opening: approx. Ø 15 mm (0.59 in)  
Length: 42 cm (16.54 in)  
Inner diameter: 9 mm (0.35 in)

**Pos. 014**

**Angled nozzle 709.28/11/45°**

part no. 4047219

A powerful nozzle for very confined spaces and difficult to  
reach spots

OHP



Outlet opening: approx. Ø 11 mm (0.43 in)  
Length: 28 cm (11 in)  
Inner diameter: 9 mm (0.35 in)

**Pos. 015**

**Angled nozzle 709.25/11/75°**

part no. 4047220

A powerful nozzle for very confined spaces and difficult to  
reach spots

OHP



Outlet opening: approx. Ø 11 mm (0.43 in)  
Length: 25 cm (9.84 in)  
Inner diameter: 9 mm (0.35 in)

# ASCOJET 2008 Combi Pro: Options

Pos. 016

## Tool case OHP basic empty

Empty tool case with matching insert

OHP

part no. 4064575



Pos. 017

## Pellet cutter OHP

For cleaning sensitive surfaces.  
To be used with blasting gun OHP (part no. 4063749)  
and hose assembly OHP (part no. 4045987)

OHP

part no. 4047257



With safety quick connect coupling, 2.5 m (8.2 ft) hose and control cable, grounded

Pos. 018

## Converter coupling ASCOJET 2008 Combi Pro

This converter coupling makes it possible that the OHS gun with the corresponding blasting hose of the ASCOJET 1208 can be connected to the ASCOJET 2008 Combi Pro

Length: 7.8 cm (3.04 in)

Weight: 0.2 kg (0.44 lb)

Outlet opening: approx. Ø 34 mm (1.34 in)

OHS

part no. 4047040



Pos. 019

## Blasting gun OHS

Standard for the ASCOJET 1208

Length: 26 cm (102.36 in)

Weight: 1.0 kg (2.2 lb)

Blasting pressure: 0 - 10 bar (0 - 145 psi)

OHS

part no. 4063745



including the corresponding blasting nozzle  
**High performance barrel nozzle 707.15/12**

Standard for the blasting gun OHS

Powerful nozzle with low air consumption

Outlet opening: approx. Ø 12 mm (0.47 in)

Length: 15 cm (5.9 in)

Inner diameter: 7 mm (0.28 in)

part no. 4047321



Pos. 020

## Hose assembly 5m (16.4 ft) for OHS gun

Standard for the ASCOJET 1208, can also be used as an extension of the hose assembly  
incl. control cable, grounded

OHS

part no. 4047104



Pos. 021

## Tool case OHS/OHP pro

Contains the entire nozzle assortment (excl. gun and standard barrel nozzle, part no. 917757), fits to the OHS and OHP guns

Consists of 5 nozzles:

part no. 4047228, 4047321, 4047216, 4047222, 4047223

OHS  
OHP

part no. 4064567



Pos. 022

## Barrel nozzle 707.09/10

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx. Ø 10 mm (3/8 in)

Length: 9 cm (3.54 in)

Inner diameter: 7 mm (0.28 in)

OHS  
OHP

part no. 4047228



Pos. 023

## Barrel nozzle 707.15/12

Thanks to an inner diameter of only 7 mm (0.27 in) the barrel nozzle has a very economical air consumption but is nevertheless powerful

Outlet opening: approx. Ø 12 mm (15.32 in)

Length: 15 cm (5.9 in)

Inner diameter: 7 mm (0.28 in)

OHS  
OHP

part no. 4047321



Pos. 024

## Angled nozzle 708.28/10/45°

A powerful nozzle for confined spaces with low air consumption

Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 28 cm (10.97 in)

Inner diameter: 8 mm (0.31 in)

OHS  
OHP

part no. 4047222



Pos. 025

## Angled nozzle 708.25/10/75°

A powerful nozzle for confined spaces with low air consumption

Outlet opening: approx. Ø 10 mm (0.39 in)

Length: 25 cm (9.84 in)

Inner diameter: 8 mm (0.31 in)

OHS  
OHP

part no. 4047223



Pos. 026

## Tool case OHS/OHP pro empty

Empty tool case with matching insert

OHS  
OHP

part no. 4064570



## ASCOJET 2008 Combi Pro: Options

Pos. 027

### Protective sleeve for one hose system 165 mm (6.5 in)

To protect the control cable and blasting hose from dirt and damages

Available in meters

OHS  
OHP

part no. 4047265



Pos. 028

### Spare parts kit ASCOJET 2008 Combi Pro

Spare parts kit containing the most important spare parts to ensure quick reaction for continuous operation

part no. 4046854



Pos. 029

### Compressed air hose 7.5 m (24.6 ft)/ ID 25 mm (1 in)

Connecting hose between air compressor and dry ice blasting machine, incl. claw coupling and safety ring for fast and easy connection / disconnection

Material: Fabric hose / metal

Dimension: 7.5 m (24.6 ft)

Weight: 2.4 kg (5.59 lb)

part no. 4045955



The logo for ASCO, featuring a stylized blue 'A' with three horizontal lines to its left, followed by the letters 'ASCO' in a bold, blue, sans-serif font.

All about CO<sub>2</sub>



**Head Office**

ASCO CARBON DIOXIDE LTD  
Industriestrasse 2, CH-8590 Romanshorn  
T +41 71 466 80 80 / F +41 71 466 80 66

**Production facility**

ASCO KOHLENSÄURE AG  
Sprudelstrasse 3, DE-53557 Bad Honningen  
T +49 2635 92 534-0 / F +49 2635 92 534 192

**US subsidiary**

ASCO CARBON DIOXIDE INC  
5409 Highway Ave., Jacksonville, FL 32254  
T +1 904 278-6503 / [info@ascoco2.com](mailto:info@ascoco2.com)