

# CO<sub>2</sub> Vaporising

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



The **ASCO** Atmospheric 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. In most cases electric (or steam) savings can pay for a new atmospheric vaporiser in less than one year.

As each vaporiser is supplied prepped and prewired, installation can be made within minutes. Bases for the mounting on the floor or on the ceiling are included in the delivery.

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

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

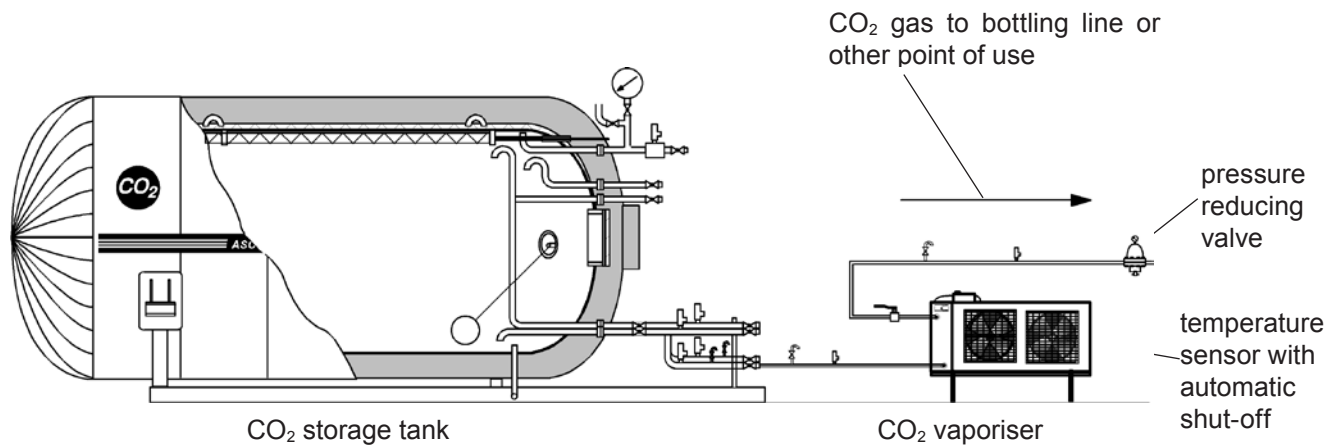
### Specifications

Vaporising capacity (approx.) from liquid CO <sub>2</sub> at 17 bar	length/width/height mm incl. control box	in/out connections outer diameter	net weight kg approx.	power consumption	max. operating pressure
200 kg/hr CU	2'200 × 900 × 1'000	1" PN 40	126 kg	1.58 kW	25 bar
200 kg/hr SS	2'200 × 900 × 1'000	1" PN 40	126 kg	1.58 kW	25 bar
300 kg/hr CU	3'000 × 900 × 1'000	1" PN 40	260 kg	2.37 kW	25 bar
300 kg/hr SS	3'000 × 900 × 1'000	1" PN 40	260 kg	2.37 kW	25 bar
500 kg/hr CU	3'000 × 900 × 1'200	1" PN 40	320 kg	2.37 kW	25 bar
500 kg/hr SS	3'000 × 900 × 1'200	1" PN 40	320 kg	2.37 kW	25 bar
1'000 kg/hr CU	4'200 × 1'000 × 1'450	1" PN 40	510 kg	5.37 kW	25 bar
1'000 kg/hr SS	4'200 × 1'000 × 1'450	1" PN 40	510 kg	5.37 kW	25 bar

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

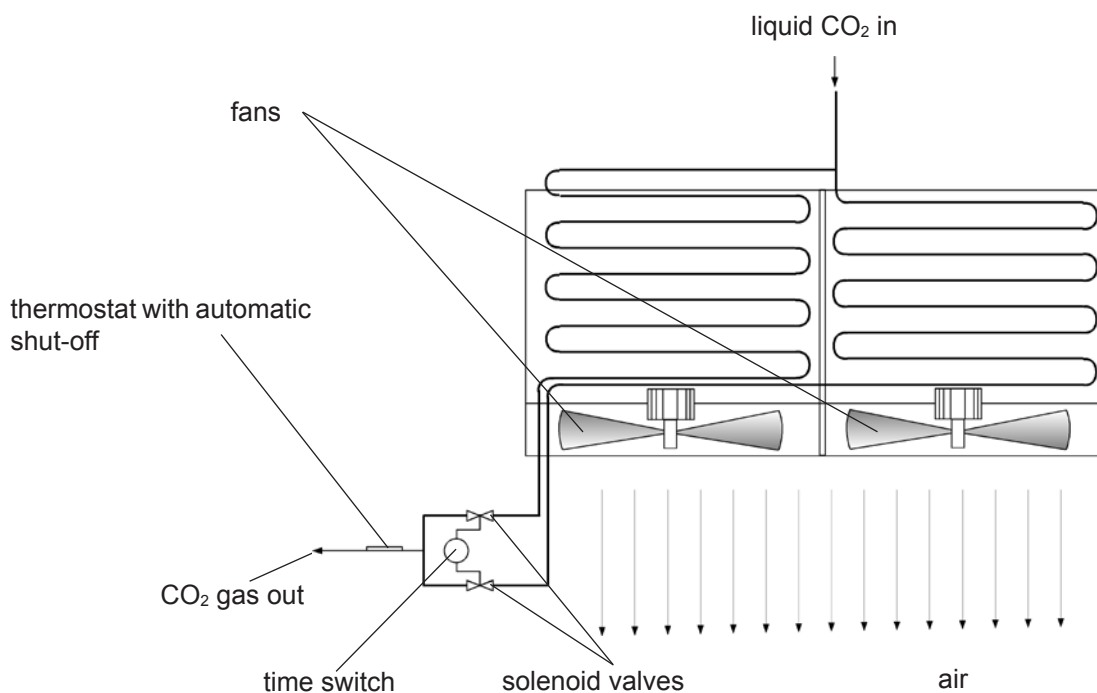
**Ambient air temperature: min. +10°C, max. +45°C**

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



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.



## Description and Installation of Atmospheric CO<sub>2</sub> Vaporisers:

### Description

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

They consist of a special heat exchanger unit with copper or stainless steel tubes and aluminium fins.

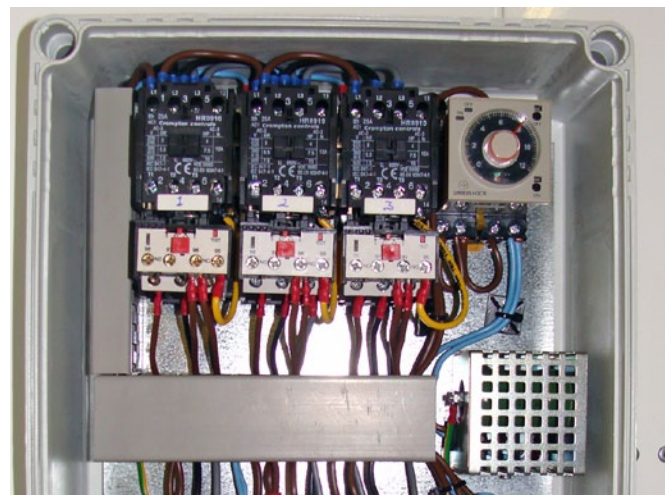
Air is forced through the heat exchanger by fans. Any condensate dropping from the tubes is collected by an aluminium tray mounted on the bottom of the unit, and an outlet pipe can be connected to drain. The unit also includes solenoid valves and a complete control box. A temperature sensor is also incorporated 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/hr Atmospheric CO<sub>2</sub> Vaporiser  
Thermostat



1'000 kg/hr Atmospheric CO<sub>2</sub> Vaporiser  
Control box with timer



1'000 kg/hr Atmospheric CO<sub>2</sub> Vaporiser  
Air in take side



1'000 kg/hr Atmospheric CO<sub>2</sub> Vaporiser  
Two independent coils

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

Pos. 001

### 200 kg/hr Atmospheric 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
- coil volume: 15 l
- net weight: approx. 126 kg
- fan speed: 1'330 rpm
- no. of fans: 2
- power cons. per fan: 0.79 kW
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 908004.2  
SS part no. 908005.2



Pos. 002

### 300 kg/hr Atmospheric 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
- coil volume: 22 l
- net weight: approx. 260 kg
- fan speed: 1'330 rpm
- no. of fans: 3
- power cons. per fan: 0.79 kW
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 908006.2  
SS part no. 908007.2



Pos. 003

### 500 kg/hr Atmospheric 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
- coil volume: 41 l
- net weight: approx. 320 kg
- fan speed: 1'330 rpm
- no. of fans: 3
- power cons. per fan: 0.79 kW
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 908008.2  
SS part no. 908009.2



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

Pos. 004

### 1'000 kg/hr Atmospheric 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
- coil volume: 78 l
- net weight: approx. 510 kg
- fan speed: 890 rpm
- no. of fans: 3
- power cons. per fan: 1.79 kW
- flange connection: 1" PN40

CU = copper  
SS = stainless steel

CU part no. 908010.2  
SS part no. 908011.2



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

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. 914250



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. 914006



Pos. 003

### Line Safety Assembly 1"- 25 bar welding connection

Consisting of:

- stainless steel pipe 1" 300 mm
- safety valve 25 bar
- vent ball valve stainless steel 1/4"

part no. 914343





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

Pos. 004

### CO<sub>2</sub> Flowmeter M1

Mass flow sensor type M1 (fully calibrated) assembled to process pipe DN 15, PN 40 with flange connection DIN 2635.

Measuring range: 0 - 1'200 kg/hr (depends on pressure)

The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/hr 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 M12 x 45, 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. 910200



Pos. 005

### CO<sub>2</sub> Flowmeter M2

Mass flow sensor type M2 (fully calibrated) assembled to process pipe DN 25, PN 40 with flange connection DIN 2635.

Measuring range: 0 - 3'000 kg (depends on pressure)

The flow computer (on wall bracket) is equipped with digital display of current CO<sub>2</sub> flow rate in kg/hr 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 M12 x 45, hex, inox (item no. 100020)
- 8 pcs nut M12, inox (item no. 100022)
- 2 pcs gasket DN25, 2 x 71 x 35 mm (item no. 110151)

part no. 910400

