# $CO_2$ Vaporising

## Atmospheric ASCO $CO_2$ Vaporiser

The atmospheric **ASCO** $CO_2$ Vaporiser has been developed to drastically reduce $CO_2$ 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 prepiped 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 $CO_2$ vaporisers. In accordance with your requirements, we provide you with a suitable $CO_2$ vaporiser.

**Advantages of an atmospheric ASCO $CO_2$ 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 $CO_2$ from flowing through
- 2 coil system to ensure safe defrosting with built in solenoid valves
- Simple and fast installation, only electric power and $CO_2$ required
- Vaporisers with tubes in stainless steel or copper available
- Complete unit in various capacities at very reasonable prices, ready for use

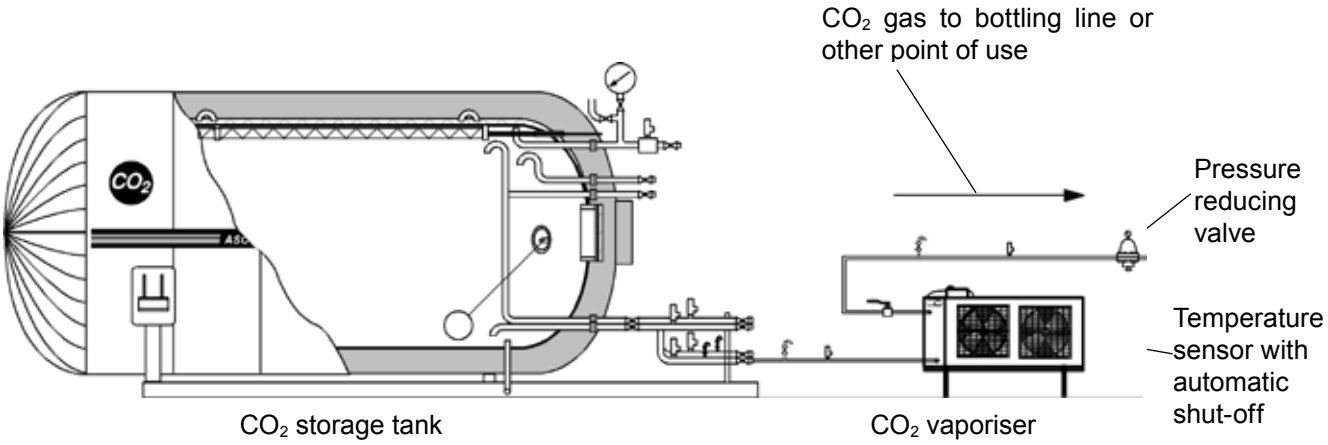
**Specifications**

| Vaporising capacity (approx.) from liquid $CO_2$ 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

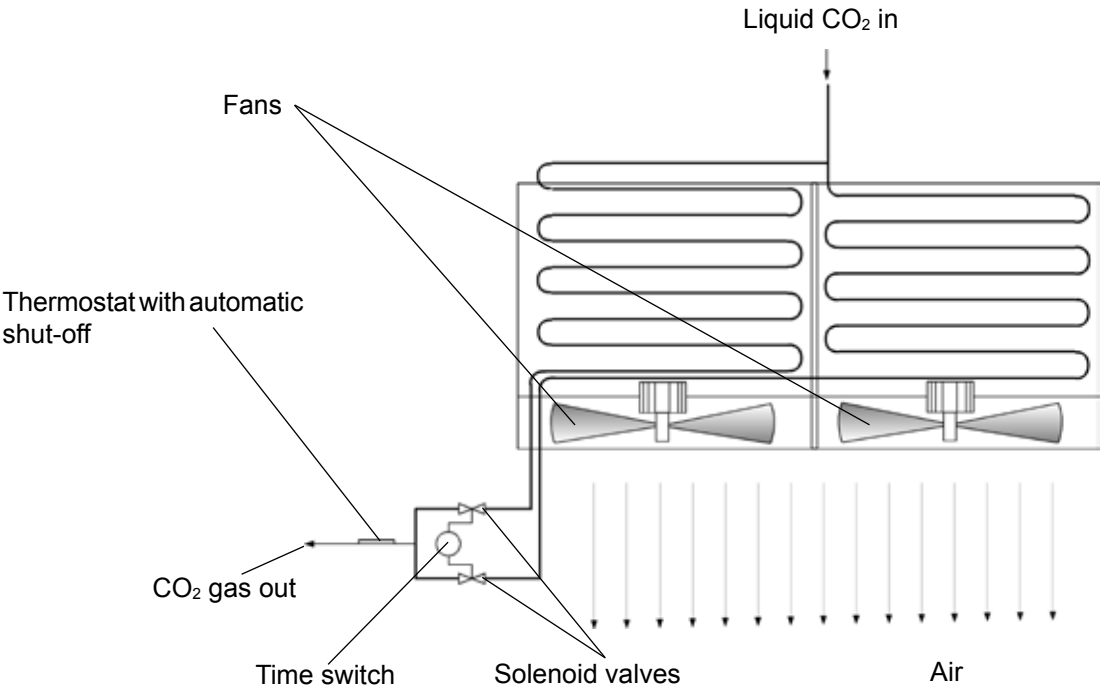
**Ambient air temperature: min. +10 °C, max. +45 °C**

# Atmospheric ASCO $CO_2$ 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 thoughout 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 $CO_2$ Vaporisers: Description and installation

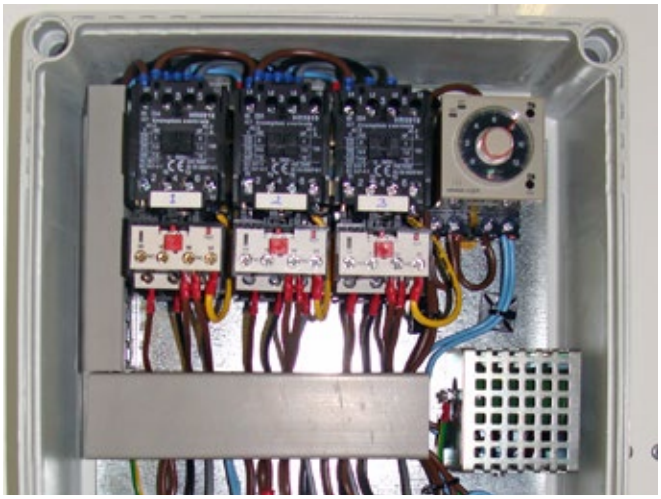
## Description

**ASCO** Atmospheric $CO_2$ 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 $CO_2$ 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 $CO_2$ Vaporiser: Thermostat



1'000 kg/h (2'204.62 lb/h) Atmospheric ASCO $CO_2$ Vaporiser: Control box with timer

1'000 kg/h (2'204.62 lb/h) Atmospheric ASCO $CO_2$ Vaporiser: Air intake side

1'000 kg/h ('2204.62 lb/h) Atmospheric ASCO $CO_2$ Vaporiser: Two independent coils

# Atmospheric ASCO $CO_2$ Vaporiser: Available standard capacities

Pos. 001

## 200 kg/h (440.92 lb) atmospheric ASCO $CO_2$ Vaporiser

**CU part no. 4046048**
**SS part no. 4046050**

(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 $m^3$/sec (120 $ft^3$/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

Pos. 002

## 300 kg/h (661.39 lb/h) atmospheric ASCO $CO_2$ Vaporiser

**CU part no. 4046052**
**SS part no. 4046055**

(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 $m^3$/sec (180.1 $ft^3$/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

Pos. 003

## 500 kg/h (1'102.31 lb) atmospheric ASCO $CO_2$ Vaporiser

**CU part no. 4046057**
**SS part no. 4046059**

(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 $m^3$/sec (180.1 $ft^3$/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'

# Atmospheric ASCO $CO_2$ Vaporiser: Available standard capacities

Pos. 004

**1‘000 kg/h (2204.62 lb/h) atmospheric ASCO $CO_2$ Vaporiser**

**CU part no. 4046061**
**SS part no. 4046063**

(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 $m^3$/sec (349.6 $ft^3$/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

# Atmospheric $CO_2$ Vaporisers: Options

Pos. 001

**Dome loaded pressure reducing valve C31**

**part no. 4046817**

for gaseous and liquid $CO_2$
incl. repair kit (diaphagm and O-ring)

Pos. 002

**Dome loaded pressure reducing valve C2-K32**

**part no. 4046644**

for gaseous and liquid $CO_2$
incl. repair kit (diaphagm and O-ring)

Pos. 003

**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“

# Atmospheric $CO_2$ Vaporisers: Options

**Pos. 004**

## $CO_2$ flowmeter MF15

**part no. 4062504**

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 $CO_2$ 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)

**Pos. 005**

## $CO_2$ flowmeter MF25

**part no. 4062505**

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 $CO_2$ flow rat 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 1.38 in) (item no. 110151)