

# 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. Available ambient air is used to achieve energy savings of over 95% compared to standard electric vaporisers. The fans are automatically controlled temperature-dependent and only work if a consumer equipment is in operation.

As each vaporiser is supplied prepiped and prewired, installation can be made within minutes. Bases for floor mounting are included.

In addition to our standard models, we offer **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:

- **NEW:** External control cabinet with 10 m connection cable for flexible installation and operation
- 25 times less energy compared with electrically heated vaporisers
- Designed for continuous and automatic operation (no attendance required)
- Built-in temperature sensors PT1000 to prevent liquid CO<sub>2</sub> from flowing through
- 2 coil system to ensure safe defrosting with built in solenoid valves
- With temperature-controlled start/stop device for intelligent power control
- Simple and fast installation, only electric power and CO<sub>2</sub> required
- Vaporisers with tubes in stainless steel or copper available

### Specifications

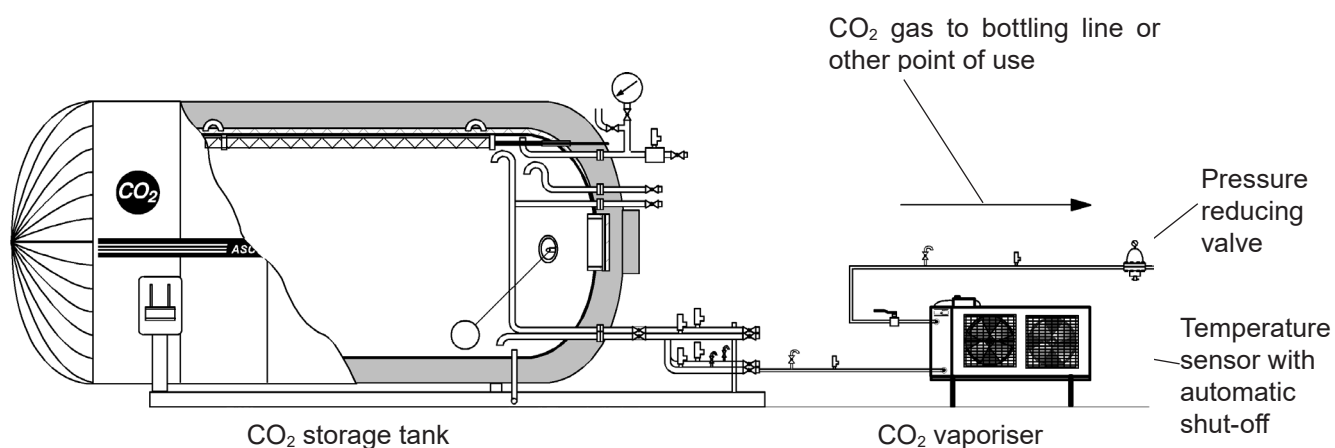
Vaporising capacity (approx.) from liquid CO <sub>2</sub> at 17 bar (247 psi)	length/width/height mm without control box	in/out connections outer Ø	net weight kg approx.	power consumption	max. operating pressure
200 kg/h SS (440 lb/h)	2'200 × 900 × 1'000 (87 × 35 × 39 in)	1" PN 40	243 kg (536 lb)	1.6 kW (2.1 HP)	25 bar (363 psi)
300 kg/h SS (660 lb)	3'000 × 900 × 1'000 (118 × 35 × 39 in)	1" PN 40	308 kg (679 lb)	2.4 kW (3.2 HP)	25 bar (363 psi)
500 kg/h SS (1100 lb/h)	3'000 × 900 × 1'200 (118 × 35 × 47 in)	1" PN 40	342 kg (754 lb)	2.4 kW (3.2 HP)	25 bar (363 psi)
1'000 kg/h SS (2200 lb/h)	4'200 × 1'000 × 1'450 (165 × 39 × 57 in)	1" PN 40	595 kg (1311 lb)	5.4 kW (7.2 HP)	25 bar (363 psi)

SS = with stainless steel tubes EN 1.4301 / AISI 304

Dimensions external control cabinet (L x W x H): 600 x 250 x 600 mm (24 x 9.8 x 24 in)

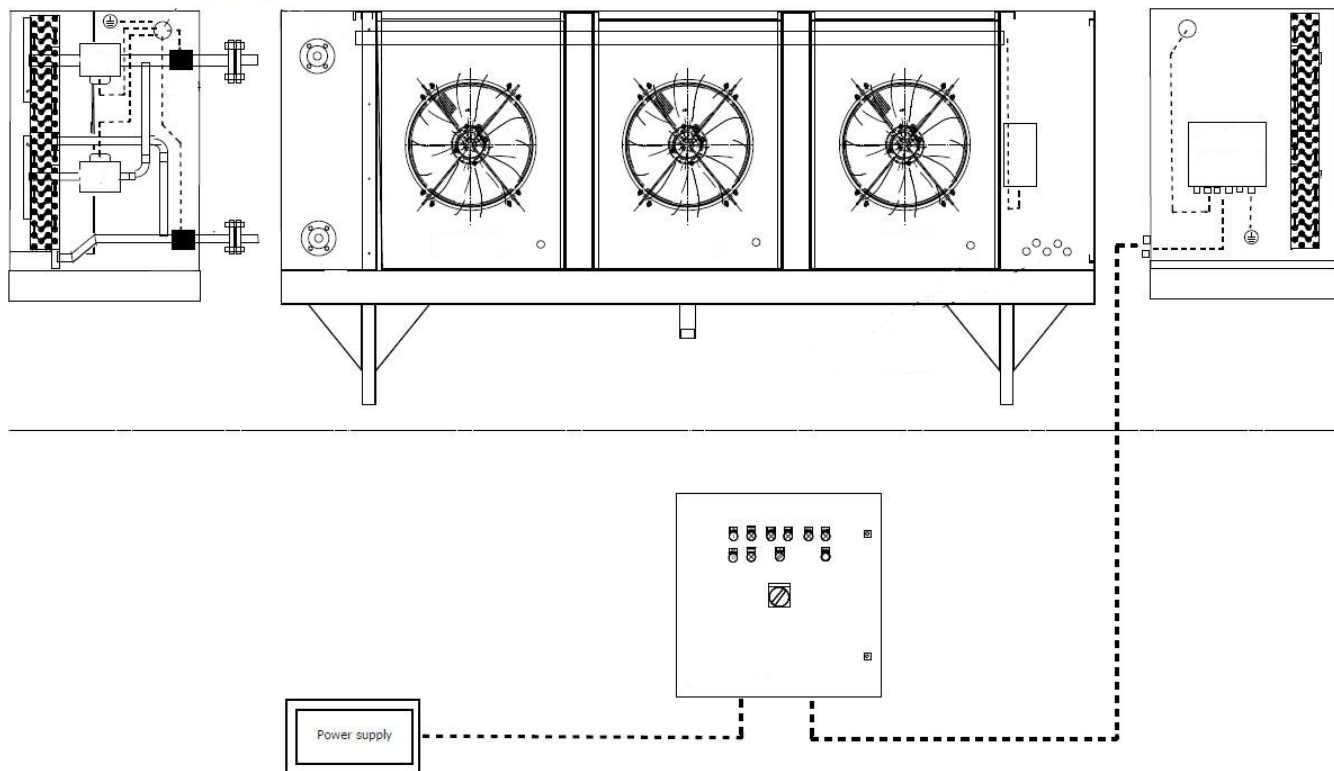
**Ambient air temperature:** min. +10 °C, max. +45 °C

## 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 fans only operate if a consumer equipment is obtaining CO<sub>2</sub> gas and the difference between inlet and outlet in the vaporiser reaches a defined level. This is monitored continuously.

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) (513.4 psi) and ready for immediate use.

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

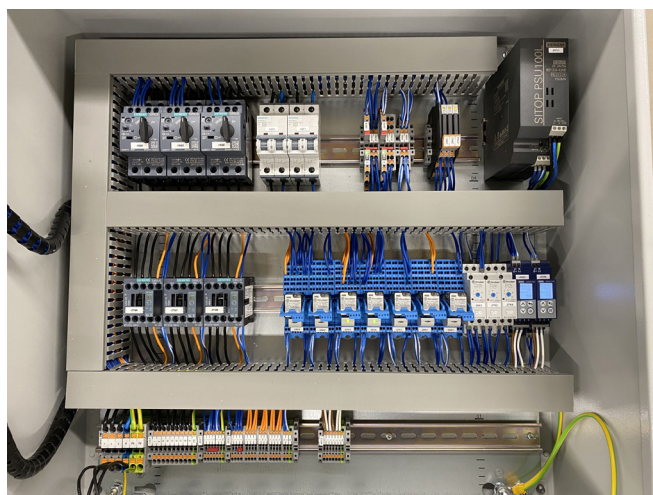
Air is forced through the heat exchanger by fans. Any condensate dropping from the tubes is collected by an aluminium tray mounted on the bottom of the unit, and an outlet pipe can be connected to drain. The unit also includes solenoid valves and a complete control box. A temperature sensor is also incorporated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



Terminal box for external control cabinet



External control cabinet with 10 m connecting cable, temperature sensors and cabinet heating



1'000 kg/h (2'200 lb/h) Atmospheric ASCO CO<sub>2</sub> Vaporiser: Air intake side



Two independent coils

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

### Pos. 001

#### **200 kg/n (440 lb/h) atmospheric ASCO CO<sub>2</sub> SS Vaporiser**

#### **200 kg/h (440 lb/h atmospheric ASCO CO<sub>2</sub> SS Vaporiser with defrost**

**part no. 901420**

**part no. 901491**

With temperature dependent start/stop device  
Cooling circuit made of stainless steel tubes EN 1.4301 / AISI 304  
400VAC ± 5 %/50Hz/3Ph + PE +N  
(other voltages and frequencies on request)

air flow total:	3.4 m <sup>3</sup> /sec (120 ft <sup>3</sup> /sec)
coil volume:	15 l (4 gal)
net weight:	243 kg (536 lb)
fan speed:	1'330 rpm
no. of fans:	2
power cons. per fan:	0.8 kW (1.1 HP)
flange connection:	1" PN40



Minimum ambient air temperature required +10 °C, max. +45 °C

### Pos. 002

#### **300 kg/n (660 lb/h) atmospheric ASCO CO<sub>2</sub> SS Vaporiser**

#### **300 kg/h 660 lb/h atmospheric ASCO CO<sub>2</sub> SS Vaporiser with defrost**

**part no. 901421**

**part no. 901491**

With temperature dependent start/stop device  
Cooling circuit made of stainless steel tubes EN 1.4301 / AISI 304  
400VAC ± 5 %/50Hz/3Ph + PE +N  
(other voltages and frequencies on request)

air flow total:	5.1 m <sup>3</sup> /sec (180 ft <sup>3</sup> /sec)
coil volume:	22 l (6 gal)
net weight:	308 kg (679 lb)
fan speed:	1'330 rpm
no. of fans:	3
power cons. per fan:	0.8 kW (1.1 HP)
flange connection:	1" PN40



Minimum ambient air temperature required +10 °C, max. +45 °C

### Pos. 003

#### **500 kg/n (1100 lb/h) atmospheric ASCO CO<sub>2</sub> SS Vaporiser**

#### **500 kg/h (1100 lb/h atmospheric ASCO CO<sub>2</sub> SS Vaporiser with defrost**

**part no. 901422**

**part no. 901493**

With temperature dependent start/stop device  
Cooling circuit made of stainless steel tubes EN 1.4301 / AISI 304  
400VAC ± 5 %/50Hz/3Ph + PE +N  
(other voltages and frequencies on request)

air flow total:	5.1 m <sup>3</sup> /sec (180 ft <sup>3</sup> /sec)
coil volume:	41 l (11 gal)
net weight:	342 kg (754 lb)
fan speed:	1'330 rpm
no. of fans:	3
power cons. per fan:	0.8 kW (1.1 HP)
flange connection:	1" PN40



Minimum ambient air temperature required +10 °C, max. +45 °C

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

Pos. 004

### **1000 kg/n (2200 lb/h) atmospheric ASCO CO<sub>2</sub> SS Vaporiser** **1000 kg/h (2200 lb/h atmospheric ASCO CO<sub>2</sub> SS Vaporiser with defrost**

part no. 901423

part no. 901494

With temperature dependent start/stop device  
Cooling circuit made of stainless steel tubes EN 1.4301 / AISI 304  
400VAC ± 5 %/50 Hz/3 Ph + PE + N  
(other voltages and frequencies on request)

air flow total:	9.9 m <sup>3</sup> /sec (350 ft <sup>3</sup> /sec)
coil volume:	78 l (21 gal)
net weight:	595 kg (1'311 lb)
fan speed:	890 rpm
no. of fans:	3
power cons. per fan:	1.8 kW (2.4 HP)
flange connection:	1" PN40

Minimum ambient air temperature required +10 °C, max. +45 °C



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

Pos. 001

### **Dome loaded pressure reducing valve C31**

part no. 4046817

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



Pos. 002

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

part no. 4046644

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



Pos. 003

### **Line safety assembly 1"- 25 bar (363 psi) welding connection**

part no. 4046831

Consisting of:

- stainless steel pipe 1" 300 mm (12 in)
- safety valve 25 bar (363 psi)
- vent ball valve stainless steel 1/4"



Pos. 004

### CO<sub>2</sub> 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 - 2200 lb/h) at 22 bar (319 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 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)



Pos. 005

### CO<sub>2</sub> 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 - 5'940 lb/h) at 22 bar (319 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 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 (0.08 x 2.80 x 1.38 in) (item no. 110151)

