CO_2 Gas Dosing for Water Neutralisation

ASCO CO_2 Gas Dosing Systems

ASCO CO_2 Dosing System (single line)

Wherever you need to have an exact quantity of CO_2 gas to be dosed, the **ASCO** CO_2 Gas Dosing System is ideal! Typically, the **ASCO** CO_2 Gas Dosing System is used together with water desalination plants.

The system is equipped with a CO_2 pressure reducing valve, filtration unit, CO_2 gas flowmeter, CO_2 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_2 Gas Dosing System:

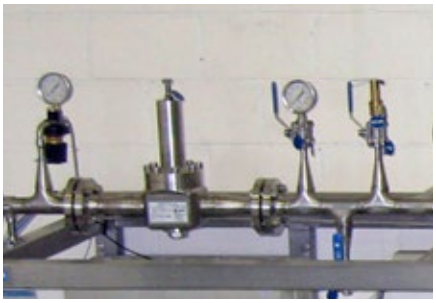
- easy to install
- very accurate
- 4 - 20 mA output signal
- robust stainless steel construction
- no auxiliary equipment like air compressor needed, only power supply is required

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_2 Gas Dosing System: Components

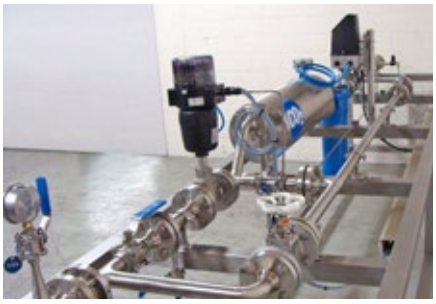
- flanged inlet incl. counter flange
- control cabinet
- all equipment mounted on robust stainless steel frame



- pressure reducing valve for easy adjustment of inlet pressure

- **ASCO** CO_2 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_2 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_2 gas in the customer's main stream water. The used components feature the following key benefits:

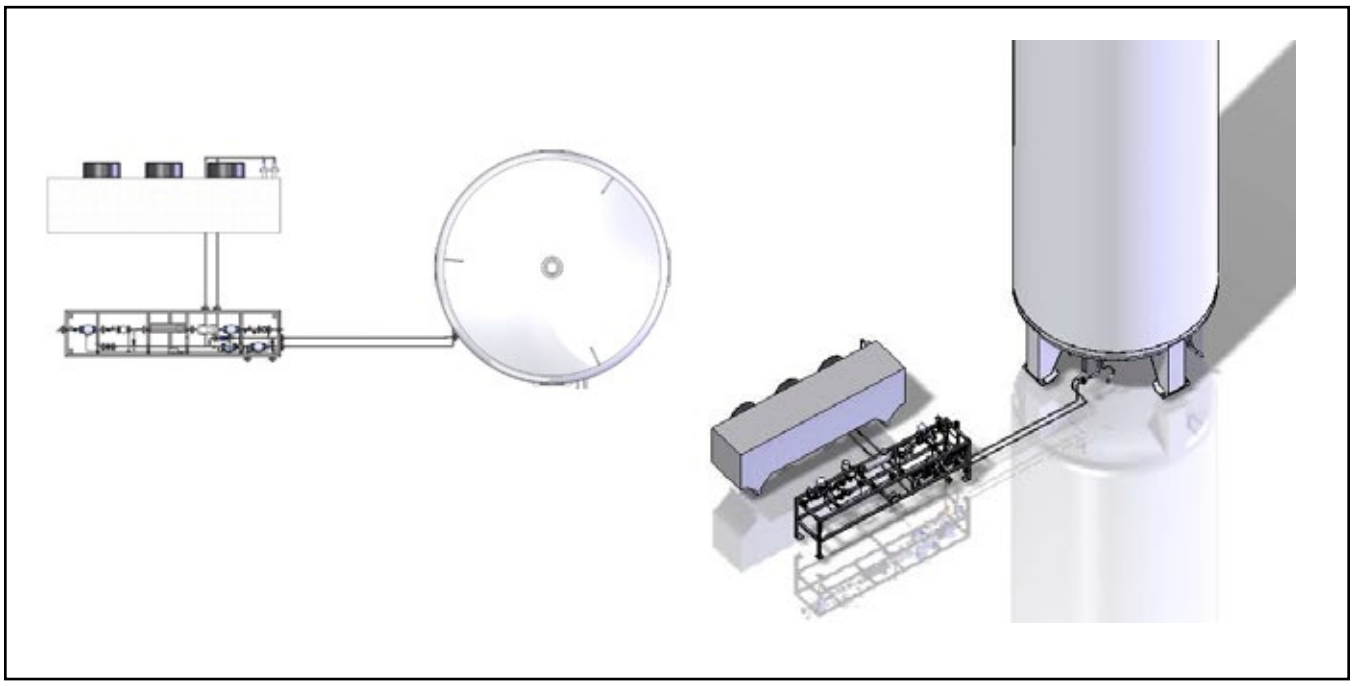
- highly efficient mixing
- low energy consumption
- no moving parts for maintenance free operation
- no direct motive power required

CO_2 feeding via side stream into the main water stream

Reliable solubility of the CO_2 gas thanks to special design of the static mixer

ASCO CO_2 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_2 Gas Dosing System (single line) with CO_2 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_2 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.

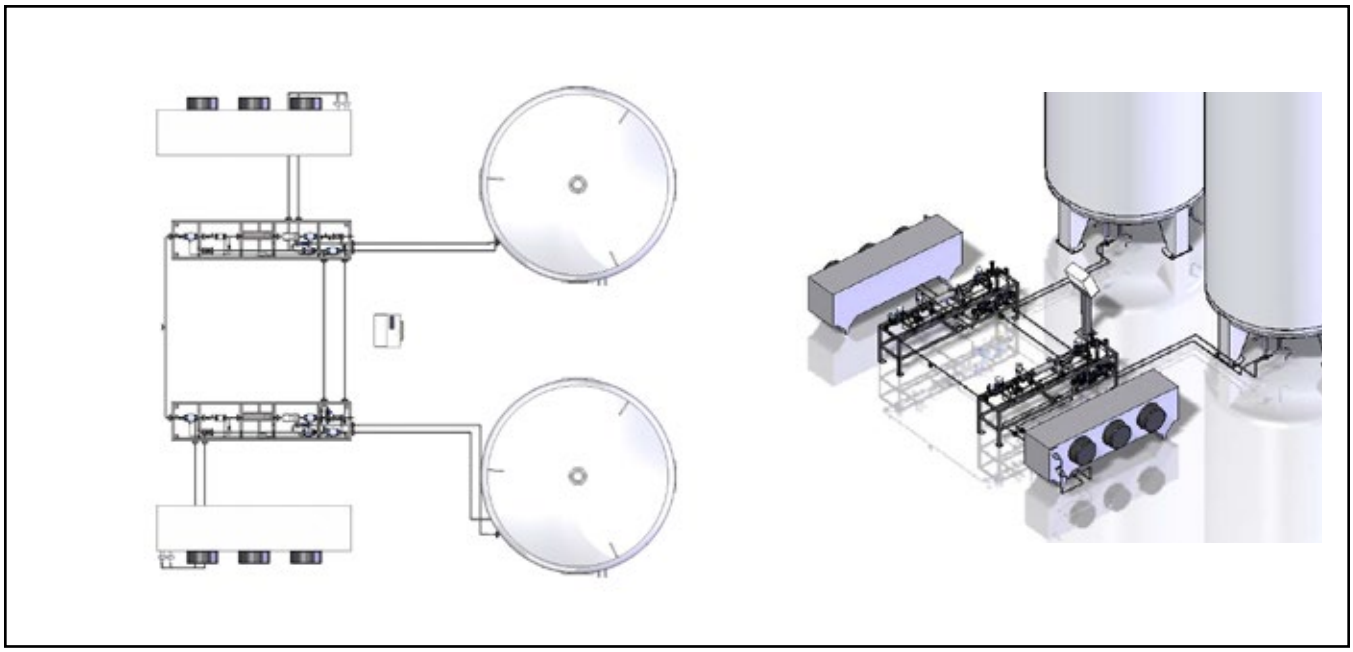
ASCO CO_2 Gas Dosing System: Standard scope of supply (single line)

ASCO supplies a fully preinstalled and pretested system consisting of:

- 1 × **ASOC** CO_2 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_2 flowmeter including digital display
- 1 × CO_2 storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO_2 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_2 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_2 Gas Dosing System with CO_2 tanks and vaporisers

ASCO provides a completely redundant system which automatically controls and regulates the CO_2 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_2 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_2 Gas Dosing System: Standard scope of supply

ASCO supplies a fully preinstalled and pretested system consisting of:

- 2 x **ASCO** CO_2 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_2 flowmeters including digital display
- 1 x control cabinet (PLC)
- 2 x CO_2 storage tanks (capacity has to be specified at time of order)
- 2 x atmospheric CO_2 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

ASCO CO_2 Gas Dosing System: Available standard capacities

Pos. 001

CO_2 Gas Dosing System 5 - 50 kg/h (11.02 - 110.23 lb/h) (single line)

part no. 900135

- 1 × **ASCO** CO_2 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_2 flowmeter including digital display

For a running **ASCO** CO_2 Gas Dosing System following equipment is necessary:
- 1 × CO_2 storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO_2 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_2 Gas Dosing System 30 - 300 kg/h (66.14-661.39 lb/h) (single line)

part no. 900136

- 1 × **ASCO** CO_2 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_2 flowmeter including digital display

For a running **ASCO** CO_2 Gas Dosing System following equipment is necessary:
- 1 × CO_2 storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO_2 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_2 Gas Dosing System 100 - 800 kg/h (220.46-1'769.70 lb/h) (single line)

part no. 900137

- 1 × **ASCO** CO_2 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_2 flowmeter including digital display

For a running **ASCO** CO_2 Gas Dosing System following equipment is necessary:
- 1 × CO_2 storage tank (capacity has to be specified at time of order)
- 1 × atmospheric CO_2 vaporiser (capacity has to be specified at time of order)
- 1 × static mixer or gas dispersion system (capacity has to be specified at time

Notes: