CO₂ Production

ASCO CO₂ Production Plants

Compact, easy to operate and maintain, ASCO high performance CO₂ 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 CO₂.

ASCO’s advanced CO₂ plant designs employ the latest technology for refined high performance, user friendly controls, flexible layout and ultra-efficient operation. The result is lowest possible CO₂ 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 CO₂ 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 CO₂ Production Plants has evolved from over 130 years commercial operation as a major CO₂ and dry ice equipment producer. This unique advantage means ASCO CO₂ 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 CO₂ 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 CO₂ 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 CO₂ testing equipment.

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Fuel (diesel) kg/h (lb/h)</th>
<th>Water m³/h (ft³/h)</th>
<th>Power (absorbed) kW (hp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 kg/h (154 lb/h)</td>
<td>24.4 (54)</td>
<td>0.6 (21)</td>
<td>29 (38.89)</td>
</tr>
<tr>
<td>160 kg/h (352 lb/h)</td>
<td>55.8 (123)</td>
<td>1.5 (53)</td>
<td>52 (69.73)</td>
</tr>
<tr>
<td>285 kg/h (628 lb/h)</td>
<td>99.5 (219)</td>
<td>2.6 (92)</td>
<td>84 (112.65)</td>
</tr>
<tr>
<td>500 kg/h (1'102 lb/h)</td>
<td>174.5 (384)</td>
<td>4.6 (162)</td>
<td>133 (178.36)</td>
</tr>
<tr>
<td>1'000 kg/h (2'205 lb/h)</td>
<td>349.0 (769)</td>
<td>8.7 (307)</td>
<td>241 (323.19)</td>
</tr>
<tr>
<td>1'500 kg/h (3'307 lb/h)</td>
<td>523.5 (1'154)</td>
<td>12.4 (438)</td>
<td>365 (489.47)</td>
</tr>
<tr>
<td>2'000 kg/h (4'409 lb/h)</td>
<td>690.0 (1'521)</td>
<td>15.1 (533)</td>
<td>440 (590.05)</td>
</tr>
</tbody>
</table>

Larger capacities on request
ASCO CO₂ Production Plants

ASCO CO₂ Production Plant process description

The fuel is burned under carefully controlled conditions. After water/soda ash scrubbing, CO₂ from the flue gas is absorbed into a monoethanolamine based solution which is subsequently heated by the combustion process to release the raw CO₂ gas. The CO₂ 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 CO₂ receives final purification in an activated carbon filter prior to feeding into an R404a refrigeration loop in the liquefier. The pure, liquefied CO₂ can then be fed to a bulk CO₂ storage tank.

This continuous process is efficient, reliable and safe. The CO₂ 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.
## ASCO CO₂ Production Plant: Your benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible layout</td>
<td>Compact, modular component design means fast and easy installation and provides an economical use of available space, covering a variety of different layouts.</td>
</tr>
<tr>
<td>Burner</td>
<td>Efficient, reliable combustion of fuel.</td>
</tr>
<tr>
<td>Inline scrubber water recirculation</td>
<td>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.</td>
</tr>
<tr>
<td>Process towers location</td>
<td>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.</td>
</tr>
<tr>
<td>Oil free CO₂ compressor</td>
<td>Specially designed for use with CO₂ gas, the oil-free compressor means there is no possibility of CO₂ contamination with oil.</td>
</tr>
<tr>
<td>High pressure stainless steel purifier</td>
<td>Longer residence time provides ultra-efficient NOₓ and H₂S removal.</td>
</tr>
<tr>
<td>Carbon filter</td>
<td>A high capacity carbon filtration column is installed in the CO₂ gas inlet line to the liquefier, to provide further assurance of pure and odour-free CO₂.</td>
</tr>
<tr>
<td>Centralized control panel</td>
<td>Automatic plant operation and visual display (HMI) provide one touch read-outs of process data from a centralized position.</td>
</tr>
</tbody>
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**CO₂ 2-Stage-Compressor**

**Liquefaction Unit**

**High Pressure Purifier**

**Process unit**

**Outdoor towers**

**Remonitoring to allow monitoring of the CO₂ plant from the comfort of your own office or central control room.**
ASCO CO₂ Production Plant: The complete CO₂ solution

Complete your ASCO CO₂ Production Plant with some of our many accessories

- CO₂ Production or CO₂ Recovery Plant
- CO₂ Storage Tank
- CO₂ supply by transportable CO₂ Tanks
- CO₂ Flowmeter
- Gaseous CO₂ to end user
- CO₂ Pressure Reducing Valve
- Atmospheric CO₂ Vaporiser
- Automatic CO₂ Cylinder Filling System with digital scale
- CO₂ gas from dry ice production
- Liquid CO₂ is transferred back into CO₂ Storage Tank for reuse
- Buffer balloon
- CO₂ Revert Recovery System for Dry Ice Machines (RRS)
- Automatic Dry Ice Slice-/Block- and Pellet Machine
- Dry Ice Slice Wrapping Unit
- Dry Ice Container
- Dry ice slices for air catering service
- Dry ice blocks for transport cooling
- 16 mm pellets for storage cooling
- 3 mm pellets for dry ice blasting

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