# HAFFMANS $CO_2$ RECOVERY
## $CO_2$ RECOVERY PLANTS

PRODUCT LEAFLET

### GENERAL PRODUCT INFORMATION

In the production of quality beer, breweries rely on many raw materials including water, malt, hops, yeast, and the fifth most important – carbon dioxide ($CO_2$). $CO_2$ has a large influence on not only the beer's quality, but also the customer's acceptance of the product. $CO_2$ treatment, control and dosing are of fundamental importance and should be seen as a total concept of which $CO_2$ Recovery plays a key role. As a specialist in $CO_2$ Recovery, Pentair Haffmans is your total $CO_2$ Management Partner.

Pentair Haffmans offers solutions for every situation. This covers individual components such as $CO_2$ storage vessels, $CO_2$ cylinder filling and $CO_2$ evaporators with reducing set, up to complete $CO_2$ Recovery Plants from 20 kg/h up to 10.000 kg/h.

We offer a delivery program with a range of options from cost-effective conventional $CO_2$ Recovery plants to state-of-the-art plants incorporating the latest technologies. In addition, we can update existing plants with these technologies. Worldwide, custom-made solutions will be installed and commissioned by a team of experienced and well-trained service engineers.

To meet the growing demand for $CO_2$, Pentair Haffmans' R&D Department continuously develops new technologies to improve $CO_2$ quality, recovery rates and efficiency. Our LO and HLP plants can produce $CO_2$ with a purity better than 99.998 percent and with less than 5 ppm oxygen ($O_2$) v/v content. The HLP plant collects raw gas from an inlet of just 95 precent v/v and will be economically recovered while still maintaining a guaranteed outlet purity of 99.998 percent v/v.

With the HLP plant design, breweries can now recover $CO_2$ gas from fermentation earlier and still provide food-grade $CO_2$ to meet the demand for beer production, with a surplus of food grade $CO_2$ that can be used to produce carbonated soft drinks. The main advantage is that fermentation $CO_2$ produced from beer or other fermentation processes itself guarantees that the recovered $CO_2$ has fundamentally no food-alien substances and is food-grade.

### TOTAL $CO_2$ MANAGEMENT

- $CO_2$ Recovery Plants
- Expansion and renovation of existing plants
- $CO_2$ Recovery Plants Accessories
- $CO_2$ Quality Control
- $CO_2$ Analysis Service (CAS)
- After-sales Service
- Training / Maintenance Contracts
- Spare Parts
- $CO_2$ Audits, Quick scans

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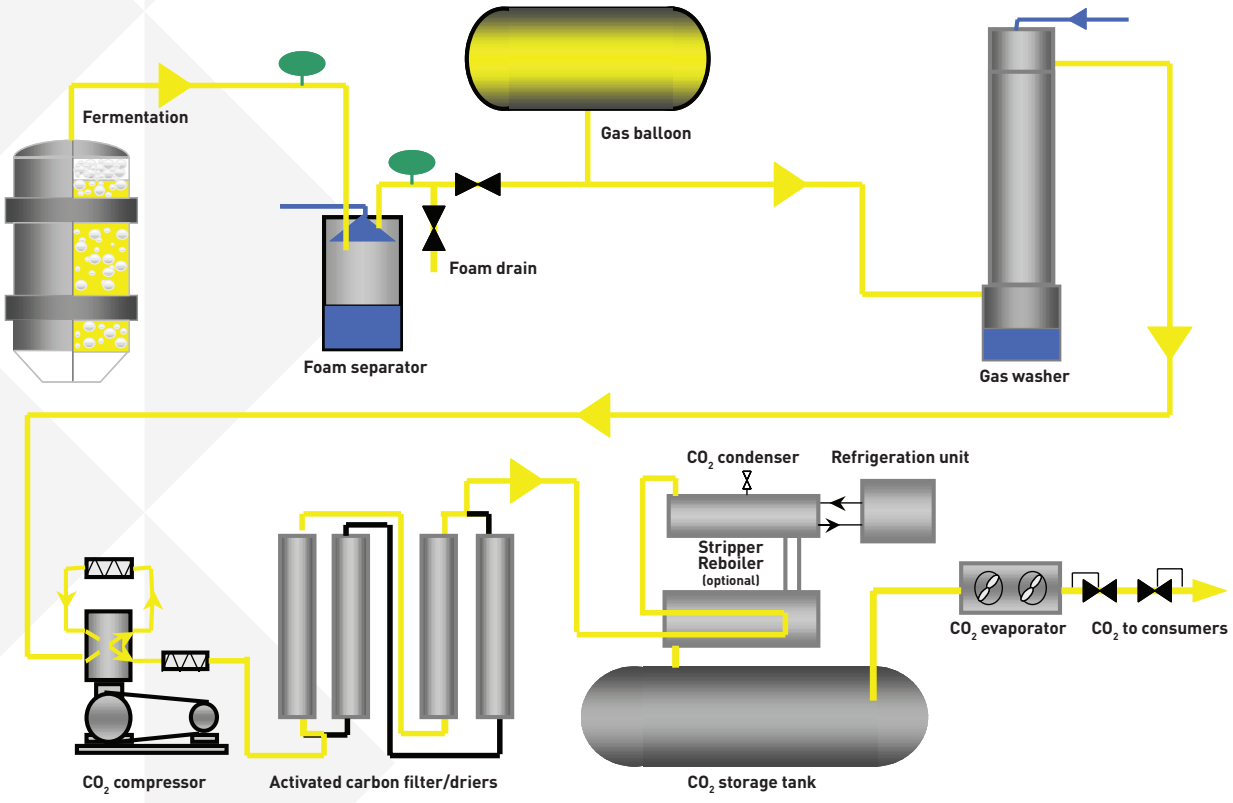
### TECHNICAL DATA

| $CO_2$ Inlet ($CO_2$ % vol.) | |
|---|---|
| Conventional | > 99.7 |
| LO (Low Oxygen) | > 99 |
| HLP | > 95 |

| $CO_2$ Outlet ($CO_2$ % vol.) | |
|---|---|
| Conventional | > 99.97 |
| LO (Low Oxygen) | > 99.998 / $O_2$ < 5 ppm |
| HLP | > 99.998 / $O_2$ < 5 ppm |

### RECOVERY PROCESS

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**HAFFMANS BV**

P.O. BOX 3150 NL-5902 RD VENLO, NETHERLANDS WWW.HAFFMANS.NL