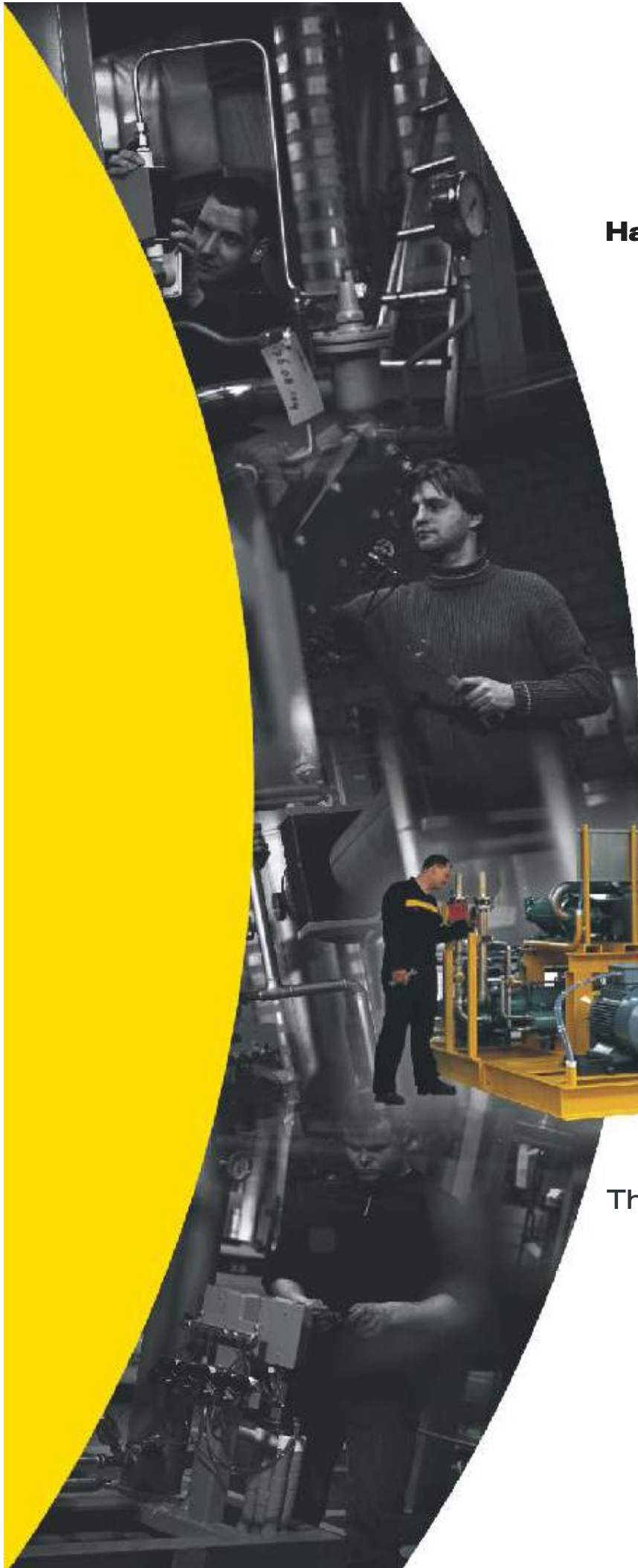




Haffmans CO₂ Recovery Plants



The missing link in the CO₂ chain

Haffmans

Haffmans have been specialist suppliers in the Brewery World for over half a century. Our products are exported worldwide to over 150 countries. Haffmans belongs to NORIT together with NORIT Process Technology (NPT), NORIT Membrane Technology (NMT), X-Flow and Südmo. We are represented by a global network of Agents and Distributors.

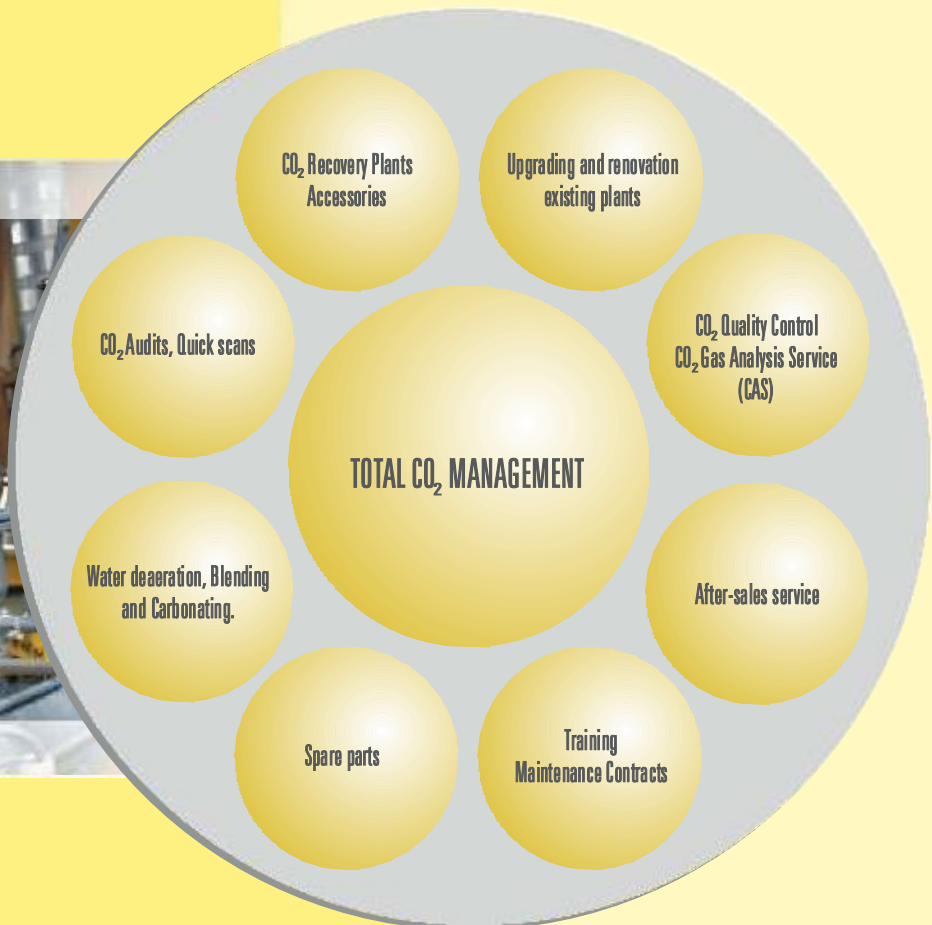
CO₂ Recovery Plants have been part of Haffmans product range for over 30 years. From Argentina to China, and from Iceland to South Africa, many plants of various sizes are in operation to customers complete satisfaction. The secret of this lies in the fact that for each project Haffman offers customized solutions composed of standardized modules against competitive pricing.



Carbon dioxide is next to water, malt, hops and yeast, the fifth raw material for producing quality beer. It is the raw material which has a large influence on the beer quality and customer acceptance of the product. CO₂ treatment, control and dosing are of fundamental importance and should be seen as a total concept of which CO₂ Recovery plays a key role.

As specialists, Haffmans are your total CO₂ Management Partner. By developing this concept, the breweries need not concern themselves with CO₂; from raw material upto the pleasure of finished beer.

Haffmans - Total CO₂ Solutions



Haffmans offer a solution for every situation. This covers individual components such as CO₂ storage vessels, CO₂ cylinder filling and CO₂ evaporators with reducing set, upto complete CO₂ Recovery Plants.

CO₂ Recovery Plants with capacities from 20 kg. per hour to 6000 kg. per hour CO₂ are manufactured to your individual requirements by our engineers, who will then install and commission them worldwide.

Solutions where the customer's wishes are always paramount is our goal.

To this end we offer in our delivery programme a range of options from cost-effective conventional CO₂ Recovery Plants upto state-of-the-art plants incorporating the latest technologies. We also update existing plants with these latest technologies.



Demand for CO₂ continues to grow. To meet this demand, Haffmans inhouse research and development department has developed new technologies.

These advances cover both CO₂ quality improvements and improved recovery rates and efficiency. With the LO and HLP plants CO₂ can be produced with less than 5 ppm O₂ v/v content. The HLP plant allows collection to start from an inlet raw gas of just 95% v/v and be economically recovered yet still maintaining a guaranteed outlet purity of 99,998% v/v.

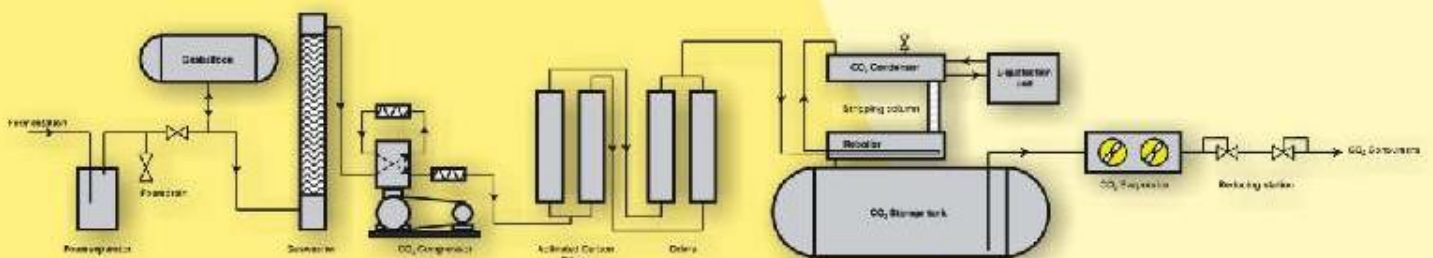
By means of HLP plant design breweries are able to recover foodgrade CO₂ from fermentation to meet the demand for beer production but at the same time giving a surplus of foodgrade CO₂, which can be used in the production of soft drinks.

The advantage is that fermentation CO₂ produced from the beer itself offers a guarantee to the brewery that the recovered CO₂ has fundamentally no food-alien substances.

Product Range CO₂ Recovery Plants

	CO ₂ inlet CO ₂ % Vol.	CO ₂ outlet CO ₂ % Vol.
Conventional	> 99.7	>99.97
LO (Low Oxygen)	> 99	>99.998 O ₂ < 5 ppm
HLP	>95	>99.998 O ₂ < 5 ppm

The CO₂ Recovery Sequence



The Haffmans Service Department is fully equipped for worldwide After-sales service. Before a CO₂ Recovery Plant is shipped, the plant is fully tested on our premises by our CO₂ specialists in order to ensure that the plant can be erected and commissioned on location without any problems. Haffmans can offer you a flexible package from guidance during erection and commissioning to a fully erected and commissioned plant on turnkey basis according to your specific requirements. After installation and commissioning, both preventive and corrective maintenance get full attention. Next to executing your own maintenance, you can delegate the maintenance to Haffmans by means of an after-sales service contract. Main spare parts are available from stock, and the Haffmans Service Helpdesk is at your disposal. Moreover, a team of CO₂ specialists, our flying brigade, is available for troubleshooting if necessary. Full service according to YOUR requirements.



Apart from the wide product range, Haffmans offer services that take the worry of CO₂ away from the brewery. Haffmans can carry out complete CO₂ audits from the production of recovered CO₂, upto the point of use. Our CO₂ analysis services offered by our laboratories, give the brewery the opportunity to ensure the quality of commercial CO₂ and to monitor the performance of their own CO₂ plants.



Haffmans B.V. - P.O. Box 3150 - NL-5902 RD VENLO - Netherlands
T: (+31)77-3232300 - F: (+31)77-3232323
E-mail: haffmans@haffmans.nl - Internet: www.haffmans.nl