GEA CO2 RECOVERY SYSTEM

CO_2 Recovery System for beer and alcoholic beverages.

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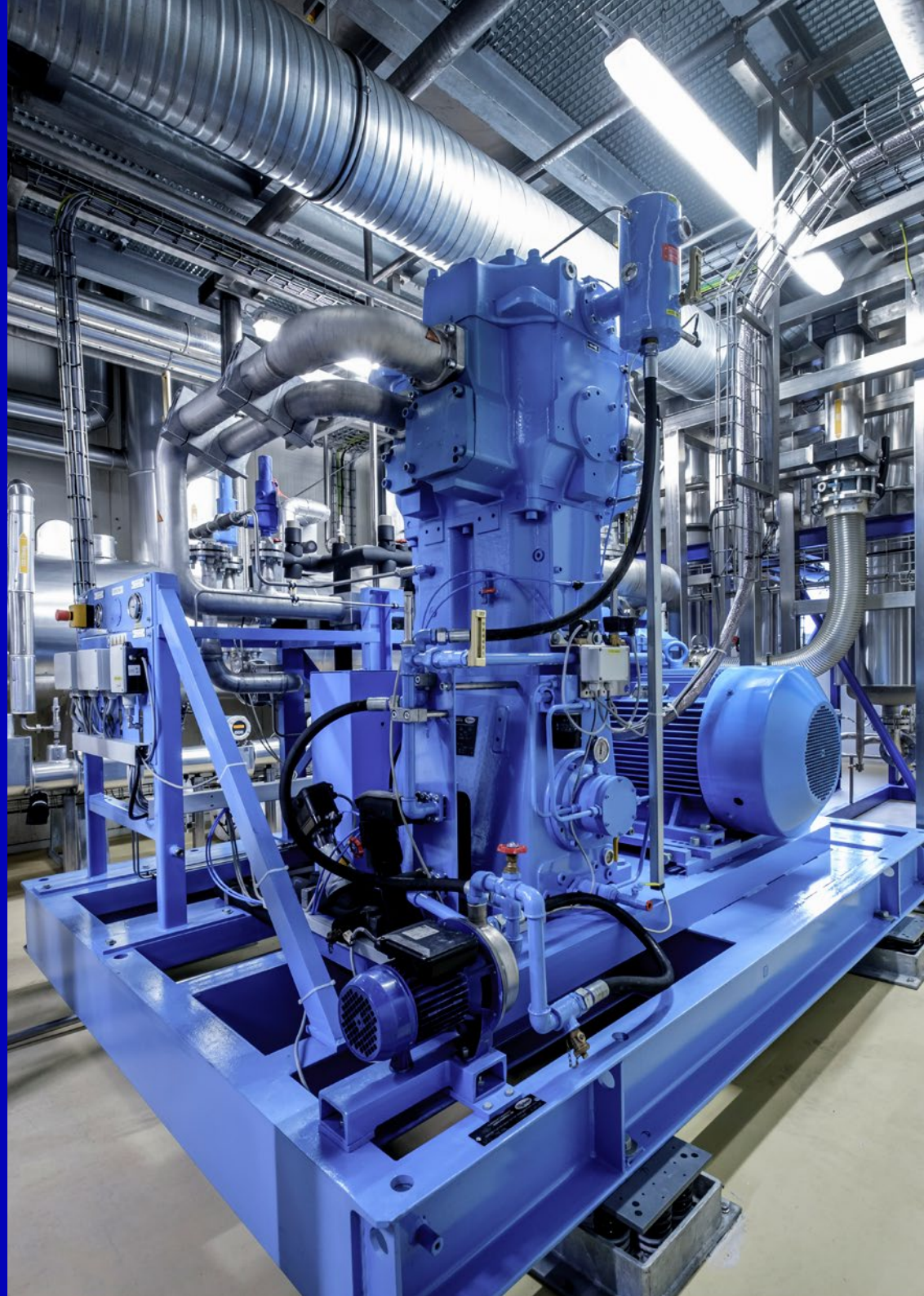

The CO_2 recovery plant from GEA enables the recovery of CO_2 that is released to the environment during the alcoholic fermentation process. The recovered CO_2 complies with the highest quality standards in the food industry and can be reused, for example, to carbonise beverages.

The application of a CO_2 recovery system enables breweries and other beverage producers to improve their carbon footprint, as no CO_2 has to be purchased.

During the recovery process, the CO_2 is purified in its gaseous condition, subsequently compressed and liquefied. The high-purity CO_2 is available in liquid condition in a storage tank for own use or for sale.

The GEA CO_2 system is designed on the basis of the calculated CO_2 quantity from the fermentation process and the local conditions at the customer's site. It is our goal to integrate the system optimally into the customer's existing processes. This ensures an efficient operation and a long system durability.

Features:

- Reduced CO_2 emission - improved carbon footprint
- CO_2 quality - highest quality on pure CO_2 gas - EIGA Doc 70/17 and ISBT
- Independent from the CO_2 market - no CO_2 shortages
- Low water consumption – high efficient scrubber and water reuse
- Energy efficiency – plant designed for efficient plant operation
- Energy recovery – utilizing potential energy sources from process
- Lifetime costs – low TCO due to high plant efficiency and availability
- Seamless integration – GEA holistic process knowledge
- Fully automatic control system
- Simple operation
- Payback period: 1.5 - 4 years

High quality at best efficiency

- CO_2-purity: 99,998%
- Oxygen content ≤ 5 ppm
- CO_2 plant capacity: 150 - 5,000 kg/h; plants with higher capacity on request
- Water consumption[3*)]: < 0.7 l/kg CO_2
- Electrical power consumption[3*)]: 0.22 kWh/kg CO_2

Technical Data

CO_2 Data at plant inlet (raw gas)		**CO_2 Data at plant outlet (pure gas) [1*)]**	
Purity inlet CO_2 plant	98 %	**Purity**	99.998 %
Relative humidity	< 100 %	**Dew point**	< -50 °C
Temperature	10 - 20 °C	**DMS**	< 0.10 ppm (v/v)
Pressure	approx. 1 bar abs.	**O_2 content**	< 5 ppm (v/v)
Ethyl alcohol	max. < 2.000 ppm (v/v)	**N_2 content**	< 20 ppm (v/v)
Acetaldehyde	max. < 20 ppm (v/v)	**H_2S content [2*)]**	< 0.10 ppm (v/v)
Ethyl acetate	< 10 ppm (v/v)		
H_2S [2*)]	max. < 5 ppm (v/v)		
DMS	max. < 2 ppm (v/v)		
Chloride	< 3 ppm (v/v)		
Chlorine	< 0.01 ppm (v/v)		

Remark: The CO_2 raw gas should not be aggressive against stainless steel and normal steel.

[1*)] Based on EIGA Doc 70/17

[2*)] Only when H_2S Filter is installed without H_2S Filter no Plant outlet value for H_2S content can be quarantined.

[3*)] Applies for standard purification system only.

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