

CO_2 - PRODUCTION PLANTS

CO₂ - PRODUCTION PLANTS - SYSTEM BUSE ERZ

CO₂-production plants “**System BUSE ERZ**” are compact plants of high reliability, built in modular design. The CO₂-gas is generated by combustion of natural gas or fuel oil and separated from the flue gas by means of a special absorption agent (monoethanolamine), processed and subsequently liquefied. Based on the long standing experiences of BUSE as CO₂ producer, consumer and plant manufacturer, these plants are provided with all necessary components to ensure a safe and economical production of purest carbon dioxide.

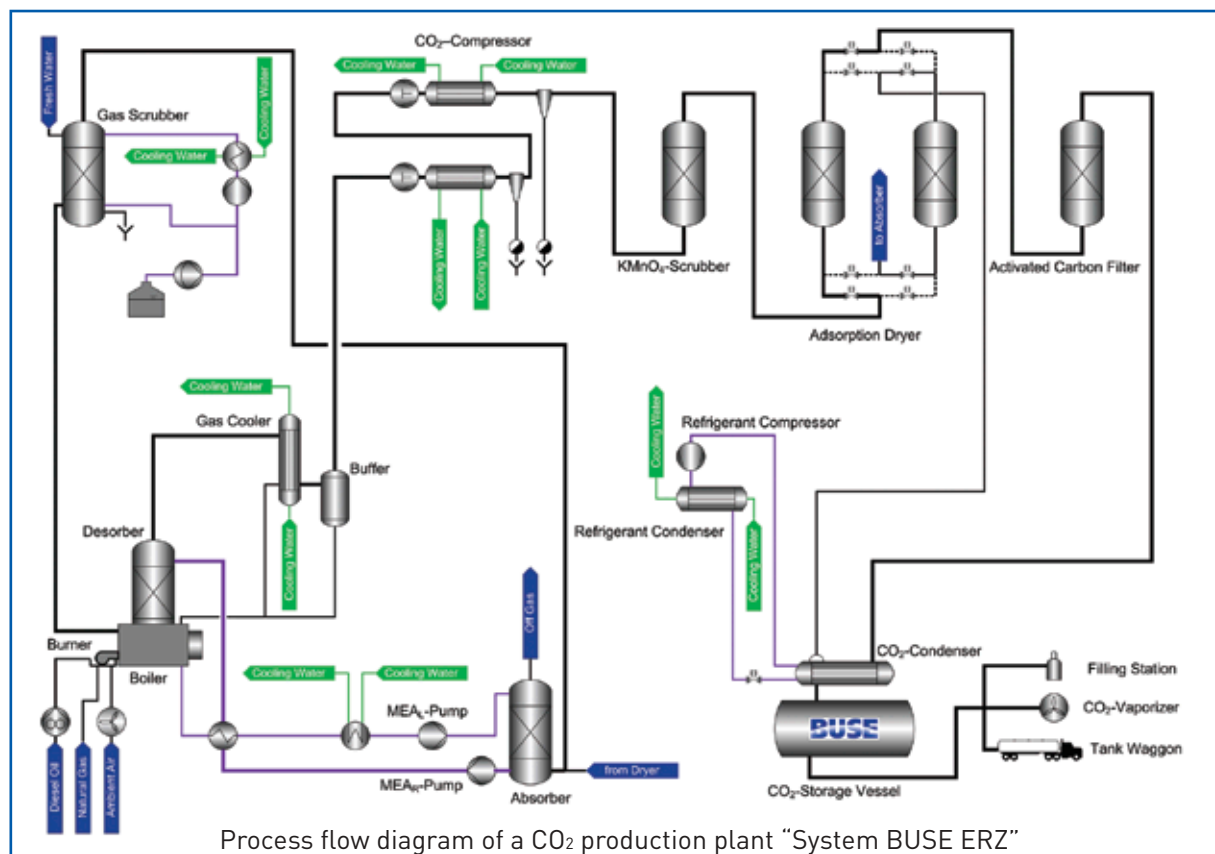


CO₂-production plant “System BUSE ERZ 1000”

CO₂-production plants allow an independent CO₂-production, and therefore are used wherever CO₂ is needed and CO₂-suppliers or useable sources are not adequately available.

CO₂ production plants are used:

- in the beverage industry
- at producers of industrial gases
- in sea water desalination plants



Process flow diagram of a CO₂ production plant “System BUSE ERZ”



Stainless steel reboiler with special burner for natural gas (System BUSE ERZ 0500)



“The carbon dioxide produced in our CO₂-production plants meets highest standards.

All prevalent specifications and requirements of the beverage and industrial gases industry are unproblematically complied with.”

Dipl. Ing. Fritz Langrock,
Technical Manager - BUSE Gastek

PROCESS DESCRIPTION

FLUE GAS PRODUCTION AND – SCRUBBING

CO₂-gas is produced by combustion of natural gas, diesel oil or kerosine. In a special burner, combustible and air are combusted under almost stoichiometric conditions, and generate a low-emission flue gas which is rich in CO₂. At first, the flue gas is being conveyed through a tube bundle inside the stainless steel reboiler in order to heat up the MEA-solution in the shell side. Then the flue gas flows through a combined stainless steel gas scrubber where it is purified, cooled and desulfurized by means of NaOH-dosing. A special wash water circuit saves valuable fresh water!

ABSORPTION AND DESORPTION

The flue gas gets into the absorber where the CO₂ is almost completely absorbed by means of an aqueous solution of monoethanolamine (MEA). The MEA-solution charged with CO₂ is preheated and then pumped to the stainless steel desorber. In the desorber, the CO₂ is released as a humid gas due to the heating of the MEA-solution. After leaving the desorber, the humid CO₂ is cooled in a stainless steel gas cooler and led to the CO₂-compressor. After desorption, the MEA- is chilled and purified in a special MEA-filter station before entering again the absorber.

CO₂-COMPRESSION, GAS PURIFICATION AND GAS DRYING

In dry-running piston compressors, the humid CO₂ is compressed absolutely free of oil to approx. 16 to 17 barg. In a potassium permanganate-scrubber (stainless steel), impurities are removed by oxidation. The CO₂-gas is then dried and remaining impurities are finally removed in a special activated carbon filter.

CO₂-LIQUEFACTION AND –STORAGE

In the CO₂-liquefaction plant, the dried and purified CO₂ is cooled down to below -25°C and then liquefied. In our refrigeration plants we use screw or piston compressors for different refrigerants, e. g. NH₃, R507 or R404a, depending on customer's request resp. case of application. Finally, the liquid and food grade pure CO₂ is stored in an insulated CO₂-storage tank.



Pump and filter station for MEA-solution

QUALITY ALWAYS PROVING ITS VALUE

CO₂-production plants “**System BUSE ERZ**” are quality products of very high reliability and durability. These characteristics are guaranteed by the application of special BUSE-construction components made of stainless steel, e. g. the reboiler – “the core” of each CO₂-production plant.

Apart from the careful and high quality material selection, further systems and processes developed by BUSE are applied, e. g. a special MEA-purification and filtering station, in order to decrease the MEA-consumption and utility costs as well.

BUSE-plants are characterized by an excellent manufacturing quality as well as by modern technology. These attributes guarantee that our CO₂-plants are very stable in value for the customer and make possible a good return on investment right from the beginning of its operation.



FROM ENGINEERING RIGHT UP TO TURN-KEY PRODUCTION FACILITIES

ENGINEERING AND PLANT CONSTRUCTION

- Standard plants from 30 kg/h to 3.000 kg/h
- Special custom-tailored plants upon request
- Overhauling and upgrading of existing plants
- Turn-key supply

AFTER SALES SERVICE

- Competent service engineers
- Quick and long-lasting provision with original spare parts
- Technical support during the entire lifetime of the plant

ENGINEERING SERVICES

- Basic and detail engineering
- Process and plant optimization of existing facilities
- Expertise and consulting on CO₂ applications

WIDE RANGE OF EQUIPMENT FOR CO₂-HANDLING AND APPLICATIONS

- CO₂-storage tanks, CO₂-evaporators and CO₂-supply systems
- Gas analyzers and quality control equipment
- Dry ice production machines
- Dry ice blasting equipment for efficient and environment- friendly industrial cleaning
- Cryogenic freezing plants
- And much more...



CO₂ IS OUR WORLD...

...and has been for over 120 years. The BUSE-position on the beverage and gas-industry is characterized by a close competence chain, that has been earned over 120 years- from a German mineral water producer to a gas producer and distributor, right up to a reputable engineering and service specialist for the gases and beverage industry.

BUSE – MORE THAN 120 YEARS OF KNOWLEDGE IN CO₂-TECHNOLOGIES

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