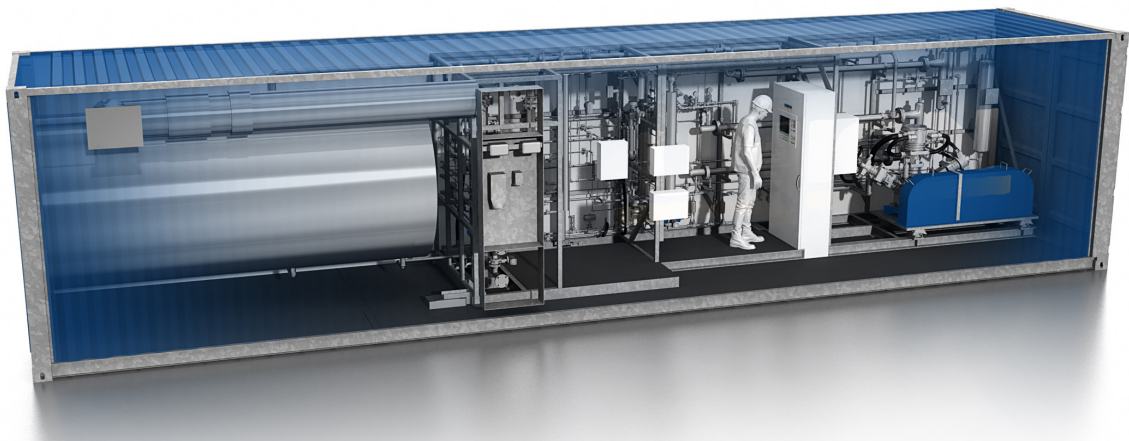


INNOVATIVE UNION ENGINEERING CO₂ TECHNOLOGIES

CO₂MPACTBREW

-RECOVER YOUR OWN CO₂



PLUG-AND-PLAY CONTAINERISED SOLUTION

The Pentair Union Engineering CO₂mpactBrew is specially designed for smaller breweries and it offers fast installation and the option to relocate the plant within a short time without compromising on quality and reliability.

Recovery plants (RBU) are specially designed to recover CO₂ from the fermentation processes at your own brewery ensuring self sufficient CO₂ supply.

The system is delivered as a containerised solution with all the equipment installed inside a container, featuring a maintenance aisle and easy connection points for utilities thus ensuring fast and easy installation.

As an added benefit, by recovering your own CO₂ you eliminate emissions (odours) from your fermentation process, which might otherwise require additional precautions.

The Pentair Union Engineering CO₂mpactBrew is designed for high efficiency, availability and reliability using components selected for long life and 24/7 operation.

SCOPE OF SUPPLY

- 25-160 kg/h recovery capacity
- 50,000 - 300,000 hl beer production approx.
- Ventilated 40' high cube container
- Low-pressure water scrubber
- Balloon
- Compressor unit
- High pressure water scrubber with feed pump
- Dehydrator
- Distillation column incl. reboiler
- MCC panel

ADVANTAGES

- Self-sufficient CO₂ production
- Same source CO₂
- Plug-and-play solution
- Simple and limited maintenance due to high-pressure scrubber technology
- No hazardous refrigerant system inside container - connected to brewery's cooling system
- Minimum maintenance on carbon filter
- 40' high cube container setup
- Transport by sea and road
- Minimum operator resources required
- O₂ < 5 ppm
- Eliminates emissions (odour) from fermentation when your own CO₂ is recovered

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PROCESS DESCRIPTION

The gas from the fermentation vessels are led to the brewery's installed foam trap. After passing the foam trap, the raw gas is washed in a water scrubber in order to remove any alcohols and sugar aerosols.

The gas is then compressed in three stages to approx. 39-46 bar(g) / 565-667 psig by two CO₂ compressors.

Next, the gas is led into a high-pressure water scrubber to remove oxygenates such as alcohol, acetaldehyde, and acetyl acetate.

Prior to liquefaction, the gas is dried in the dehydrator. Regeneration is done automatically by electrical heating and use of dry purge gas from the CO₂ condenser. Traces of acetaldehyde are also removed in the dehydrator.

All water is removed in the dehydrator before the raw gas is condensed. The dried CO₂ gas is then condensed in the CO₂ condenser using glycol at approx. 0°C / 32°F as the cooling media. The liquid CO₂ is then finally purified in the distillation column reducing the O₂ content to < 5 ppm.

The liquid CO₂ is now flashed to approx. 17 bar(g) / 246 psig, the vapour fraction is lead back to the 2-stage compression while the liquid CO₂ is finally led to storage at approx. 15 bar(g) @ -27°C / 218 psig @ -16.6°F.

Cooling is carried out using the brewery's main refrigeration plant to supply the after coolers and condenser on the plant.

Estimated utility requirements

Glycol available at 0°C / 32°F

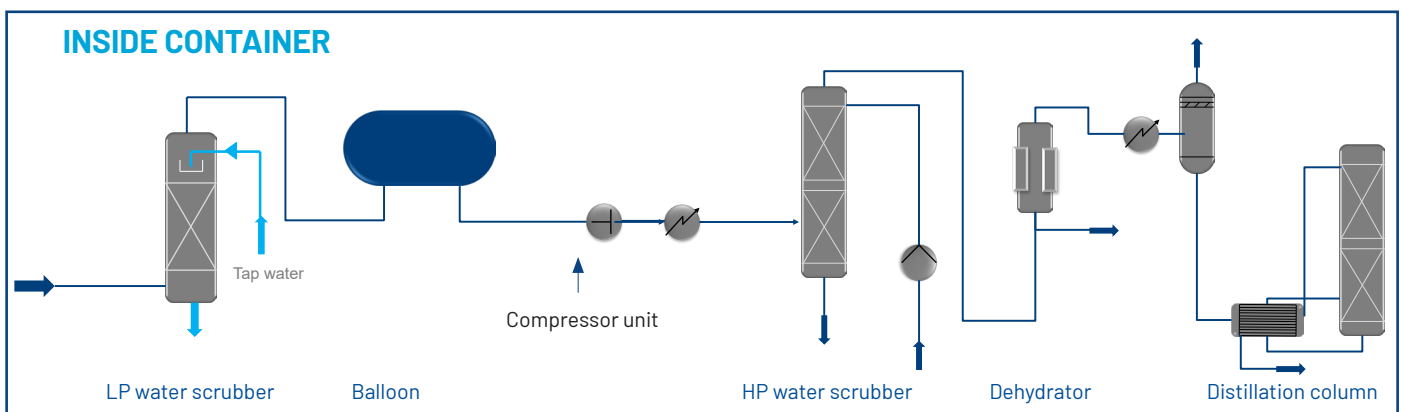
Water supply for low- and high-pressure water scrubber, approx. 120 l/h / 31.7 gal lqd/h

Raw gas CO₂ composition min. 95%

Altitude 2,500 meters / 8,200 ft

Seismic design: IBC Design Category C, Risk Category I, SDS=0,33g, SD1=0,133g

Power supply 3x400 VAC + N + PE, 50Hz and 24 VDC / (230 VAC) / 3x480 VAC + PE 60Hz / 120 VAC 60 Hz / 24 VDC



PENTAIR UNION ENGINEERING A/S

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