PENTAIR UNION ENGINEERING

CO2 PURIFICATION UNIT

REDUCTION OF OXYGEN AND INERT GASES

CO_2 is an important ingredient to beverages and the demands to the purity are continuously increasing in the modern beverage industry. Adding a CO_2 Purification Unit to your recovery system secures an efficient stripping of oxygen and inert gases.

The CO_2 liquefaction process taking place in the traditional recovery plant involves the separation of non-condensable gases where oxygen, being the most critical component, is reduced to below 30 ppm. As oxygen causes deteriorative reactions in beer and affects the shelf-life of packaged beer the modern brew industry requires oxygen content less than 5 ppm.

CO_2 Purification Unit can be supplied as an integrated part of the recovery plant or as a separate unit to be added on any existing installation. The Purification unit is available in two standards according to the actual raw gas purity and the requested purity of the final CO_2 product as outlined in the table below.

Product	Description	CO_2 purity inlet to recovery plant	CO_2 purity in liquid phase	O_2 content in liquid phase
Condenser	Low oxygen stripping	≥ 99,7%	≥ 99,98%	≤ 30 ppm
PUR-D	Medium oxygen stripping	≥ 95%	≥ 99,998%	≤ 5 ppm
PUR-A	High oxygen stripping	≥ 95%	≥ 99,9985%	≤ 2 ppm

Alternative designs are available for special applications

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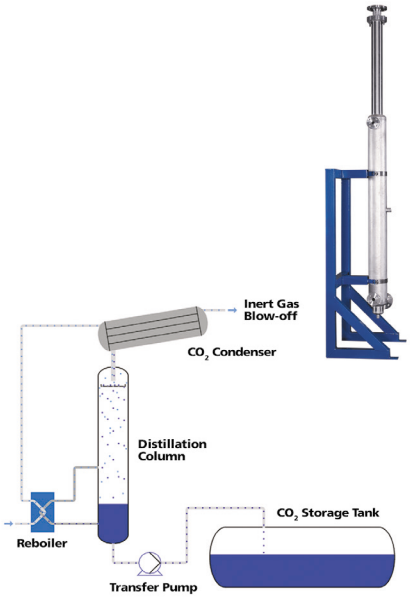
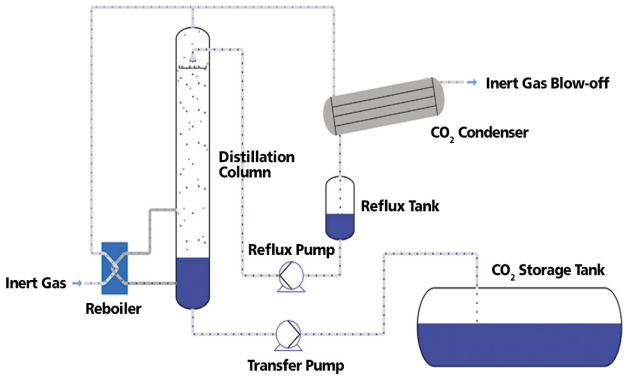
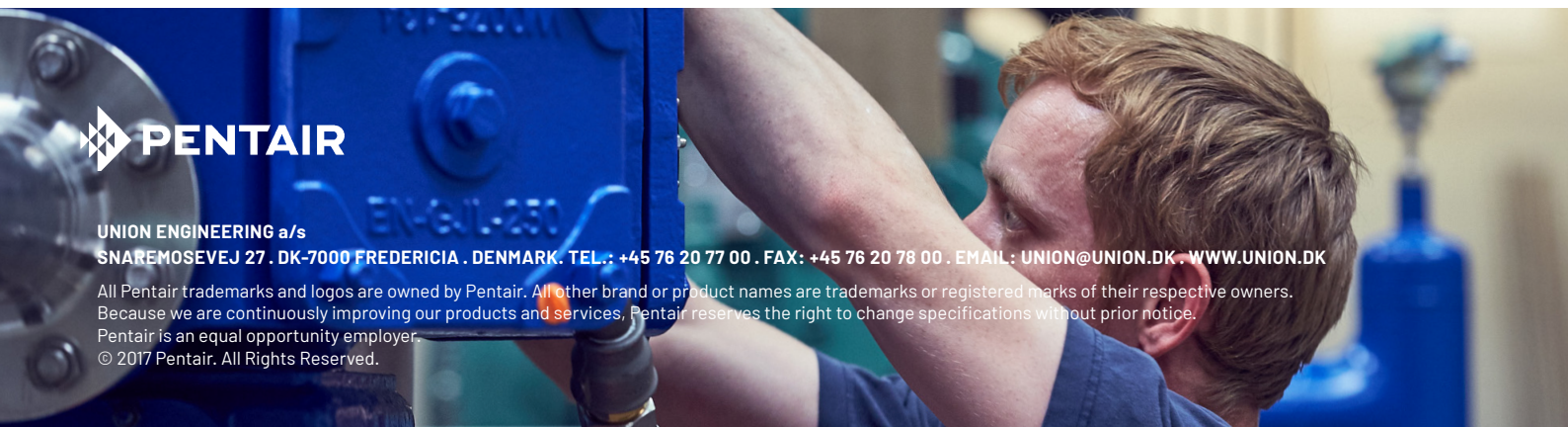




CO_2 gas containing substantial amounts of inert gases is led from the dehydrator to the reboiler. The lower part of the distillation column is flooded by liquid CO_2 which, due to heat reflux from the primary side of the reboiler, evaporates and initiates the stripping process in the distillation column.

Condensed CO_2 from the recovery plant flows into the top of the distillation column, through a packing section, in counter-flow with the ascending gas generated by the reboiler. Non-condensable gases are thus stripped off and purged to the atmosphere through the top of the CO_2 condenser.



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