

# Heat Recovery System



## Heat Recovery System

### General product information

Traditional methods of carbon dioxide (CO<sub>2</sub>) evaporation use steam, ambient air or electricity. Ambient air operated CO<sub>2</sub> evaporators are only applicable when the ambient air temperature is high enough. The use of steam or electricity results in high energy costs, which accounts for the major portion of production costs in breweries. Because of this, any potential savings on energy consumption are vital to breweries.

### Direct or Indirect HRS

In a brewery, several media are for cooling down the product and machinery. Examples are ammonia (NH<sub>3</sub>), glycol, ice water and cooling water. The return flow of these media can be used for CO<sub>2</sub> evaporation. This type of operation has dual energy advantages because the CO<sub>2</sub> is evaporated by means of a medium that takes advantage of available energy. In addition, the NH<sub>3</sub>-plant, glycol plant or cooling towers are less loaded, due to the fact that the medium is pre-cooled. By installing such a system, breweries are able to recover, and save, a lot of energy.

### LiquiVap

CO<sub>2</sub> recovery requires energy to condense the recovered CO<sub>2</sub> from fermentation. CO<sub>2</sub> evaporation, prior to CO<sub>2</sub> consumption, requires energy to vaporize the CO<sub>2</sub>. The HRS-LiquiVap system combines these two energy intensive processes into one efficient process, reducing the combined total energy consumption by up to 60 percent of that required by a traditional CO<sub>2</sub> plant. LiquiVap can be provided for new CO<sub>2</sub> recovery plants and easily retrofitted to existing CO<sub>2</sub> plants.



**HRS**

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## Benefits

- Cost saving
  - short payback time
  - saves evaporation energy
  - saves energy at CO<sub>2</sub> liquifaction plant / NH<sub>3</sub> plant / glycol plant
  - low maintenance
  - less labor time - fully automated operation
- Environmentally friendly/green image (LiquiVap)
  - CO<sub>2</sub> as a refrigerant

## Application

- In any existing or new CO<sub>2</sub> recovery plant

**Direct:** CO<sub>2</sub> evaporation by means of glycol, cooling water and process water

**Indirect:** CO<sub>2</sub> evaporation by means of glycol or NH<sub>3</sub>

**LiquiVap:** CO<sub>2</sub> evaporation by evaporating CO<sub>2</sub>

## Technical Data

Applicable mediums                      NH<sub>3</sub>, glycol, icewater, cooling water, liquid CO<sub>2</sub>

Standard capacities (LiquiVap)        1,000 - 10,000 kg/h  
(other sizes on request)



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**Haffmans BV reserves the right to make changes in the technical specifications at any time.**

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