

Buss-SMS-Canzler

Membrane Technology



We live process engineering
and special manufacturing

SMS

Buss-SMS-Canzler

Solvent Recovery and Dehydration with Vapour Permeation and Pervaporation



Buss-SMS-Canzler is one of the world's leading suppliers of separation technology for difficult to handle substances and mixtures.

Our technical engineering solutions are based on decades of experience of the Luwa, SMS, Buss and Canzler companies. We are the leading specialists in thin film technology. As a modern and internationally active company, we develop and manufacture systems and equipment in the field of evaporation, drying, high-viscosity and membrane technology.

Professional Project Management from One Source

We offer extensive services, ranging from lab or pilot trials, engineering, manufacturing, delivery and start-up to long-term service contracts.

Solvent Dehydration

Buss-SMS-Canzler offers highly economical hybrid systems of thermal separation and membrane technology. The combination of conventional distillation columns with vapour permeation or pervaporation membranes is a comprehensive process solution for the recovery of purified solvents and water from contaminated waste or process streams. Typical feed products are solvent / water mixtures which may become azeotropic.

Heat Recovery

Modern membranes made out of polymers or ceramics can operate at temperatures up to 150 °C and are therefore suitable for heat recovery with vapour recompression or multiple effect evaporation at high temperature levels.

Typical Applications:

Alcohols:

Ethanol, Methanol, Iso-propanol

Aromatics:

Bezene, Toluene, Xylene

Cetones:

MEK, Acetone, MIBK

Esters:

Methyl acetate, Ethyl acetate, Butyl acetate

Ethers:

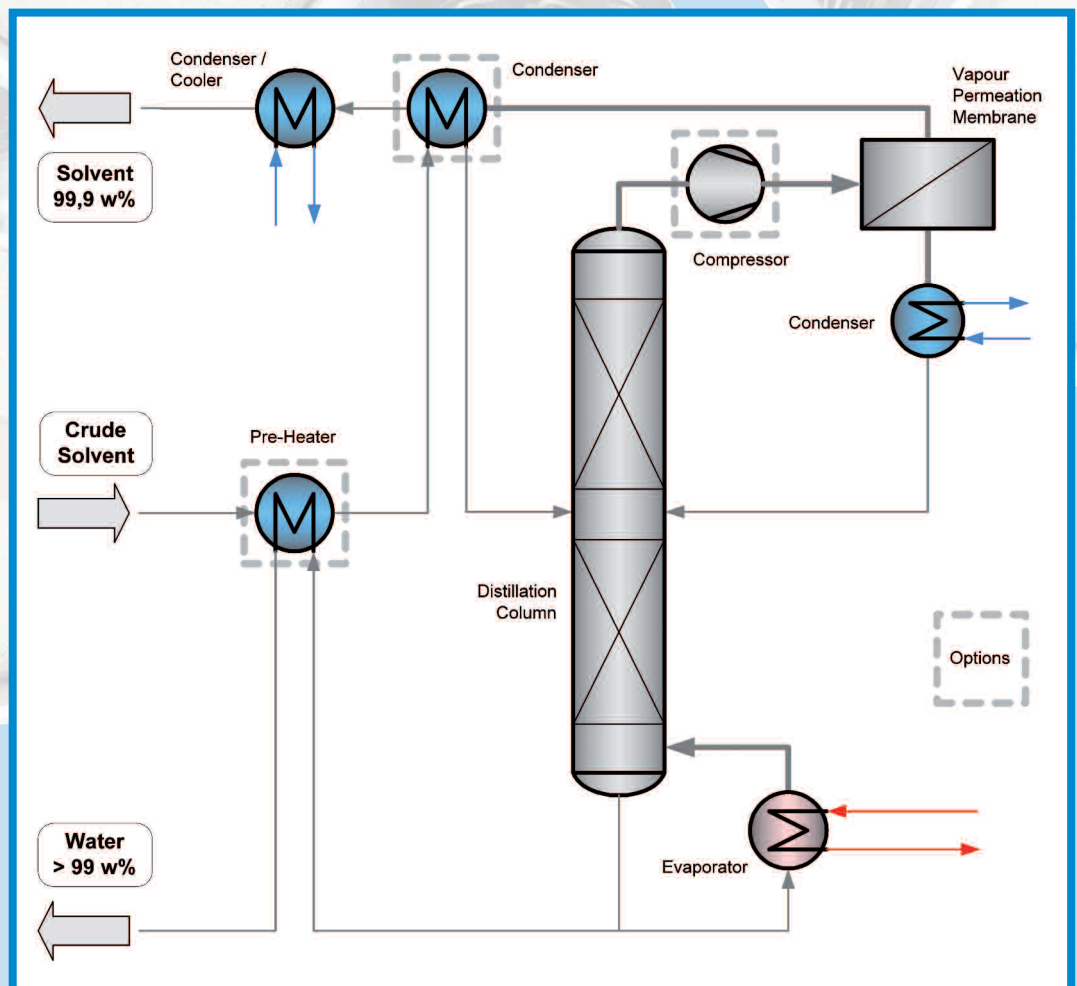
MTBE, ETBE

Aldehydes:

Acetaldehyde

Others:

Acetonitrile, DMF



Ethanol Dehydration Systems

Stand Alone Systems

Self-contained systems can take liquid feed and perform the dehydration independently from the ethanol plant. The permeate is either processed in the stand alone system or returned to the ethanol plant.

Integrated Dehydration Systems

These systems are connected to the vapour outlet of the rectification column of the raw ethanol plant. The rectifier only needs to concentrate to min 80 w% ethanol and may operate at reduced reflux. The permeate is recycled to the distillation.

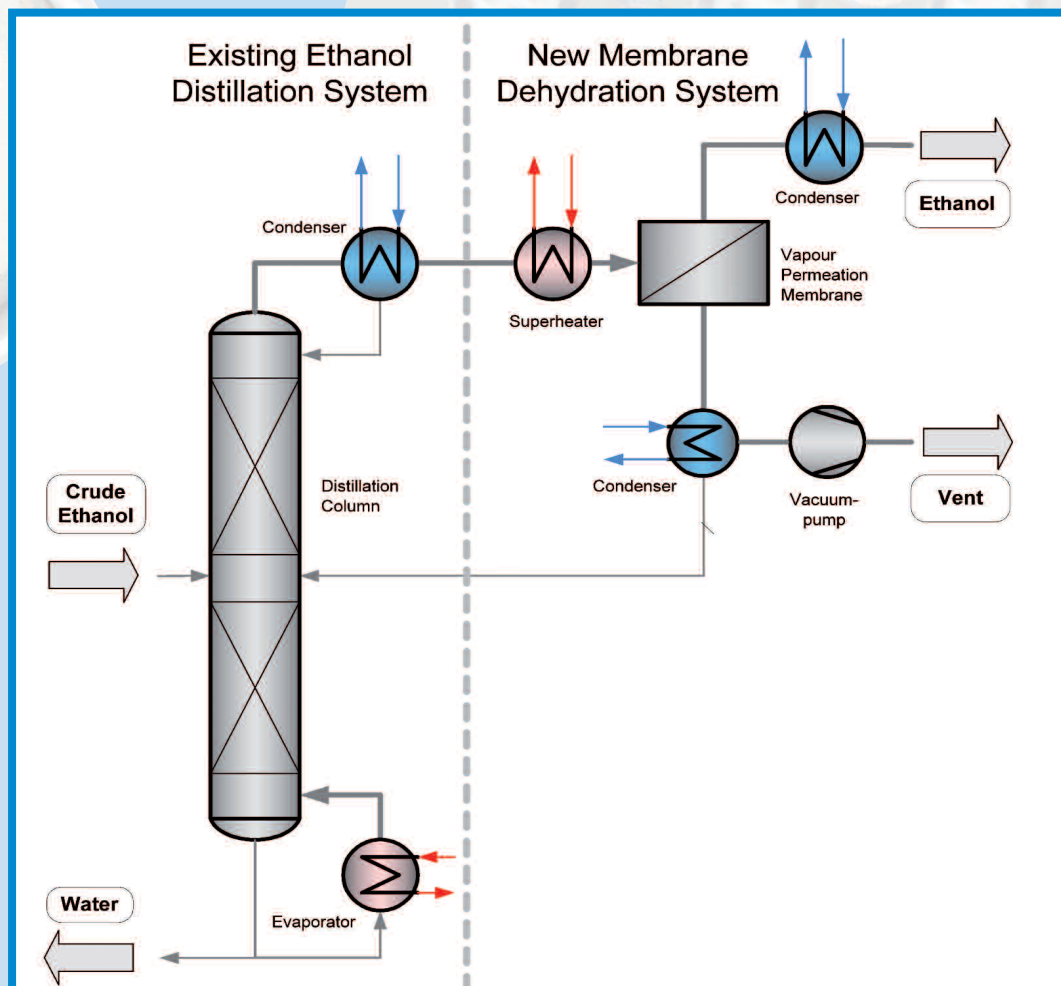
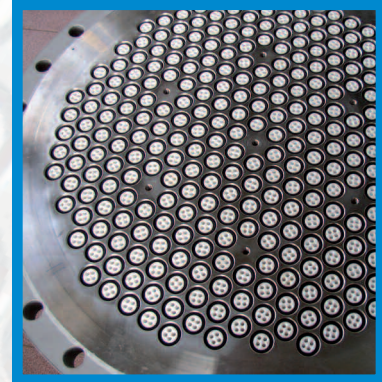
Integrated Systems provide lowest investment costs, best heat integration and lowest energy consumption in the entire ethanol plant.

Reference plants are successfully in operation since 2002.

Ethanol plant upgrades

Existing Ethanol plants can be easily upgraded to produce dehydrated ethanol by use of membrane dehydration.

The process advantages are a higher capacity and better product quality while using the existing equipment or vice versa same capacity and better quality at lower energy consumption.



Advantages of Buss-SMS-Canzler vapour permeation or pervaporation technology

Commercial:

- Proven technology through many years experience
- Reduction of operating costs
- Possible capacity increase to existing plants utilizing existing equipment
- Increased product quality, dehydrated
- High availability due to modular concept
- Long warranty periods
- Attractive purchase or lease concepts

Technical:

- High solvent purity up to 99,95w%
- High purity of water effluent: >99 w%
- Yield up to 98%
- Feed water content as high as 20 w%
- Min. heating and cooling energy requirements
- Permeate contains only little solvent
- No dust load in the dehydrated solvent
- No pulsation
- No periodic on/off valve action
- Silent operation
- Fully automated operation
- Small footprint
- Simple capacity expansion

Removal of Volatile Organic Components (VOC)

Membranes are successfully used to remove volatile organic components from gas or air. VOC are separated and can be recovered. The gas is cleaned and the vent air complies with environmental regulations.



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