

FlexMethanol

MAN DWE[®] power-to-liquid (PtL) solutions

Decarbonizing the global economy requires carbon-neutral liquid fuels and chemicals. E-methanol, made from CO₂ and renewable H₂, answers these needs as a base chemical, maritime fuel, or feedstock for e-kerosene. Our FlexMethanol modules enable the production of green methanol. Mild process conditions of 40 bar pressure and 240 °C enable fast ramping between 10 – 100 % load to cope with potential fluctuations in the renewable electricity supply.

Benefits at a glance

- Very low power consumption
- Modular approach for fast project implementation
- Maximum operational flexibility



In cooperation with

bse methanol

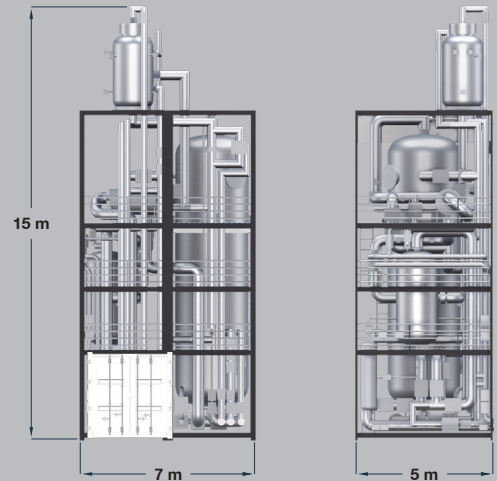
Energy &
storage
systems

FlexMethanol

Technical data

Production input/output

	10 MW Skid	20 MW Skid
Nominal methanol production in tons/p.a. (8,000 hours)	8,000	16,000
Tons CO ₂ input per ton methanol	1.4	1.4
Kg H ₂ input per ton methanol	200	200
Process pressure (bar)	40	40
Process temperature	240 °C	240 °C
Min./max. load	10 – 100 %	10 – 100 %
Auxiliary power consumption in kW	160	300



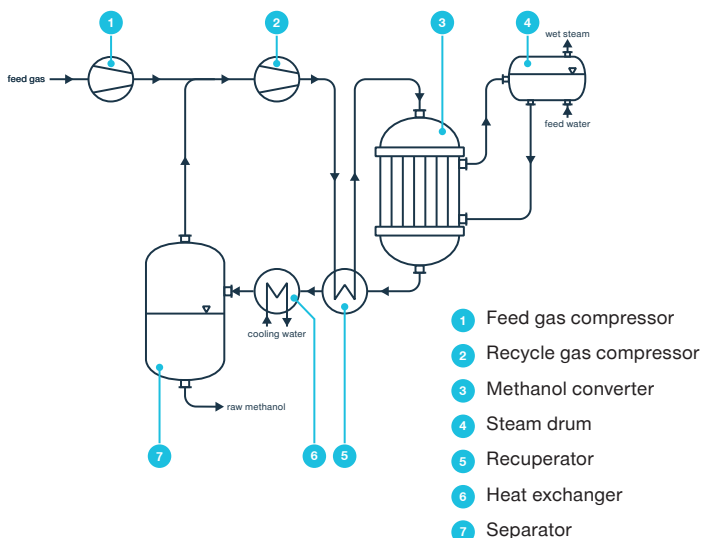
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FlexMethanol approach

E-methanol is made from feedstocks with widely varying availability: renewable energy, green H₂ and CO₂. The FlexMethanol process is designed to overcome the challenges of fluctuating feed streams and partial load. Each skid can run operational loads from 10 – 100 %. Costly H₂ buffer tanks are not needed for ramping up or down. Decreasing the operating pressure to 40 bar is the key innovation

that allows a methanol plant to operate with fluctuating renewable energy sources even in off-grid operation. To enable fast implementation of PTL projects, FlexMethanol takes a modular approach with pre-engineered skids. Capacity can be increased by simply adding more skids. This significantly shortens all project steps from planning to commissioning.

Methanol synthesis



Applications

Typical CO₂ sources for FlexMethanol modules

- Waste incineration plants
- Biomass-fired power plants
- Pulp and paper industry
- Renewable energy plants

Direct uses of e-methanol

- Marine fuel
- Power generation
- Hydrogen carrier

Derivatives of e-methanol

- Synthetic fuels for road and air transport
- Chemicals (e.g. olefins, formaldehyde, MTBE, acetic acid, methylamines, MMA, chloromethanes, DME)

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