

E-methanol synthesis modules



Benefits at a glance

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

Everllence

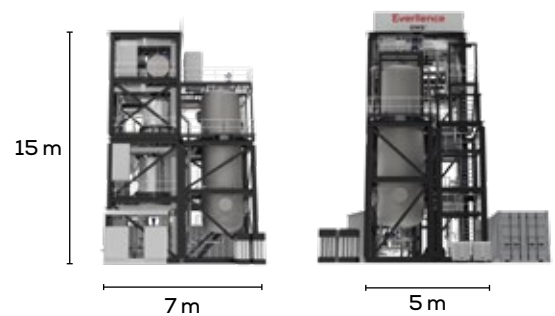
E-methanol synthesis modules

DWE® Power-to-Liquid (PtL) solutions

Production input / output

	10 MW Skid	20 MW Skid
Nominal methanol production (metric tons / day)	24	48
CO ₂ input (metric tons) per metric ton methanol	1.4	1.4
H ₂ input (kg) per metric 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 (kW)	160	300

The specified dimensions apply to 200 MW_{el}. Further information on other dimensions on request.
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General

Decarbonizing the global economy requires the availability of carbon-neutral liquid fuels and chemicals. E-methanol, made from CO₂ and renewable H₂, offers a suitable solution as a base chemical, maritime fuel, or feedstock for e-kerosene. Our e-methanol synthesis modules enable the production of green methanol. Moderate operating 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.

Our approach to e-methanol synthesis

E-methanol is made from feedstocks with widely varying availability: renewable energy, green H₂ and CO₂. The PtL process is designed to overcome the challenges of fluctuating feed streams and partial load. Each skid, unlike conventional systems, operates from 10 % to 100 % load without requiring costly hydrogen buffer tanks 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, our e-methanol synthesis solution takes a modular approach with pre-engineered skids. Capacity can be increased by simply adding more skids. This significantly reduces the time required for each project step from planning to commissioning.

Applications

Typical CO₂ sources for e-methanol synthesis modules

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

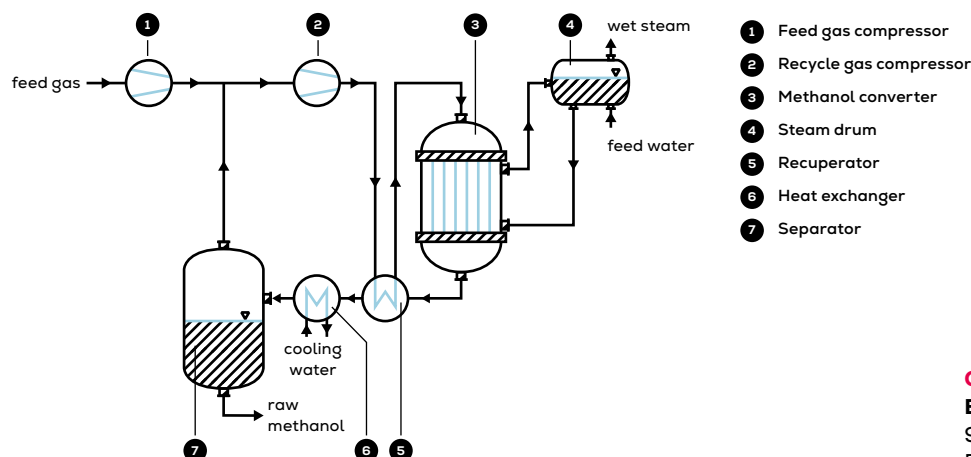
Direct uses of e-methanol

- 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)

Methanol synthesis



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