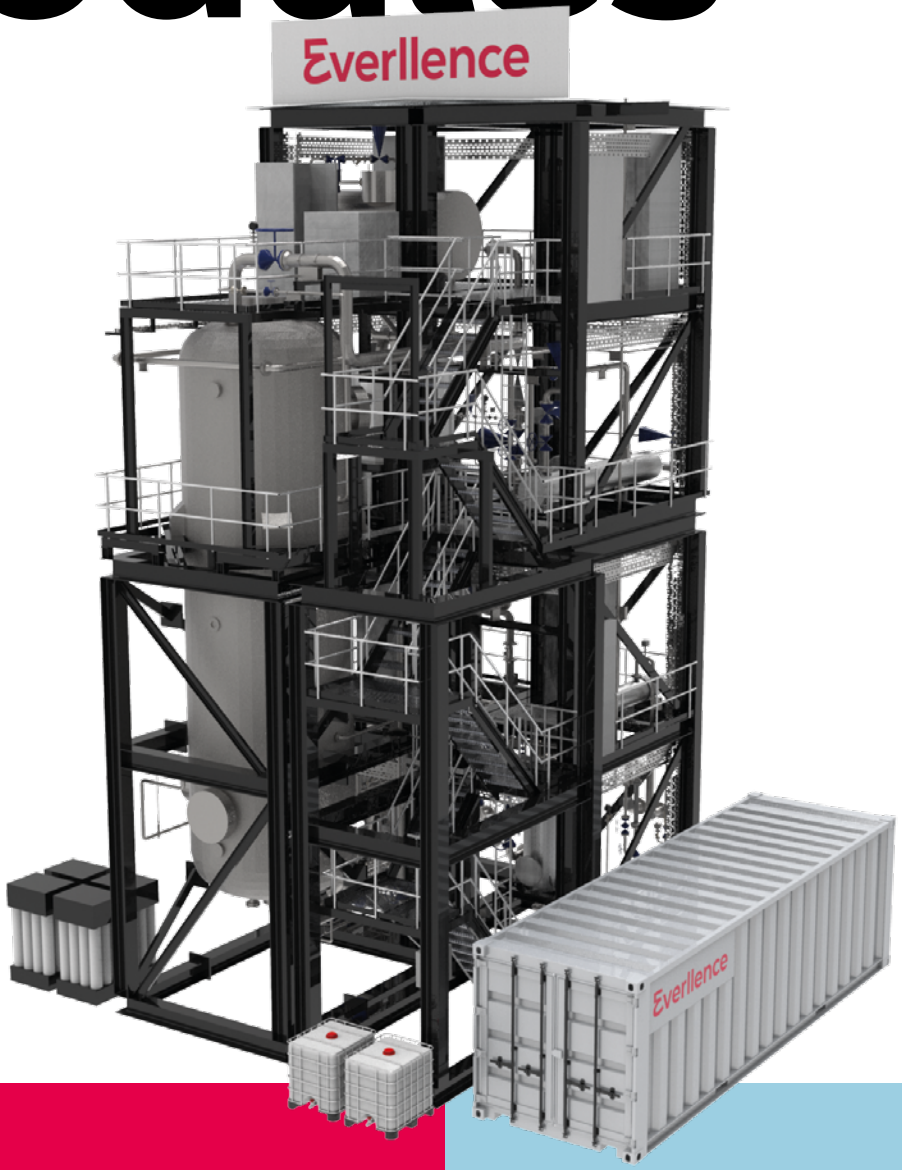
E-Methanol modules



Benefits at a glance

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

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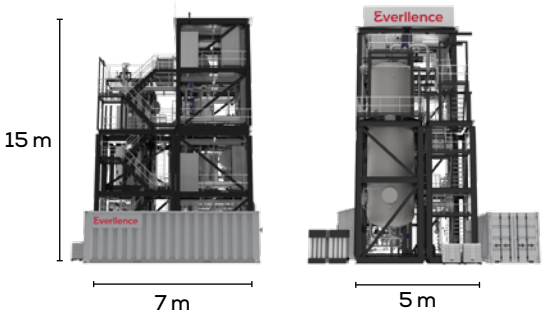
E-Methanol modules

DWE Power-to-Liquid (PtL) solutions

Production input / output

	10 MW Skid	20 MW Skid
Nominal methanol production in tons/day	24	48
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 (kW)	160	300

The specified dimensions apply to 200 MW_{el}. Further information on other dimensions on request.
Last updated May 2025



General

Decarbonizing the global economy requires carbon-neutral liquid fuels and chemicals. E-methanol, made from CO_2 and renewable H_2, answers these needs as a base chemical, maritime fuel, or feedstock for e-kerosene.
Our e-methanol modules enable the production of e-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.

E-Methanol approach

E-methanol is made from feedstocks with widely varying availability: renewable energy, green H_2 and CO_2. The PtL process is designed to overcome the challenges of fluctuating feed streams and partial load. Each skid can run operational loads from 10 – 100 %. Costly H_2 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, E-Methanol 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.

Applications

Typical CO_2 sources for FlexMethanol modules

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

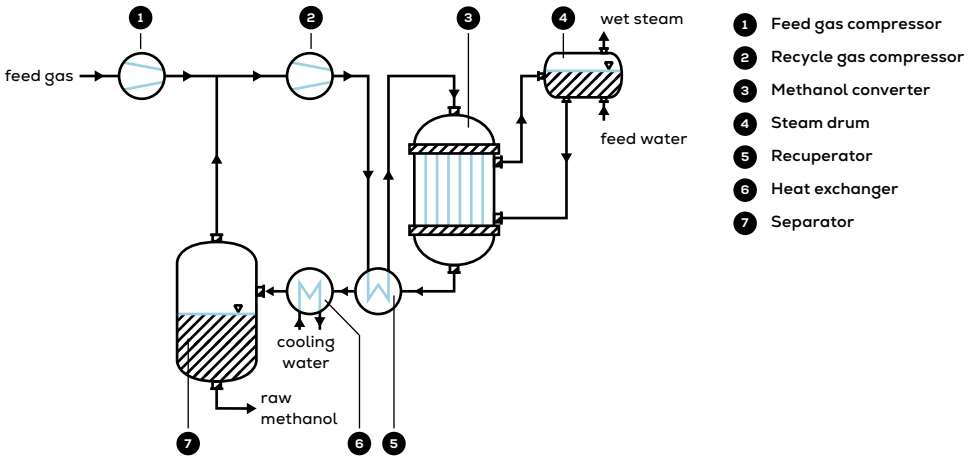
Direct uses of e-methanol

- 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)

Methanol synthesis



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