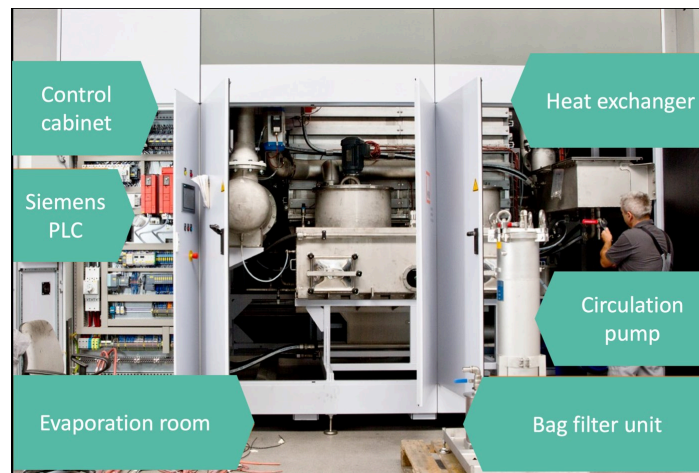


MVR40 electric evaporator

Working principle

Mechanical vapour recompression at atmospheric pressure, fully electric:

- The medium is preheated in heat exchangers and enters the atmospheric working tank, where it is circulated and heated by the main heat exchanger.
- The vapour is compressed by a compressor (approx. +200 mbar) and is then at approx. 106 °C. In the main heat exchanger it condenses into distillate and releases its heat to the medium.
- The compressor replaces an external heat source. For media containing ammonia, a vapour scrubber is installed upstream of the condensation.
- Distillate and exhaust air leave the evaporator through the preheating heat exchangers.



MVR evaporator module (example photo)

Performance data

Intake volume flow	approx. 4,000 l/h
Specific distillate output	22.5 l/kWh el
Distillate flow	approx. 3,600 l/h
Electrical power	approx. 160 kW el
Heat demand	none (start-up only)
Feed	liquid phase of slurry, digestate or other thin organic media after separation (usually decanter)
Dry matter in feed	max. approx. 2.2 % DM
Concentration factor	up to 10
Particle size	< 50 to 100 µm
Capacity	max. approx. 32,000 m ³ per year per module (4 m ³ /h at 8,000 operating hours); fully modular, further modules can be added
Dimensions L × W × H	on request
Operating voltage	3/400 V N PE 50 Hz
Empty weight	on request

Three usable output streams

- **Distillate:** water fraction; reusable as process or recirculation water, discharge quality only with additional site-specific finishing stages.
- **Ammonium sulphate solution (ASL):** from the vapour scrubber (media containing ammonia); mineral N/S fertiliser, approx. 75 kg N/t.
- **Concentrate:** nutrient-rich organic fraction; volume reduction up to approx. 90 %.

Main components and materials

- **Control system:** Siemens (PLC and HMI)
- **Materials:** wetted parts stainless steel
- **Vapour scrubber:** super duplex stainless steel
- **CIP:** integrated cleaning in place, acidic and alkaline
- **Remote maintenance:** VPN

Your benefits

- Fully electric: no CHP or external heat source required
- 22.5 litres of distillate per kWh electric (approx. 44 Wh per litre)
- Fully modular: modules operate independently, further modules can be added
- Up to 90 % volume reduction, zero liquid operation possible
- Closed, odour-free evaporator concept
- Compact design, stainless steel construction for all media-contacting parts
- MVR technology for industrial wastewater for more than 20 years, adapted to slurry and organic media since 2024

Conformity

The evaporator system meets the essential requirements of the following directives:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU

With respect to electrical hazards, the safety objectives of the Low Voltage Directive 2014/35/EU are met in accordance with Annex I No. 1.5.1 of the Machinery Directive 2006/42/EC.

Harmonised standards applied (non-exhaustive): EN ISO 12100:2010, EN ISO 13850:2015, EN ISO 13732-1:2008, DIN EN IEC 61000-6-2:2019-11

Values for the MVR40 are derived from the key figures of the MVR series. The project-specific design follows the framework concept and a laboratory trial evaporation with your own material.