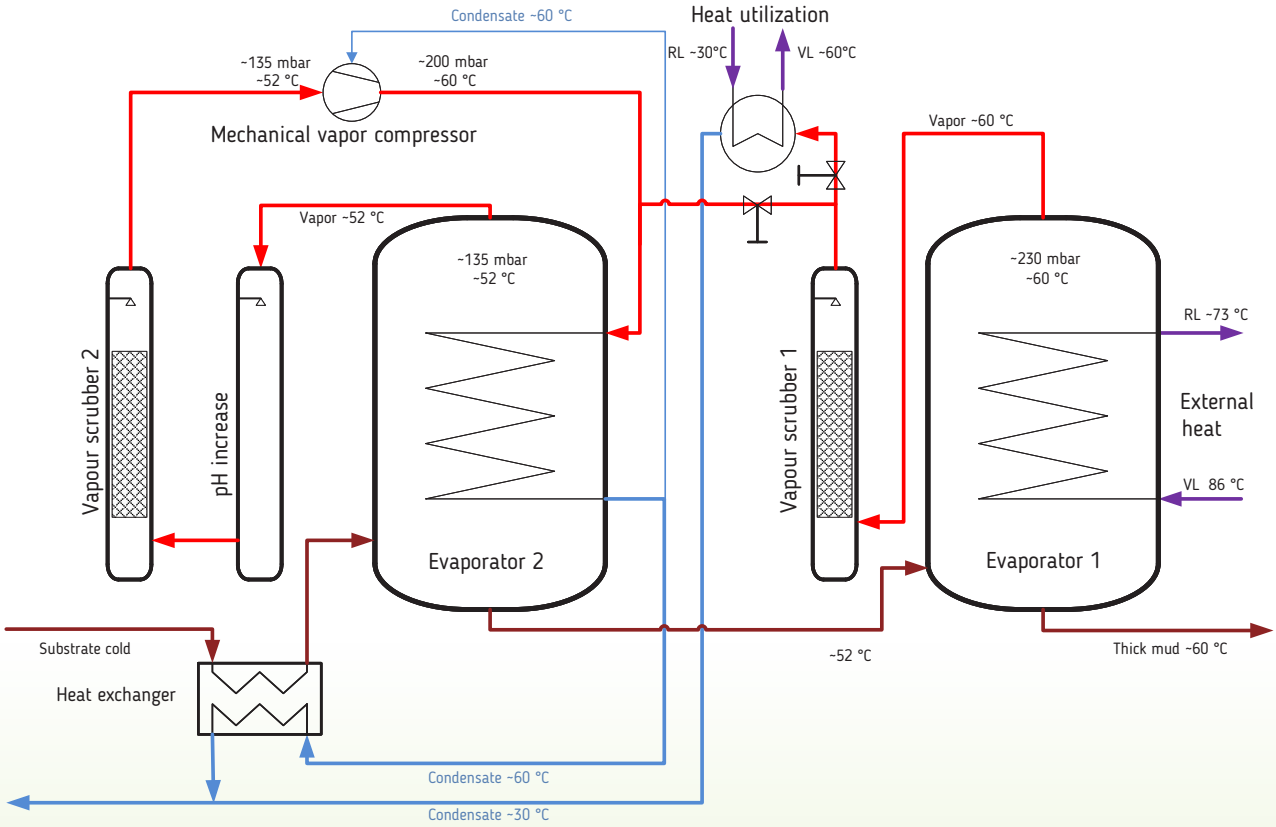
Two-stage fermentation residue evaporation Vapogant with mechanical vapour compressor



Brief process description

First, the contents in evaporator 1 are heated with the available therm. power from the CHP until vapour is produced. Furthermore, the vapour is first used to heat evaporator 2, in which the purified vapour is condensed in evaporator plates located in evaporator 2.

The condensation energy heats the contents of evaporator 2. As soon as vapour is also produced in evaporator 2, the vapour lines can be connected in such a way that the vapour from evaporator 2 is compressed via the mechanical vapour compressor (MBV) and then used as heating vapour for the evaporator 2. The vapour is compressed in the MBV, increasing the temperature. To prevent that superheated vapour is introduced into the evaporator plates, which act as heat exchangers, condensate is injected to cool the compressed vapour.

To ensure that sufficient heating vapour is available for evaporator 2, a portion of the vapour from evaporator 1 can be fed in. The remaining vapour from evaporator 1 is routed via the heat utilisation unit, where it precipitates as condensate. The contained thermal output is decoupled and can be temporarily stored in a heat storage tank or utilised directly.

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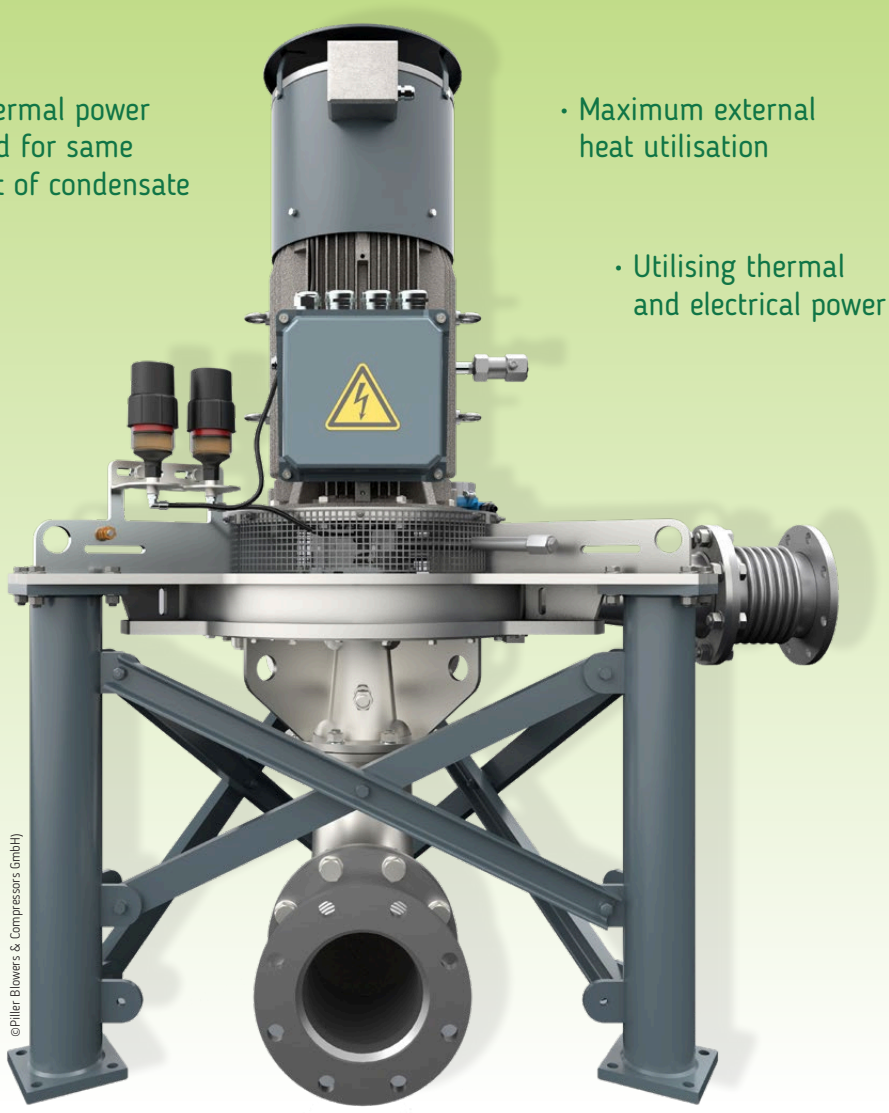
Vaporiser Vapogant

Functionality of the vapour recompressor

- Low thermal power required for same amount of condensate
- Maximum external heat utilisation
- Utilising thermal and electrical power



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