

Demand orientated steam generation from phase change material by using a rotating drum heat exchanger

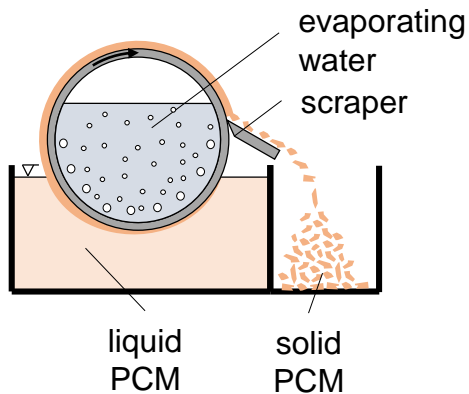
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Rotating Drum Heat Exchanger for Latent Heat Storage

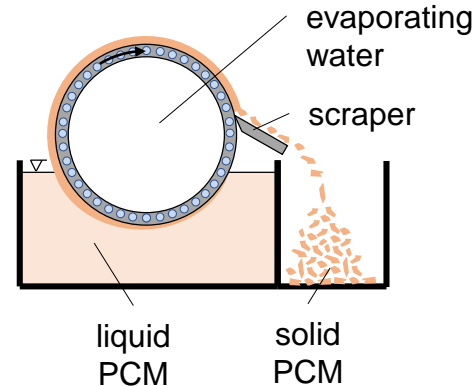
- Active latent heat thermal energy storage
- Minimized layer thickness of solidified PCM results in high heat fluxes
- Separation of power and capacity for high storage capacities
- Temperature of liquid PCM can be raised for higher storage densities
- Successful lab-scale prove of concept with low-temperature PCM

Hollow Drum



Required wall thickness depending on water pressure and drum diameter
 → Limitations in sizing

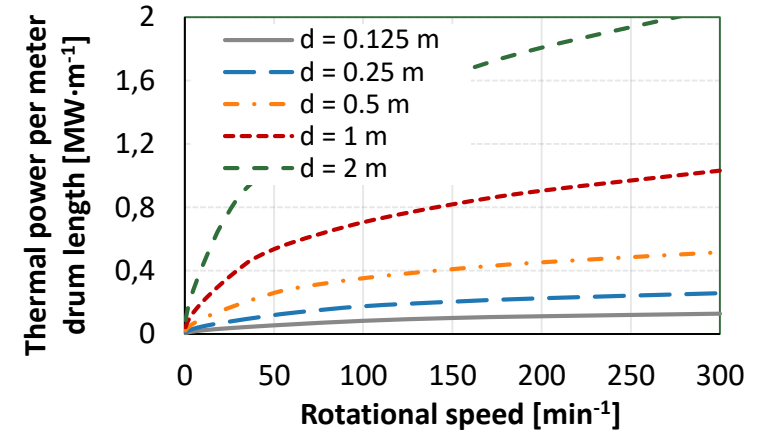
Multiple Channel Drum



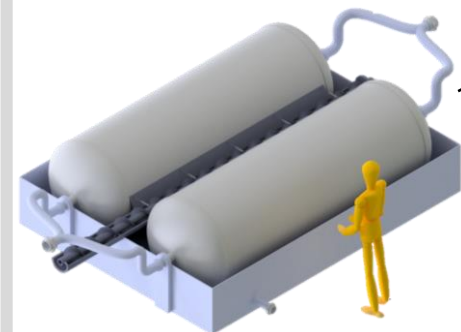
Required wall thickness independent on water pressure and drum diameter
 → No limitations in sizing

Simulated Thermal Power

(Multiple Channel Drum; NaNO₃ as PCM; $\Delta T = 100$ K)



Potential Application



1 MW at $\Delta T = 10$ K
 for Carnot Batteries

6 MW at $\Delta T = 100$ K
 for Process Steam