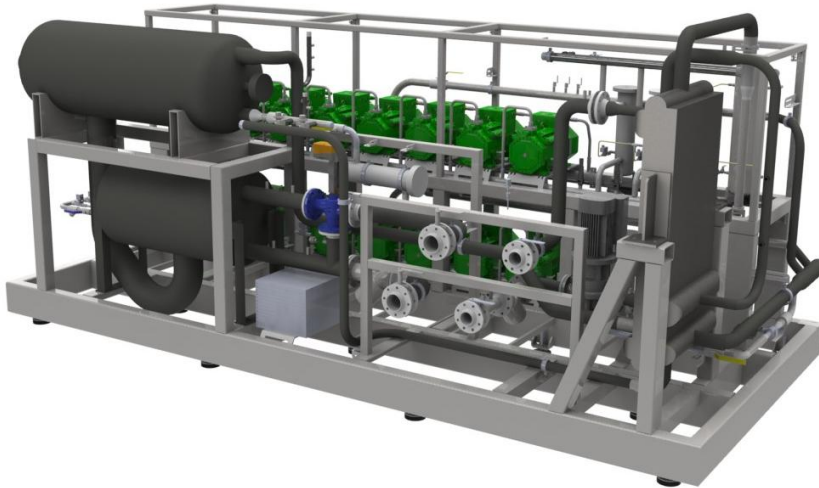


Advansor launches world's biggest CO₂ heat pump

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As part of the Sunstore 4 district heating project in Denmark, the Danish pioneer for CO₂ solutions is launching a 1500 kW heat pump which is supposed to be the largest CO₂ heat pump worldwide.

The heat pump of the large scale 100% renewable energy project for the Danish city of Marstal is designed to fit in with the overall heat production system. The basic function of the heat pump is to boost the temperature of the water returning from the district heating users, meanwhile cooling down a giant 75000 m³ seasonal pit storage. By "moving" energy from the energy storage pit, the CO₂ driven heat pump provides the whole system with greater flexibility in energy output. It consists of 16 compressors - each with a capacity of nearly 100 kW heat production. The heat is being distributed directly to the Marstal district heating system.



Technical Specifications:

- Heat output: 1500 kW
- No. of compressors: 16
- Heat absorbed: 1000 kW
- Temperature district heating forward: 75°C
- Temperature district heating return: 35°C
- Cooling of brine: 10 K
- COP heat: 3,4

Project Specifications

The large-scale district heating system at Marstal, Denmark has been developed with a grant from the EU's Seventh Framework Programme (FP7). The innovative project aims to demonstrate the cost effectiveness and reliability of renewable energy systems incorporating also the CO₂ heat pump from Advansor. The planned yearly production is 28,000 MWh.

Overall the project aims to be cost efficient and in particular meet the vision of the European Solar Thermal Technology Platform (ESTTP) of a cost of 3-6 cent per kWh, a total energy production of €78/MWh thermal, and an investment cost of €33/m³ for the heat storage pit. It is also hoped that the capacity of the latter will be increased through the new application of the heat pump. The total project budget is €15,1 million.