Experimental evaluation of a heat pump-latent storage system for increasing renewable share of the residential stock

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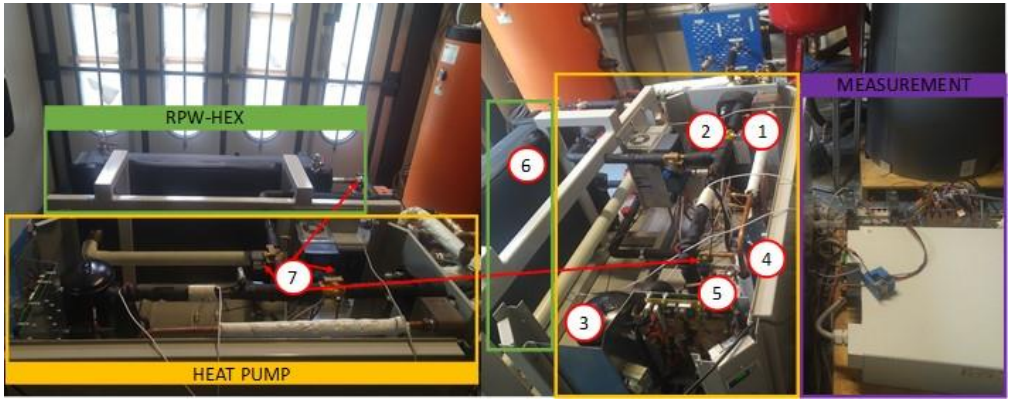
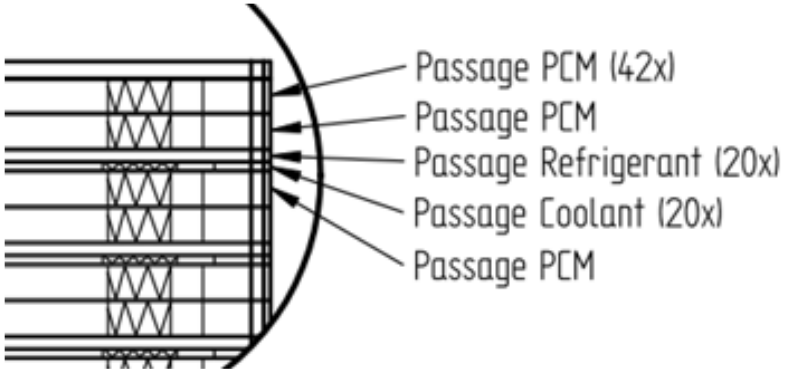
THE SYSTEM TESTED: R410A DC-DRIVEN HEAT PUMP + LATENT STORAGE



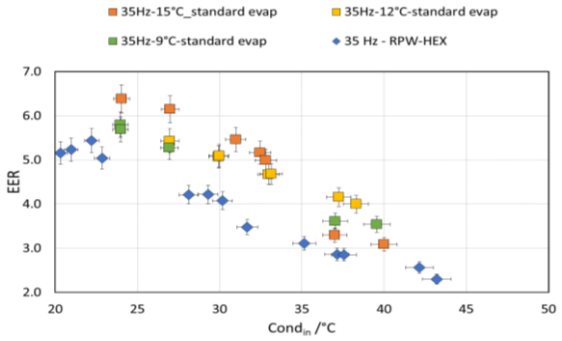
1: condenser, 2: standard evaporator, 3: compressor, 4: liquid receiver, 5: expansion valve, 6: latent storage

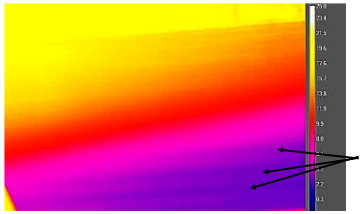
FOCUS ON: LATENT STORAGE



Three-fluid aluminium heat exchanger.
PCM used: RT4 commercial paraffin with nominal melting point of 4°C

TEST RESULTS IN A NUTSHELL





SYSTEM OPTIMIZATION

Performance maps under different operating modes:

- heat pump 2.5 < EER <7.5 ,
- latent storage up to 3 kWh, efficiency >80%
- Discharge power up to 9 kW

LEARN MORE ABOUT OUR RESEARCH:

V. Palomba

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Our published papers: read them if you want to know more!

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