Future Refrigeration India: INDEE+

Maritime Demosite

Onboard Refrigeration System for Preserving Fish on Small Fishing Boats

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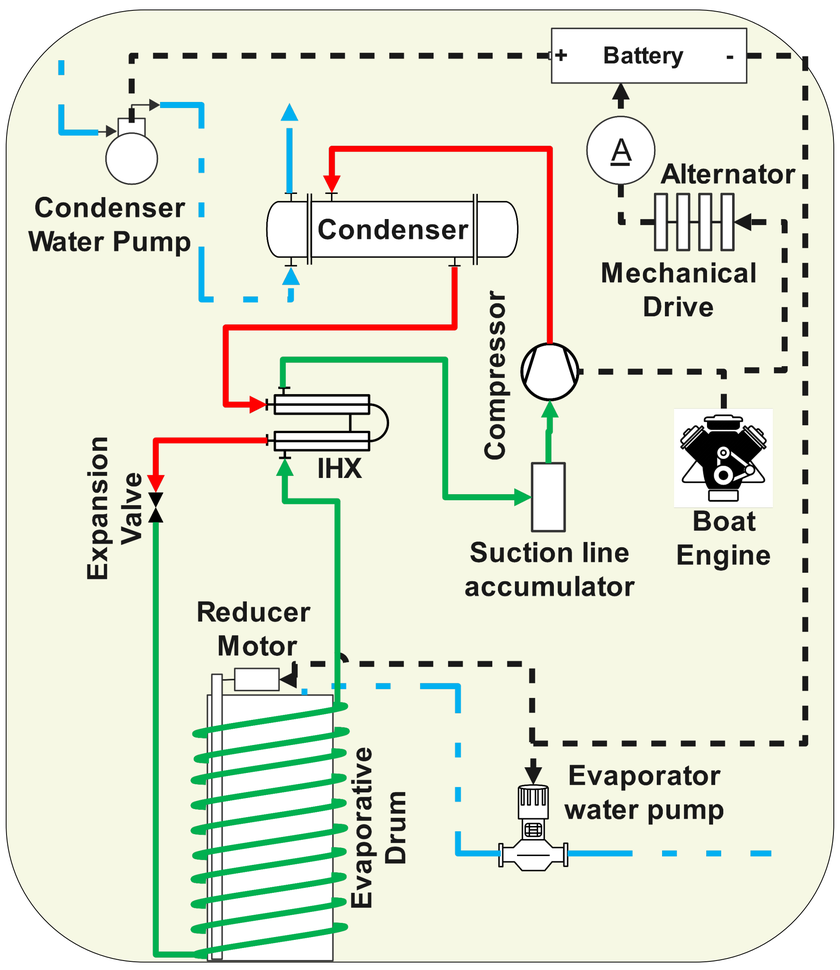
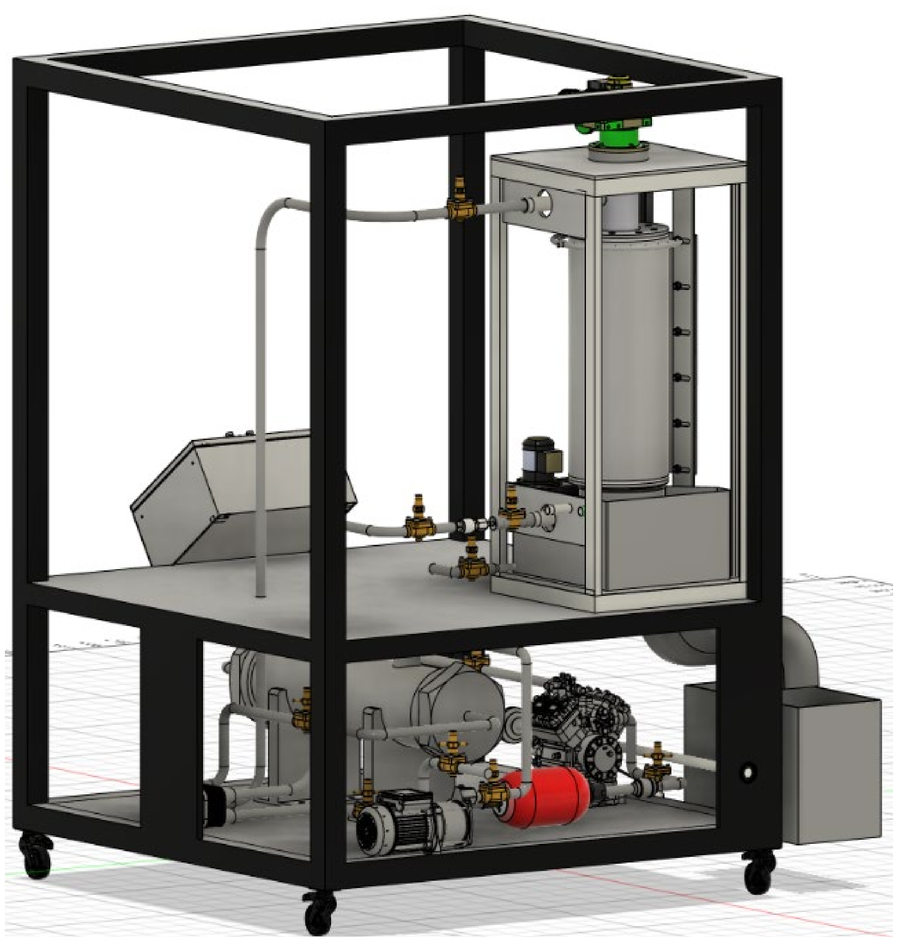
Perspective: Ensuring Fish Quality and Sustainability for Small Fishing Boats in India

- Small motorized fishing boats in India rely on crushed ice from shore to preserve their catch.
- Ice availability is inconsistent, leading to shortages or excessive use.
- Shortages compromise fish quality, while excess ice reduces catch capacity.
- These challenges result in significant economic and environmental impacts.
- An onboard refrigeration system is crucial for:
  - Maintaining fish quality and freshness.
  - Minimizing waste and spoilage.
  - Reducing carbon emissions and promoting sustainability.

Schematic of the system



Embodiment design



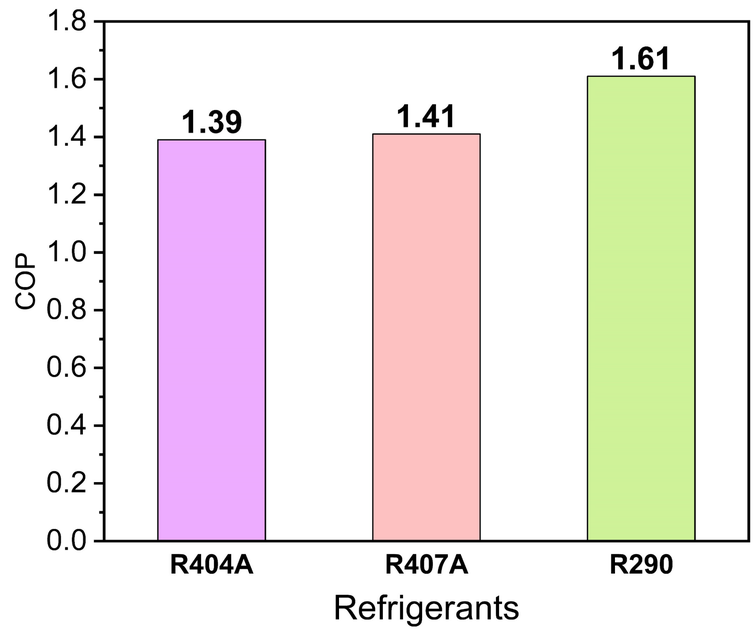
Compressor: Open type, driven by boat propeller shaft

Sealing and compressor oil is changed to use propane as a refrigerant

Electronic clutch is used to connect with boat propeller

COP of the systems

Refrigerant	class	GWP	NBP (°C)	T_{crit} (°C)	P_{crit} (MPa)	Ref. capacity (at -25 °C) (kJ/kg)
R290	HC	0.07	-42.1	96.7	4.25	406.8
R404A	HFC	3943	-46.3	72.2	3.73	185.9
R407A	HFC	2100	-45.5	83	4.54	219.3



Go Natural and apply Clean Cooling/Heating Systems