

WATER DESALINATION SYSTEM WITH LOW ENERGY CONSUMPTION AND HIGH PRODUCTION FLUX



INVENTION

This invention integrates sweeping gas membrane distillation (SGMD) with bubble column dehumidifier (BCD) for desalination of water. A lab scale desalination device was designed, fabricated, and tested.

MARKET SIZE AND GROWTH

The global water desalination equipment market value was USD 13.12 billion in 2020. It is expected to grow by 7.1% in 2028¹.

The Middle East and Africa led the market in 2020. Key market players are Acciona, Doosan, Veolia, SUEZ, Xylem, Aquatech, Biwater Holdings, and Guangzhou KangYang Desalination.

Market drivers include: Increasing water consumption, rising water scarcity, population growth, rapid industrialization and urbanization, government support for infrastructure development, rising investments to enhance logistical connectivity,

APPLICATIONS

The technology is useful for purification and desalination of sea water and brackish water. It can be adapted for flexible, small or large scale water desalination in remote areas or town.

ADVANTAGES

- Simple design and low cost materials
- Requires less maintenance
- Can be easily integrated with solar as energy source
- Easy to scale up

PROJECT STATUS

- Laboratory work such as design, manufacturing, and testing of a lab model desalination plant has been performed.
- Production rate of 60 kg/m².h, energy consumption of 2000 kWh/m³, and other features were determined.

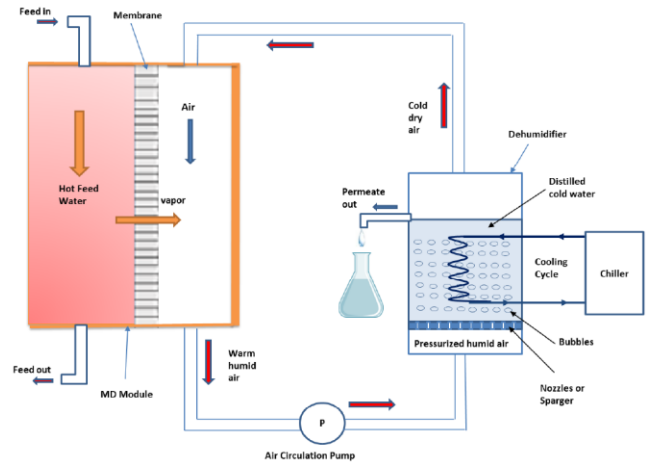


Fig. Membrane distillation desalination device with bubble column dehumidifier

LOOKING FOR DEVELOPMENT PARTNER

We are looking for industry feedback on performance metrics and testing of the current technology with any benchmark.

We are also looking for a company who can partner with us to develop the technology readiness level of this invention including to perform energy efficiency and economic analysis for scaling up the process.

Our ultimate objective is to license the intellectual property (IP) to a company for commercialization.

PATENT PROTECTION

A patent application 16137018 covering this method and apparatus was filed in US. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

ABOUT KFUPM

KFUPM is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 163 in QS World University Rankings 2021. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to market place.

¹ Water Desalination Equipment Market Size, Grand View Research, 2020 - 2028

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