

## Test method of seawater desalination plant based on information fusion

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### ABSTRACT

In order to reduce the energy consumption of seawater desalination, this paper proposes an operation test method of seawater desalination device based on information fusion. Based on the theoretical analysis and calculation of energy consumption of seawater desalination system, the influences of feed water salinity, recovery rate, energy recovery device, high-pressure water pump and other factors on energy consumption and water quality of seawater desalination system are analyzed. An energy-saving integrated desalination process with differential pressure exchange energy recovery device is proposed, and a differential pressure exchange energy source matching with a small desalination system is independently developed. The results show that the produced water quality of the desalination device basically meets the design requirements, and the energy consumption of the motor and pump is only 2.0 kWh/m<sup>3</sup> without considering the loss of the motor and pump, which can greatly reduce the water production energy consumption of the system, and has a certain application value.

*Keywords:* Information fusion; Desalination plant; Running test method

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