

FLOATING MECHANICAL WAVE ENERGY CONVERTER

IITM Technology Available for Licensing

Design

- Waves carry a lot of energy with it in the form of **kinetic energy across its surface which can be utilized for generating electricity**
- Though there are devices (wave energy converters) in this domain to capture the energy, **very few are commercially viable.**
- Hydrodynamic power** (energy content in the waves) is **captured initially by a structural entity** which is then **converted to electricity** through various mechanisms **such as mechanical, hydraulic, pneumatic, electro-magnetic systems.**
- A bean shaped multi body floating mechanical wave energy converter device** is analyzed, designed and developed in four configurations of – three bean, four bean, six bean, eight bean and torus shapes.

Intellectual Property

- IITM IDF Ref.1979
- IN 326436-001 Design Registered**

Class of Design

Class- 13: Equipment for production, distribution or transformation of electricity (conversion of ocean wave energy to electricity)

Technology Category/ Market

Category- Design

Industry Classification:

- NIC (2008)- 35106-** Electric power generation using other non conventional sources; **2710-** Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus.

Applications:

Offshore wave energy generation

Market drivers:

The global renewable energy market size was estimated at USD 1.21 trillion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 17.2% from 2024 to 2030.

Research Lab

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Design

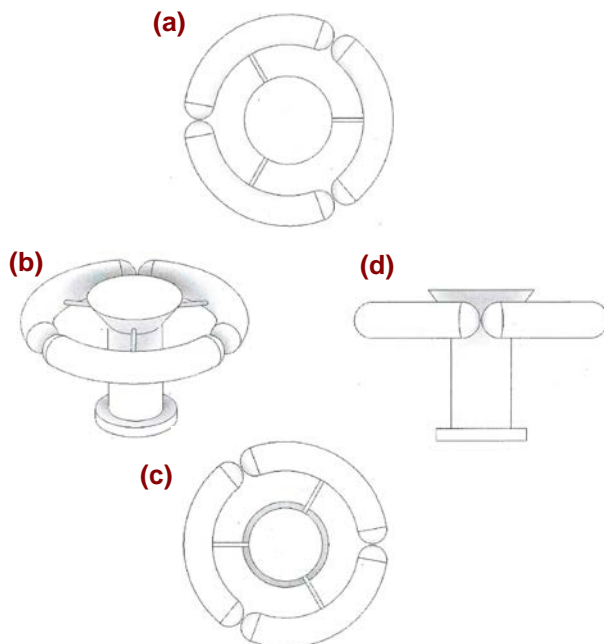


Figure: Description of the three bean shaped floats for a wave energy converter with (a) top view; (b) perspective view; (c) bottom view and (d) side view

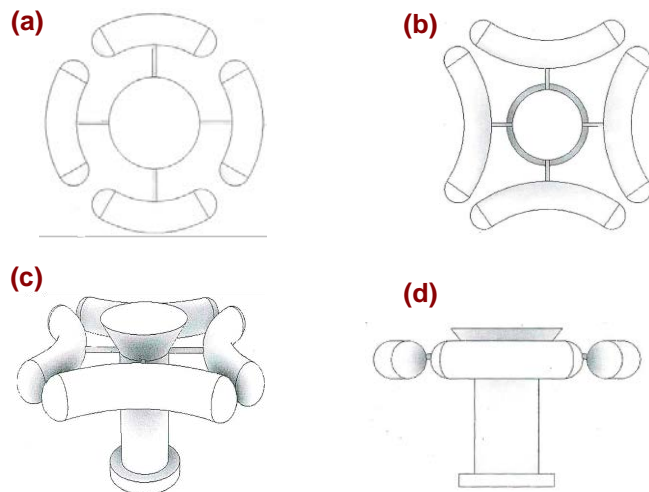


Figure: Description of the four bean shaped floats for a wave energy converter with (a) top view of four bean shaped floats; (b) top view of inverted four bean shape floats; (c) perspective view of inverted four bean shaped floats (d) side view of four bean shaped floats

CONTACT US

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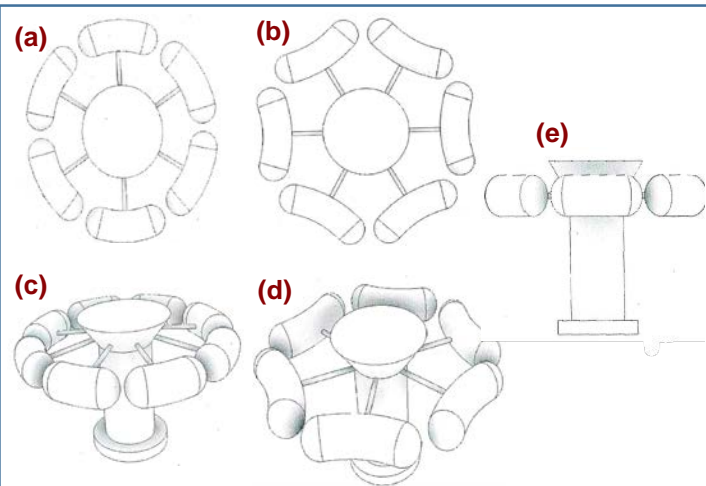


Figure: Description of the six bean shaped floats for a wave energy converter with (a) top view of six bean shaped floats; (b) top view of inverted six bean shape floats; (c) perspective view of six bean shaped floats (d) perspective view of inverted six bean shaped floats (e) six bean shaped floats in side view

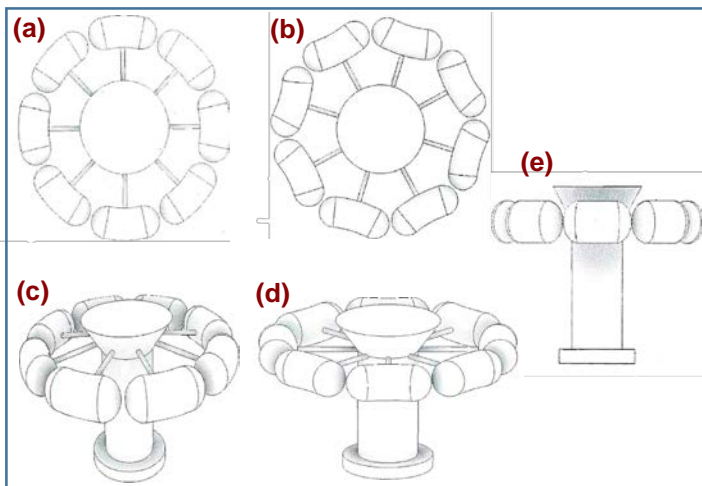


Figure: Description of the eight bean shaped floats for a wave energy converter with (a) top view of eight bean shaped floats; (b) top view of inverted eight bean shape floats; (c) perspective view of six bean shaped floats (d) perspective view of inverted eight bean shaped floats (e) eight bean shaped floats in side view

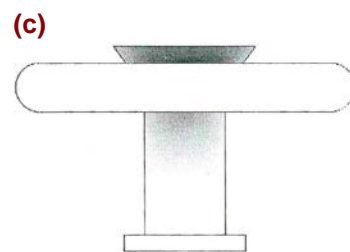
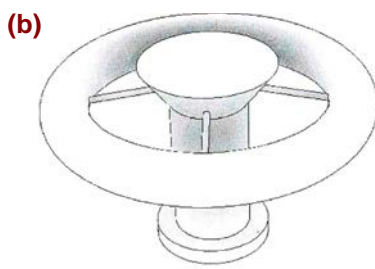
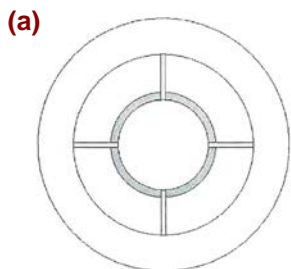


Figure: Description of the torus shaped float for a wave energy converter with (a) top-view of the torus shaped float; (b) perspective view of the torus shaped float and (c) side-view of the torus shaped float

Advantages of the design

- Compared to conventional designs the developed design can produce electricity irrespective of ocean wave direction.
- Individual devices can be connected in group to make it a cluster of devices which makes the grid fluctuations smoother.

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