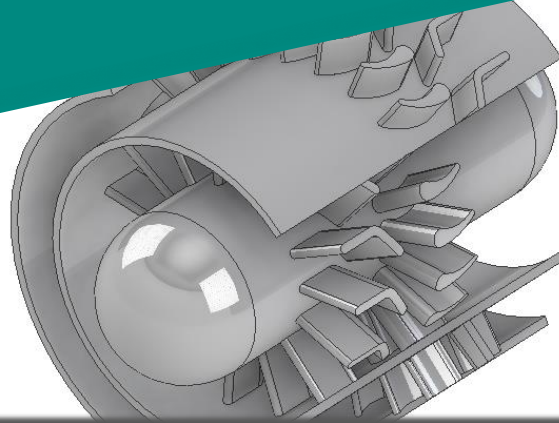




# OWC TURBINE FOR BIDIRECTIONAL FLOW

## TECHNOLOGY OFFER



### COMPETITIVE ADVANTAGES

- ✓ Very efficient and compact equipment, unlike current options.
- ✓ System with a long service life since it consists of the minimum possible mobile elements.
- ✓ Cost efficient system since it avoids the problem of equipment duplicity.
- ✓ System easy to implement, because it needs less civil work than many of the alternatives currently on the market.

### PATENTS

ES patent applied.  
In time to seek international patent protection.

### TYPE OF COLLABORATION

Licence agreement.

### INNOVATIVE ASPECTS

- ✓ It unites in a single device two twin unidirectional turbines, with the consequent reduction of necessary auxiliary equipment (generator, mechanical and hydraulic components...), resulting in a more compact system.
- ✓ Its innovative blade design allows blocking flow channels alternately and optimising the generated energy.
- ✓ It provides higher efficiencies than conventional bidirectional turbines, maximizing the system performance.
- ✓ The patent protects some interesting embodiments as radial or axial configuration or multiple blade crowns, to even improve more efficiency.

### ABSTRACT

Researchers from Universidad de Oviedo have developed a new high efficiency turbine suitable for recover wave energy, which can continuously work with alternative bidirectional flows.

The turbine for bidirectional flow comprises two crowns of blades integrated in the same rotor, so that one of them produces power while the other performs an aerodynamic blockage of the flow.

The main components of this system are: (A) Two crowns of blades integrated in the same rotor. The blades of each crown are oriented in a specular manner, so that each of them has the leading edge facing one of the two directions of flow respectively; (B) An outer duct that contains the turbine; (C) A nucleus that deflects the flow; and (D) An internal wall that sets two flow channels, where one flow is blocked and the other produces power.

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