



ISTANBUL, TÜRKİYE, MAY 2022- Marketing

*Fish-friendly technology that does not disturb the balance of the region...*

## **The era of environmentally friendly energy with the Archimedes Screw**



**YEO, one of Türkiye's leading engineering and technology companies, in cooperation with its subsidiary Mikrohes, offers a renewable energy system that is completely environmentally friendly. With the Archimedes Screw turbine, energy can be produced from a stream of water with low flow and head. The system, which is nature and fish friendly, is shown as the technology of the future in this field as a zero-carbon method that does not disturb the balance of the region...**

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YEO, one of Türkiye's leading technology and engineering companies, offers environmentally friendly renewable energy systems of the future with its subsidiary Mikrohes. With the Archimedes Screw turbine produced by Mikrohes, **energy** can be produced **even in low-flow waters**. The **green and fish-friendly** system is known as **a zero-carbon method that does not disturb the balance of the respective region**.

### **How does the Archimedes Screw work?**

The Archimedes Screw works on **the principle of weight**. The weight of the water in each section exerts a rotational force on the screw shaft and blades, allowing the screw to generate energy by turning the generator shaft.

### **Where can it be used?**

The Archimedes Screw system can be installed in all streams and rivers with a water flow rate of 0.1-10 (m<sup>3</sup>/sec) and an elevation difference of 1-10 (meters), in the tailwater and lifewater sections of hydroelectric power plants, inlet and outlet structures of treatment plants, weirs, idle hydroelectric power plants, industrial water-cooling system outlets of factories, and fish farms.

### **Electricity for 600 households with a single screw**

Any public legal entity **that wants to generate its own electricity and sell the surplus** can install a plant at low cost within the scope of unlicensed electricity generation. Hydroelectric power generation plants built and commissioned by the private sector can request a capacity increase within the scope of the licensed electricity generation regulation by integrating hydrokinetic units on water delivery channels in order to benefit from the idle hydroelectric energy potential of the water delivery channels of a facility in operation, any standalone water delivery channels and/or tailwater channels. It can also be integrated into the cooling water systems of industrial factories to provide specific carbon emissions for gains both in terms of electrical **energy efficiency** and **carbon emissions**.

For instance, a 300 kW system operating for an average of 6000 hours a year will meet **the electricity needs of 600 households** or generate 250 thousand dollars of profit. Currently, Mikrohes has started to generate energy in Sakarya-Sapanca, Çorum, and Bayburt. With the energy it generates, it can meet the electricity needs of thousands of households. It aims to be an important player not only in Türkiye but also in the global market through YEO's extensive business development networks.

### **No damage on the ecological balance**

This nature and fish friendly system does not separate the water from its bed, and it cleans the water as it increases the amount of oxygen in the water. Fish can move through the system without being harmed. The system does not require lifewater and fishway. It does not harm the trees and vegetation in the area. It offers the advantage of less excavation and less reinforced concrete construction. Moreover, it contributes to the preservation of the historical texture and ecological order.

Reliable in continuous electricity generation, the Archimedes Screw will continue to generate electricity at high efficiency even if the project water flow rate decreases by 80 percent or increases by 20 percent. The screws operate all year round and do not experience freezing or flooding problems. It also stands out with an investment return period of three to seven years. With features such as fast installation, high efficiency, low cost, and long working life, it produces the clean energy of the future without disturbing the ecological balance.

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#itspossible

Founded in 2010, **Mikrohes** undertook the goal of becoming an efficient designer and contractor in the renewable energy market. As of 2013, it has become one of the **leading companies in Türkiye** in the field of research and development of renewable and alternative energy production techniques with its R&D and innovation works. Mikrohes, whose majority of shares were transferred to YEO in 2021, continues to grow.

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