

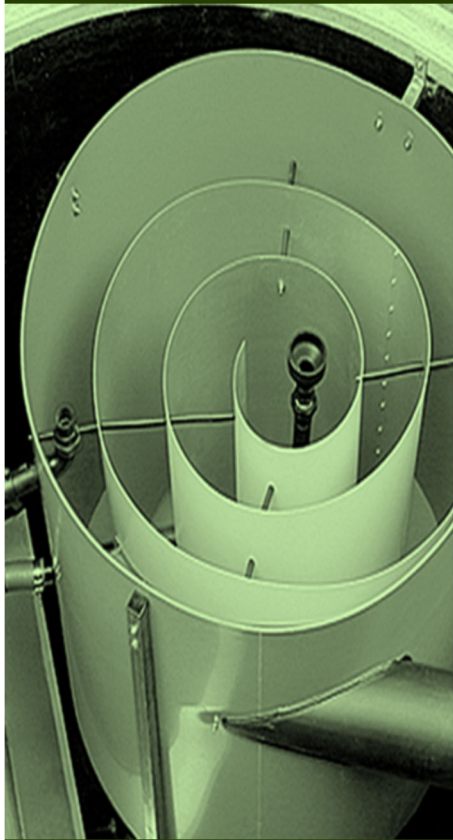
# Azar Energy Spiral Separator



For industrial waste water application



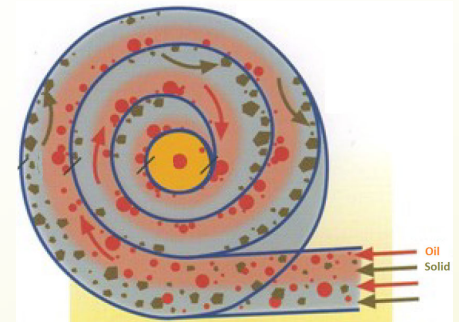
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Azar Energy Spiral Separator simulates the natural water power resources for self-cleaning by energetic rotative streams. Oil, sludge and water are simultaneously separated and automatically discharged.

## Basic Principle

- The mixture enters Azar Energy Spiral Separators.
- A spinning vortex is created by entering the oily water tangentially into a cone-shaped separator. This creates a powerful centrifugal force, that accelerates as it moves down the cone.

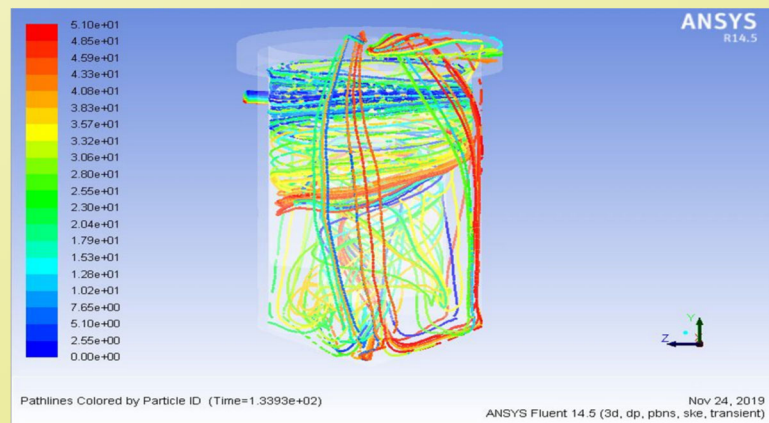
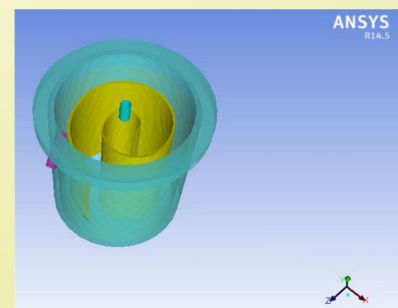
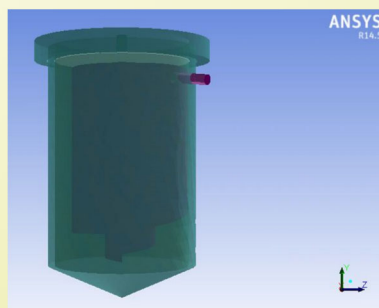


## How does Azar Energy Spiral Separator work?

- The centripetal separation of oil accumulates oil globules at the inner wall. They will grow, get lighter, rise to the surface and flow out.
- The mechanically pre-cleaned water flows over a circular weir to the outlet.
- The sludge will be disposal from the bottom.

## Simulation

On the basis of this principle several spiral profiles and sizes were developed. With the aid of hydrodynamic model calculations (CFD) and various intensive practical tests the most efficient profiles were found.



## Advantageous

- simultaneous separation of oil, sludge and water
- minimize disposal cost
- maintenance free

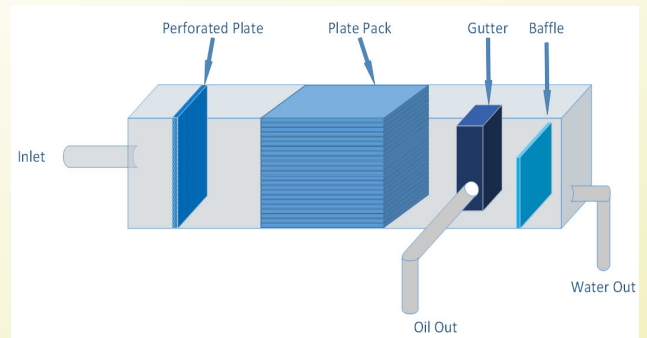


## Spiral Separator vs. API Separator

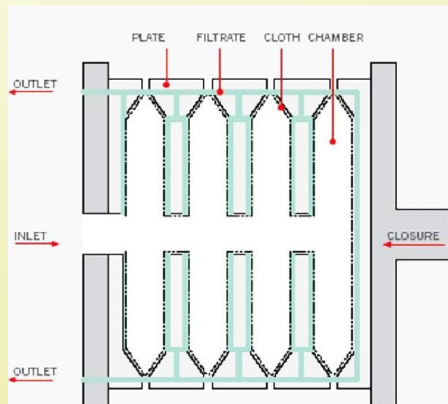
	SPIRAL SEPARATOR	API SEPARATOR
Installation Cost	Moderate	High
Operation Cost	Low	Moderate
Cost to pump out the sludge	Low	High
Size	Small	Large
Environmental Problems	-	High
Oil droplet removed ( $\mu\text{m}$ )	<80	150

## Optional Offer to Increase Efficiency

To increase efficiency, after main separation (Azar Energy Spiral Separator), it is needed to pass oil and water through a horizontal two-phase settler. The settler consists of three compartments: Inlet compartment, settling compartment and Outlet compartment containing the outlet nozzles.



## Optional Offer to Dewatering the Sludge

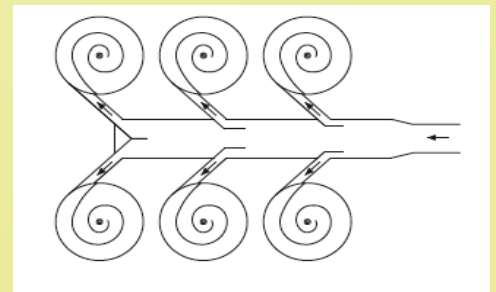


The sludge enters into the Filter Press via a diaphragm pump that is plumbed to the center pipe. When the plates are closed, the sludge accumulates in the cavity between the plates.

The filtered water exits through the filter cloth and returns to the beginning of the cycle mixing with feed. Filter Press plates are opened by a hydraulic jack to separate the cake from the filter cloth

## Parallel Systems

In industry effluent flows will vary widely. This can exceed the max. permissible flow of a single separator. To cope with the flow more Spiral Separators can be installed in parallel.





## About Us

Azar Energy Co. is a manufacturer of Oil, gas, refining and petrochemical equipment. The company specializes in the design as well as manufacturing, production and installation thanks to its experienced and professional personnel, modern machinery. With 30 years in the business and hundreds of completed projects we have grown to become a national leader in the oil industry. Our aim is to produce high quality products complying with the international standards and feasible price along with continuous improvement in



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