

A piggy bank on the left and an alarm clock on the right, both set against a blue background. The piggy bank is yellow and green, and the alarm clock is silver and white.

So, would you like to save time and money?

Then switch to Fenix HiVac™ Heat Exchanger.

Choosing our efficient design which provides high heat transfer rate with low maintenance will save you considerable time and money.

## HiVac™ Heat Exchanger

For deodorization and physical refining of fats and oils

### Application

This highly efficient heat exchanger is specially designed to recover heat in the deodorized oil by using cold bleached oil in deodorizing and physical refining plants. Cooling is done under vacuum while steam is purged simultaneously. The HiVac™ Heat Exchanger is a part of the Fenix Eco<sup>2</sup>Flex™ Deodorization concept, but can also be used as a retrofit component for any other deodorizer irrespective of make, for efficient heat recovery and enhancement of plant capacity.



### Working Principle

The deodorized oil to be cooled enters the HiVac Heat Exchanger at one end of the shell side, and flows through a rectangular flow channels and baffles until it reaches the outlet at the other end. It is then pumped out for final cooling and storage. The incoming oil to be heated enters the HiVac™ Heat Exchanger on the tube side under pressure and flows through a multi pass tube system. The sparge steam is injected through perforated tubes located on the bottom of the shell, below the heating tubes.

Counter current flow between the incoming oil and deodorized oil is achieved by the special design of the tubes and baffles. To empty the shell side, drain valves are installed on the bottom and the tube side is available with optional drain valves.

## Design Features

The HiVac™ Heat Exchanger is designed to achieve a high level of heat recovery by cooling the deodorized oil under vacuum and sparge steam conditions, while heating the incoming bleached oil. Under full sparge steam conditions, this gradual cooling means the oil undergoes gentle treatment resulting in improved quality. Steam acts as stripping agent to remove volatiles that might have formed and to improve the heat transfer rate.

The sparge steam pipes are removable in design thus facilitating easy cleaning and maintenance. Specially designed entrainment arrester installed within the heat exchanger minimizes the oil carry over.

The large heat exchange surface and the counter current flow result in a very high heat transfer rate, which normally means a high level of heat recovery, depending on the size, application and operating parameters. The low liquid level and flow channel system with vertical and horizontal baffles ensure that the oil follows in the desired path and remains inside the Heat Exchanger for the required time. In the last channel, there is a provision for dosing antioxidant, where the oil is under vacuum and at a lower temperature. The tube side is designed for turbulent flow to increase the heat transfer effect.

The shell side is equipped with sight glasses.

## Technical Specifications

Operating temperature: Up to 275°C

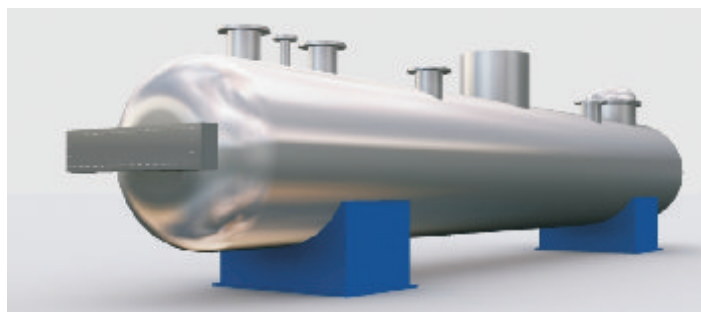
Pressure on the tube side: Up to 8 barg

Pressure on the shell side: Full vacuum

## Material

Shell: AISI 304

Tubes: AISI 316 / 304



## Fenix Process Technologies Pvt. Ltd.

K 6/1, Malini  
Erandwane Co-op. Housing Society  
Near Mangeshkar Hospital  
Opp. Sevasadan School  
Erandwane, Pune - 411004  
India.

Tel. No.: +91 20 65008772 / 73

Fax No.: +91 20 25458454

Email: [info@fenix.in](mailto:info@fenix.in)

Web: [www.fenix.in](http://www.fenix.in)