

## The Next-Generation Spiral Heat Exchanger

Introducing

**K-SPEX**

Are You Facing Frequent  
Fouling And Clogging Issues?

Do You Require A More Compact  
Heat Exchanger?

Looking To Recover Maximum Heat?



# Spiral heat exchanger

Kinam introduces its new range of sophisticated Spiral Heat Exchangers. Our robust design facilitates not only lower maintenance costs & down time, but also ensures higher return on investment resulting in a shorter payback time.



## What are Spiral Heat Exchangers?

Spiral HEs are circular units containing two concentric spiral flow channels, one for each fluid. One fluid enters the center of the unit and flows towards the periphery where as the other fluid enters the unit at the periphery and moves towards the center. It results in a pure counter-current flow, thus providing higher heat transfer rates.

K-SPEX is manufactured in the following configurations:

1. Fully Welded - For Clean Service
2. Openable - For Dirty Service

Our Spiral Heat Exchangers are well suited for several industries including Chemical, Petroleum, Petro-chemical, Agrochemical, Pharmaceutical, Veg-Oil Processing, Paper & Pulp, Paint and Waste Water Treatment.



## Applications where Spiral Heat Exchangers are used

- Liquid\Liquid - Heating, Preheating, Cooling, Interchanging.
- Vapor\Liquid - Top Condenser, Reflux Condenser, Vacuum Condenser, Vent Condenser, Re-boiler, Etc.

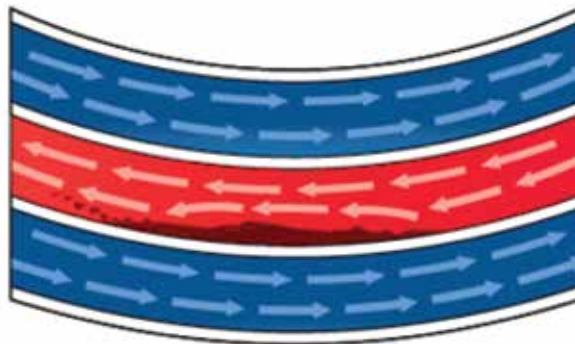
## Special cases where Spiral Heat Exchangers are preferred

- Fouling Liquids containing suspended solids and fibers
- Highly Viscous Fluids like thick Liquors, slurries and sludges
- Heat Recovery Applications like vegetable oil heat recovery, black liquor / white liquor heat recovery, flash steam heat recovery etc.

## Advantages:

- **Self Cleaning:**

As the flow in K-SPEX is a fully developed turbulent flow, the continuous curving flow channel causes a self cleaning effect that prevents deposition fouling.



Self Cleaning Effect

- **High Heat Transfer Rates:**

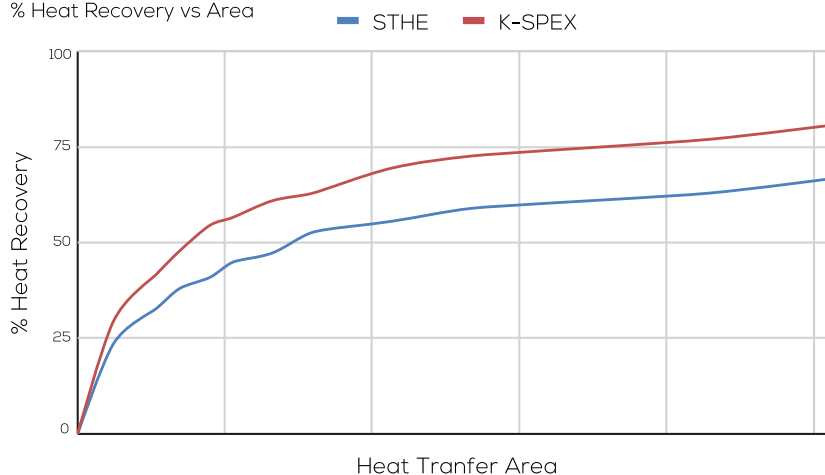
With studs and curvature of the single-channel promoting turbulent flow, K-SPEX can give twice the heat transfer coefficient when compared to Shell and Tube. A high heat transfer rate allows K-SPEX to be more compact in terms of area and volume.

- **High Percentage of Heat Recovery:**

The continuously curved flow channels and studs produce high turbulence, thereby enhancing Heat Transfer Coefficient. With practically 100% counter-current flow, K-SPEX has a high degree of heat recovery than the conventional STHE (Comparison of the 2 for reference as shown below)

STHE vs K-SPEX





% Heat Recovery vs Area



- **Suitable for High Vacuum Applications & Highly Viscous fluids:**

The single flow channel & reduced fouling result in achieving very low-pressure drops in vacuum operations. K-SPEX's unique design and reduced deposition fouling facilitates efficient handling of highly viscous fluids with lower maintenance requirement in a compact size.

# K-SPEX compared to conventional Heat Exchangers

	Shell & Tube Heat Exchanger	Gasketed Plate Heat Exchanger	Welded Plate Heat Exchanger	K-SPEX Heat Exchanger
				
Two-Phase Applications	+	-	-	+
Close Temperature Approach	-	+	+	+
Operating Pressure	++	-	+	+
Products with Solid Particles	+	-	-	++
Products with High Viscosity	+	-	-	++
Uniform Temp Distribution	-	+	+	++
Smaller Footprint	-	+	+	+
Less Deposition Fouling	-	+	+	++
High Heat Transfer Coefficient	-	+	+	+

## OTHER PRODUCTS BY KINAM:



### Shell & Tube Heat Exchanger:

The most conventional type of heat exchanger suitable for high temperature and high pressure conditions.



### KICC Corrugated Tube Heat Exchanger:

Enhanced corrugated tube heat exchanger offering higher heat transfer coefficient resulting in a compact and economical heat exchanger.



### KIC-Box Condenser:

Corrugated tube Box type condenser specifically made for the needs of the Pharmaceutical industry.

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