The concept
The HELIXCHANGER® heat exchanger is a helically baffled shell and tube heat exchanger. Each baffle occupies about one quadrant of the cross section and is inclined with the centerline of the exchanger. Successive baffles are arranged as guide-vanes to create continuous helical and near plug-flow conditions on the shellside.

Advantages
Compared with conventional perpendicular segmentally baffled shell and tube heat exchangers, HELIXCHANGER heat exchangers offer the following advantages:

- Enhanced heat transfer
- Lower shellside pressure drop
- Reduced investment costs
- Increased process capacity
- Lower shellside fouling
- Extended run-length and service life
- Reduced vibration hazards
- Reduced maintenance costs

Applications
HELIXCHANGER heat exchangers are best suited for services in which the shellside heat transfer coefficient plays a determining role and/or shellside pressure drop is controlling, where reduced shellside fouling is desired, and also when flow-induced vibrations are a concern. Shellside media may range from hydrogen-rich gas to water or viscous fluids with high fouling tendencies, in single-phase or two-phase flow. HELIXCHANGER heat exchangers can be designed with TEMA E, J or special multi-pass shells with multi-pass tube bundles.

Applications are in the gas processing, refining, petrochemical and chemical industries, as well as the power, food and pharmaceutical industries. Some examples are:

- Crude preheat exchangers
- Feed preheaters
- Oil coolers
- Process gas coolers
- Compressor aftercoolers
- Reactor feed-effluent exchangers
- Overhead condensers
- Column reboilers

HELIXCHANGER heat exchangers provide substantial cost benefits for new plants and for revamps of existing units. Reductions in surface area of up to 30%, with smaller size or fewer number of shells, can be achieved. This provides significant savings in capital costs, piping/structural costs and plot space. HELIXCHANGER heat exchangers are particularly suited for plant revamps. Increases in process capacity of up to 40% can be achieved with replacement HELIXCHANGER bundles while also reducing maintenance requirements. Reuse of existing shells and piping provides significant savings in investment costs.

End user benefits
- Capital cost savings – typically 20%
- Increased process capacity of up to 40%
- Extended run-lengths of up to 3-4 times
- Lower energy costs, pumping costs and downstream heating costs
- Reduced maintenance costs
- Lower total life cycle costs

HELIXCHANGER configurations
- HELIFIN® Heat Exchanger
  - HELIXCHANGER heat exchanger with low-finned tubes
- HELITOWER Heat Exchanger
  - "Texas-Tower" exchanger with HELIXCHANGER baffles, or HELIXCHANGER heat exchanger used in a vertical feed/effluent exchanger application
- HELITUBE Heat Exchanger
- HELIXCHANGER heat exchanger with tube-inserts
- HELILOCK Heat Exchanger
- HELIXCHANGER heat exchanger with Lummus Advanced Breech-Lock Exchanger® (LABLEX™) channel closure.

Customer service
Lummus Technology Heat Transfer provides design engineering and supplies HELIXCHANGER heat exchangers through a global network of qualified licensed fabricators. If you are considering a revamp of an existing plant or planning a grassroots plant, please contact us by email at helix@CBI.com to review how these advancements can work to your benefit.