SPINTUBE™ Replacement Bundles

A Chart Industries Company

Enhanced performance of TEMA type shell and tube heat exchangers

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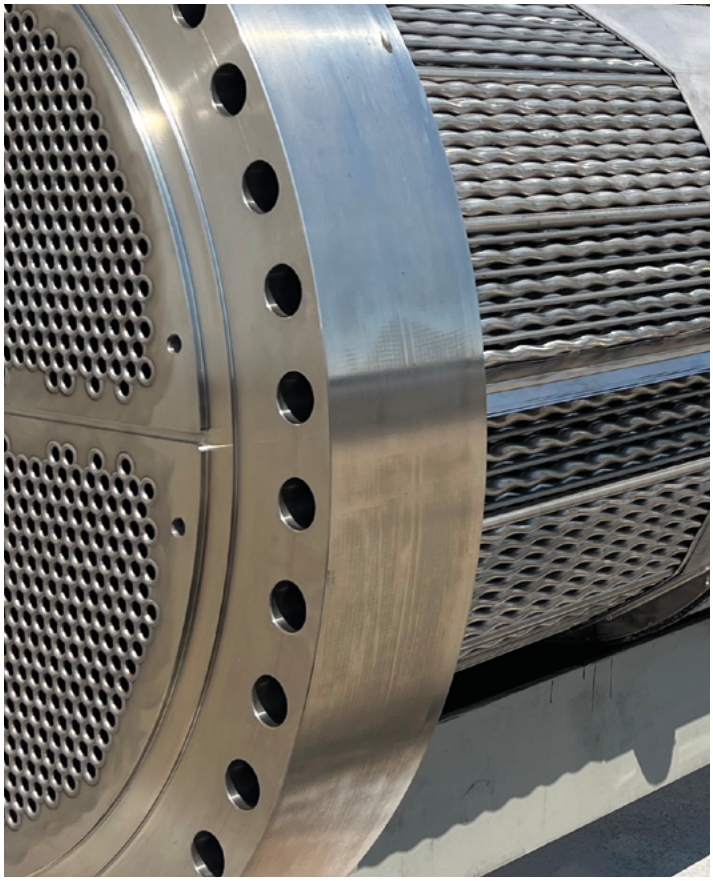


Enhance the performance of TEMA type shell and tube heat exchangers by retro-fitting SPINTUBE replacement bundles.

Whether it's a debottlenecking project or new installation, SPINTUBE:

- Increases heat transfer area, performance, and thermal efficiency
- Reduces pressure drop, mitigates fouling and eliminates tube vibrations
- Replaces conventional tube bundles to fit into the existing shell without plant lay-out modification
- Minimizes energy consuption, lowering overall plant CO_2 emissions

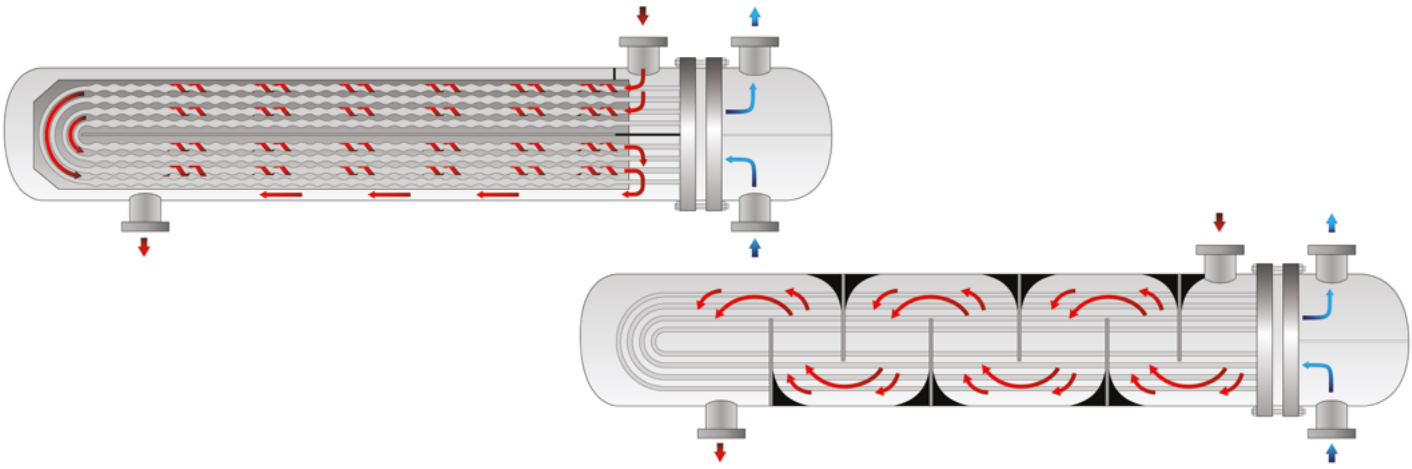
SPINTUBE bundles are particularly beneficial in plant upgrades and are compatible with any cross-flow or longitudinal bundle configuration.

Shell-side Longitudinal vs. Cross Flow

- Longitudinal flow in SPINTUBE minimizes recirculations and bypasses, resulting in better heat exchanger thermal efficiency
- Compared to conventional cross flow exchangers with segmental baffles, SPINTUBE provides a lower shell side pressure drop for an equivalent thermal performance

Shrouded E to F Conversion

- Shroud allows installation of a SPINTUBE "F" bundle in "E" shell with no changes to existing nozzle locations
- TEMA "F" shell performance is achieved without long leaf seals between longitudinal baffle and shell ID
- True counter current flow for two tube side passes

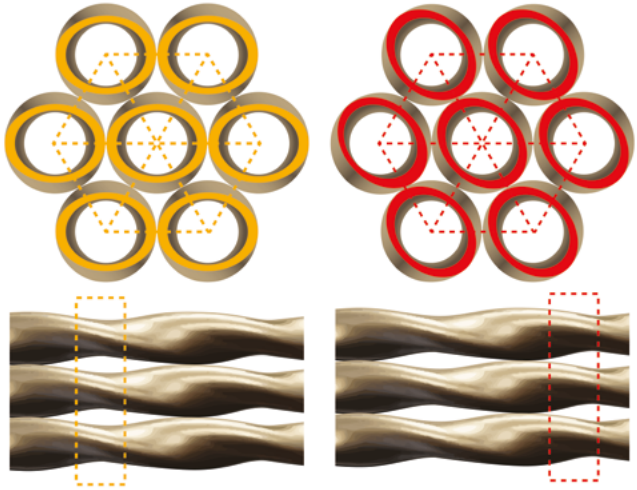


SPINTUBE™ Tube-side Flow

The round tube of a conventional shell and tube heat exchanger has a uniform cross-section that tends to be less effective in terms of heat transfer performance.

Because of the tangential velocity component, SPINTUBE introduces additional turbulence. In the SPINTUBE bundle the tubes are in direct contact with each other thereby increasing the number of tubes per shell diameter.

As a consequence of the increased heat transfer coefficient and surface area, SPINTUBE can improve thermal performance by up to 40% versus a traditional tube bundle in the same shell.



SPINTUBE™ Features

- No tube material and thickness limitations
- Tube diameter from 3/8” to 1 ¼”
- Engineered according to service
- Fouling mitigation through longitudinal flow in the shell side and swirl flow in the tube side
- Cleaning with conventional methods

SPINTUBE™ Advantage

- Increased heat transfer surface area for same shell diameter or reduced shell diameter for equivalent performance
- Longitudinal flow improves shell side heat transfer and reduces pressure drop
- Additional turbulence increases tube side heat transfer, which is also more efficient for boiling and transition phases
- Retrofit to any existing TEMA type exchanger with no additional pipework requirements or change to nozzle locations

Applications

- Crude preheat trains
- Cooler trains (e.g. amine service)
- Condensers
- Reboilers and vaporizers
- Feed-effluent exchangers
  - Horizontal, high pressure (e.g. Hydrocracker)
  - Vertical (Texas Towers)
- Compressor gas coolers

Please contact us

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