

Kelvion



Kelvion Service

EXTEND THE LIFE OF YOUR HEAT EXCHANGER TUBES

CTI SERVICES | ELIMINATE TUBE LEAKS

CTI Services is the leader in the technology of repairing and restoring damaged heat exchanger tubes. Whether you are dealing with leaks caused by localized erosion/corrosion at the tube ends or throughout the entire tube length, Kelvion's Shields/Seals™ and Full-Length Tube Liners™ can extend the life of your heat

exchangers to avoid costly down-time or bundle replacement.

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Get more information and click on the button.

YOUR BENEFITS AT A GLANCE

Save costs in operation and maintenance:

- ▶ Prevent costly retubing and avoid full bundle replacements
 - Kelvion is able to perform emergency repair services on failed equipment in-situ.
 - Full-Length Tube Liners can ensure long-term reliable, uninterrupted production on critical heat exchangers, and prevent potential shutdowns from tube leaks.
 - Shields/Seals are proven and effective repairs for problems related to inlet and outlet tube ends with I.D. or O.D. damage.

Efficiency improvements:

- ▶ Reduce fouling and corrosion
- ▶ Eliminate plugging tubes

Service Life Extension:

- ▶ Extend service life of heat exchangers

Reliability:

- ▶ Prevent emergency shutdowns to plug leaking tubes

CONTACT US



+ (800) 53587378

(Please dial UIFN international access code)



service@kelvion.com



www

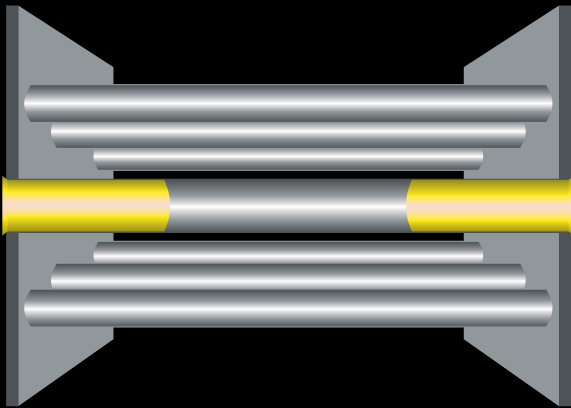
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CTI SHIELDS / SEALS™

Shields/Seals repair damaged and/or leaking tube ends and prevent unnecessary retubing or plugging. Why replace the entire tube when only the first 20-30 cm are worn? They are also commonly installed in new heat exchanger tubes to prevent damage that can lead to leaking/plugged tubes. Shields/Seals can repair/restore tubes suffering from corrosion.

The installation is done by using two methods:

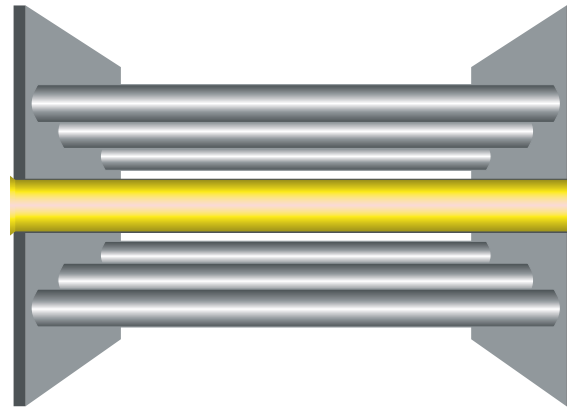
- ▶ Mechanical Expansion
- ▶ Full Length Hybrid Expansion



FULL LENGTH TUBE LINERS

Full Length Tube Liners are designed to restore tubes that are suffering from isolated or full-length corrosion (pitting, cracking). Leaking or damaged tubes requiring plugging are returned to service. Reduced fouling of Liners increases efficiency over plain carbon steel tubes.

Tube Liners are designed into new heat exchanger builds to increase reliability and extend service life expectancy. Eliminating tube leaks in between turnarounds and avoiding emergency shutdowns to plug are proven cost savings benefits.



RETURN ON INVESTMENT

Example: Full-Length Tube Liners versus retubing in 2-crude overhead condenser Air Fin Coolers in-situ:

DOWNTIME
in Days



1,250,000 \$

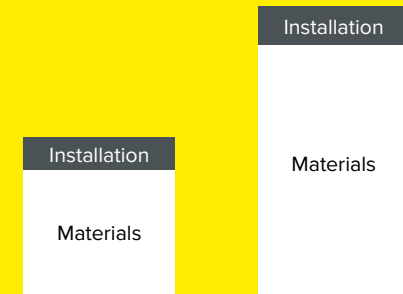
1,000,000 \$

750,000 \$

500,000 \$

250,000 \$

0 \$



TUBE LINERS

NEW FINNED TUBES

COST SAVINGS WITH TUBE LINERS
\$640,000 USD ≈ 50 %

NOTE: Replacement C276 bundles: \$1.14 M, not including removal of existing and installation of new Air Fin Coolers.

4 STEP PROCESS



GATHER INFORMATION

Data sheets, drawings, NDT reports, tube failure analysis, borescope photos



PROPOSE REPAIR

Shields/Seals for tube end repair (from 100 mm to over 4000 mm), Liners for tubes with full-length damage (up to 18000 mm)



INSTALLATION

Materials, supervisor, trained technicians and specialty equipment mobilized in-situ to execute the heat exchanger repairs



QUALITY CONTROL

Final inspection, customer hydro/pressure test verification of the repairs