

New from CSM

Fully Welded, Leak-Free KALEX® Heat Exchange Modules

CSM's KALEX heat recuperator modules now come fully welded, assuring no leakage. The fully welded frame assures the tightest seal possible around each module, thus recovering more energy and increasing heat exchange efficiency. Moreover, the welded KALEX modules can operate at higher temperatures and pressures increasing the number and type of KALEX applications.

To further insure air tightness and long term reliability, a stainless steel expansion joint is welded to each heat exchanger module to allow for thermal expansion/contraction.

Fully welded air tightness improves on KALEX's already high heat exchange efficiency and low pressure drop.

Easy Replacement

If you own a CSM KALEX heat exchanger, CSM simply replaces your existing KALEX modules with the fully welded modules. To assure leak-free performance, CSM pressure tests each module before shipment.

Applications Broaden

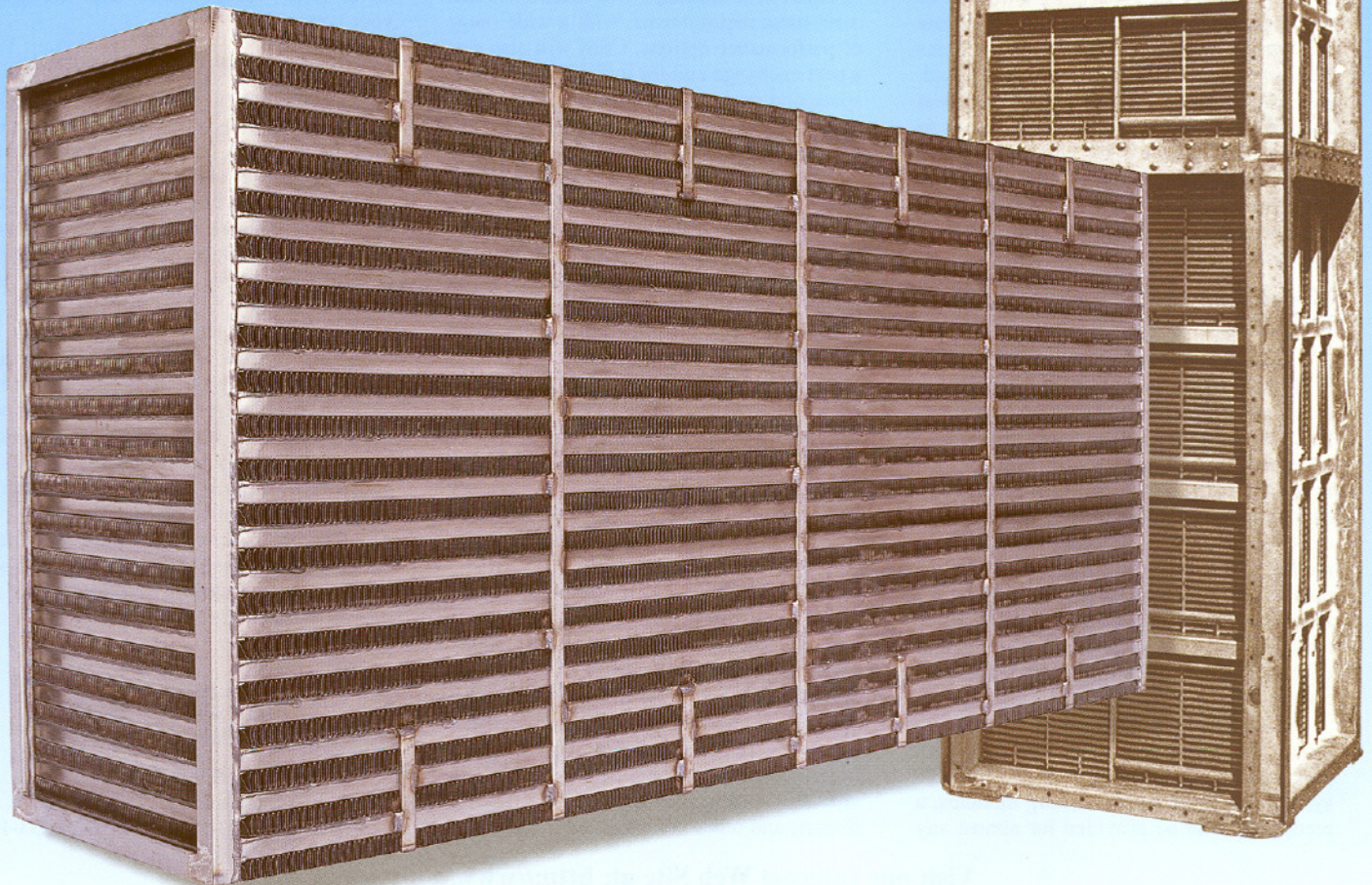
The new welded modules' ability to function in higher temperatures can extend KALEX applications beyond catalytic oxidation and thermal oxidation systems to include any type of heat exchange. Possible process scenarios include gas preheating, secondary heat recovery, and other process plant applications.

KALEX Outstanding Features Continue

The new welded modules build on the many benefits that KALEX modular design heat exchangers have provided for 30 years to industries around the world. These include:

- High surface area
- High heat exchange efficiency
- Low pressure drop, small footprint
- Proven economical modular design
- No moving parts for quiet, reliable, efficient operation.

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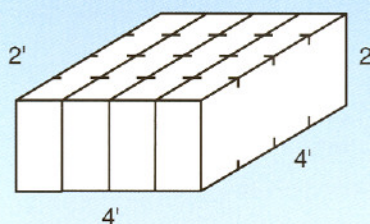
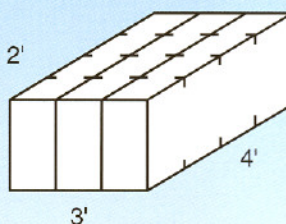
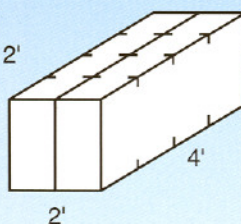
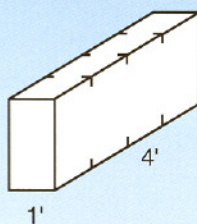
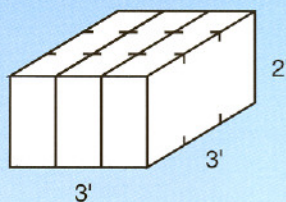
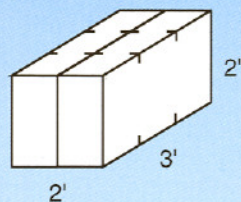
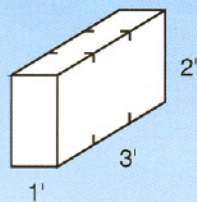
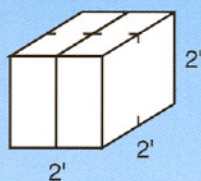
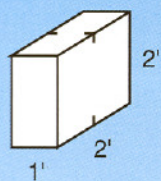
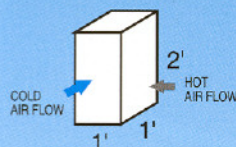


Figure 1. Typical KALEX configurations range from a single module of only 1' depth to 4 modules of 4' depth on each layer of the heat exchanger. KALEX Heat Exchangers have as many as 12 layers to handle gaseous flow rates in excess of 80,000 SCFM with a 70% heat exchange efficiency.

KALEX Heat Exchangers Deliver Energy Efficiency

KALEX air-to-air heat recuperators conserve energy by recovering a portion of the energy (waste heat) contained in low pressure industrial air exhaust streams (Figure 1). In CSM's oxidation system, KALEX heat recuperators take waste heat from the system's clean exhaust stream to preheat the plant off-gas stream prior to incineration. This increases the oxidation system's fuel efficiency. New welded modules recover more energy as the system can operate at higher temperature.

Modular for Design Flexibility, Maintenance Ease

A KALEX heat exchange unit consists of lightweight air-to-air, cross-flow heat exchange modules welded in a rigid stainless steel frame. The welded frame plate-and-fin modules, each measuring 2'x1' in front x 1,2,3, or 4 ft. depth, are constructed of corrosion resistant 304 or 316 stainless steel. A shelf-like structure supports the modules, facilitating their removal and reassembly and providing easy access for maintenance and cleaning. The new welded modules replace easily into the heat exchange unit with minor internal modifications.

These drop-in modules form building blocks that adapt to any configuration plot plan, adding to the flexibility of the KALEX system. By adding and stacking modules, a recuperator can be provided for almost any

flow, pressure drop and heat transfer requirement.

CSM provides a standard line of KALEX heat exchange unit assemblies that meet most requirements, with a wide range of performance options. CSM will also size a heat exchange unit for individual customer space and process specifications (Figure 1).

Cross-Flow Operation

Figure 1 shows hot/cold air cross-flow. One or more modules, depending on flow rate and heat transfer requirements, are installed directly in the exhaust stream. Each module is a cross-flow heat exchanger handling flow in two directions. Hot air flows through in one direction while cold air flows in a cross flow direction.

Fin Spacing

In addition to module arrangement, KALEX recuperators are available in a range of fin spacings, adding to the flexibility of the KALEX design to meet customer requirements.

CSM Oxidation System

KALEX heat exchangers function as part of CSM's air pollution control systems. CSM has supplied hundreds of systems to abate combustible contaminants in air effluents from chemical and pharmaceutical processes, printers, bakeries, wire and textile coating lines, paint baking operations, air/water strippers, contaminated soil remediators, and other industrial applications.

When you upgrade to new welded KALEX heat exchange modules, you improve your air cleaning system efficiency, lower your energy costs, and strengthen your bottom line.

CSM: Cleaning Air Worldwide

CSM brings more than 30 years experience in designing and building industrial air emission control systems to abate plant offgas emissions. More than 300 installations, from large to medium and small scale, serve a wide range of industries around the world. Technologies include catalytic, thermal and hybrid oxidation systems and energy recovery.

CSM provides manufacturers a complete strategic solution to air pollution challenges. CSM guides you through the life of the project — from the site survey to permitting and fabrication, through installation, startup and compliance. After installation, you receive support, training and service to keep your solution working.

Customers turn to CSM for its experienced team that provides dependable, reliable and economical solutions based on proven methodology and technology.



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