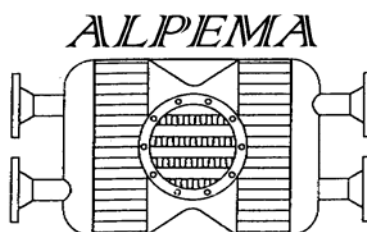


The Standards of the Brazed Aluminium Plate-Fin Heat Exchanger Manufacturers' Association



Welcome to the Second Edition of the Standards of the Brazed Aluminium Plate-Fin Heat Exchanger Manufacturers' Association (ALPEMA). This document has been produced by all six ALPEMA Member companies and is accepted widely as the industry standards for these heat exchangers. The Standards reflect the technical maturity and structural integrity of brazed aluminium plate-fin heat exchangers and also the successful world-wide operation of this form of compact heat exchanger in various applications in the process industry. The Standards can be used as the comprehensive and authoritative reference to all major aspects of their specification, design, manufacture, purchase and use.

A quick introduction to brazed aluminium plate-fin heat exchangers is presented in Chapter 1 of The Standards. The unique features of these heat exchangers are described below.

Advantages: Over the past forty years, brazed aluminium plate-fin heat exchangers have become the preferred type of exchanger for a variety of specialised and general applications, mainly as a result of their unique capabilities in heating and cooling liquids and gases, and condensing and boiling with single and multicomponent streams. Users can benefit from their

- Significant reductions in size, weight and footprint to save, for example, installation and space costs.
- Very large surface area per unit volume combined with very high heat transfer coefficients to produce very high rates of heat transfer within small heat exchangers,
- Very small temperature differences between streams to reduce compressor power and improve reheat.
- Ability to accommodate many streams within one heat exchanger to give increased flexibility in process flow-sheet design and in process integration.

Diversity of Applications: Brazed aluminium plate-fin heat exchangers are capable of handling a wide variety of streams, provided they do not corrode aluminium, up to a pressure of 100 bar (1450 psi) and temperature of 204°C (400°F). They can be used on potentially-fouling streams with proper filtration, and certain types of fouling can be removed by various cleaning procedures. They are robust and can withstand mechanical shock, combined thermal and pressure stresses, and temperature and pressure cycling. A design life similar to tubular heat exchangers can be expected from them.

Cost Savings: The key feature of these heat exchangers for engineers is their potential to save costs. For example, installation costs are significantly reduced because of their very small size and low weight. This, together with their significantly lower capital costs makes them very attractive, particularly for retrofit. Consequential cost savings include significantly reduced structural support-work. Incorporating several streams in one exchanger offers the opportunity to improve process flowsheet design methods radically by, for example, reducing the number of heat exchangers in a heat recovery train and saving energy.

Safety: The safe operation of these heat exchangers has been demonstrated by the thousands of successful units. Because of their smaller volume, the holdup of potentially dangerous fluids can be considerably reduced. Moreover, the use of one multi-stream heat exchanger, to replace several heat exchangers, reduces operational hazards.

Further Information: Check out our web site alpema.org where a copy of the Standards may be downloaded without charge. Additional information about brazed aluminium plate-fin heat exchangers can be obtained from any of the Members of the Manufacturers' Association listed below:

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