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The case for performance certification of plate heat exchangers

The practice among manufacturers of using large sizing tolerances when designing plate heat exchangers creates uncertainty about heat exchanger performance and leads to higher operating costs for the end customer. Alfa Laval is committed to raising awareness about the problem and highlighting the solution: AHRI performance certification.

The performance of plate heat exchangers does not always live up to expectations. For many years it has been a common, albeit hidden, practice in the industry for suppliers of plate heat exchangers to “adjust” or tweak heat duty calculations when sizing the heat exchangers. This is currently the biggest problem facing the plate heat exchanger industry.

Heat duty calculation, an important step in the specification process, is essentially an assessment of the requirements for maximum performance by the consultant and designer of the heating or cooling system. “Adjusting” these calculations has become a weapon of deception in the battle to win contracts. Manufacturers manipulate calculations so that component costs can be minimized and a smaller plate heat exchanger can be offered at an attractive price. However, the result is that end customers get under-dimensioned heat exchangers, leading to higher system-wide energy use, higher operating costs and compromised environmental performance.

The widespread practice of “recalculation” is a big problem for everyone in the industry. It makes it harder to choose a heat exchanger that will provide the required performance and increases the risk that it will underperform. It creates uncertainty for everyone involved in recommending, selecting and using heat exchangers – consultants, specifiers and end customers – and undermines confidence in the industry as a whole. By the time the problem is detected, it is too late – a major investment has already been made and underperformance has been revealed in higher than expected energy costs.



Certification ensures certainty about performance

There is one sure way to ensure certainty right from the start – AHRI performance certification.

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) is the only independent third-party organization that certifies the performance of plate heat exchangers globally. AHRI is a non-profit organization.

The AHRI Liquid to Liquid Heat Exchangers (LLHE) Certification Program provides third-party verification of thermal performance – it gives independent assurance that the plate heat exchanger will perform in accordance with the manufacturer's published ratings and has been designed with a reasonable sizing tolerance.

Over 300 AHRI member companies produce more than 90 percent of the residential and commercial air conditioning, heating, water heating, and commercial refrigeration equipment made in North America.

In the late 1990s the US subsidiary of Alfa Laval initiated the first contacts with AHRI to develop a uniform performance certification standard for plate heat exchangers. The LLHE Certification Program was launched in North America in 2001 and became a global performance certification program in 2012.

Wide-ranging long-term benefits

Wider adoption of performance certification by heat exchanger suppliers would remove uncertainty about thermal performance and generate a wide range of benefits.

Performance certification creates a level playing field for comparing the thermal performance and price/performance ratio of plate heat exchangers, which reduces time spent on the selection process and ensures the optimum product is chosen.

End users benefit from operating a more energy-efficient system with optimized energy consumption and significantly reduced lifetime operating costs. As calculations have already been verified, costs are lower for field tests and additional component performance margins. It also enables end users to reach targets for power consumption and climate control, as they can be confident that heat exchanger capacity will be sufficient to meet set performance goals.



Importantly, AHRI performance certification eliminates cheating from thermal performance, which enhances confidence in the industry and provides peace of mind for those who rely on system performance – suppliers, consultants, contractors and end users.

In the longer term, performance certification will eliminate concern about calculations and promote a stronger focus on energy efficiency, which will foster innovation and stimulate manufacturers to develop more efficient products.

Alfa Laval promotes AHRI certification

The AHRI LLHE Certification Program is currently the only program available in the world for plate heat exchangers. Any supplier can be part of the LLHE Certification Program.

Heat exchangers in the Alfa Laval AlfaQ™ series were the first to be AHRI certified. Alfa Laval has accomplished a 100% success rate in the AHRI performance certification program since the start.

Alfa Laval has chosen to take an active role in promoting AHRI certification.

From every perspective, AHRI performance certification is better for everyone involved in the process of designing, producing, selecting and operating plate heat exchangers.

We are convinced that performance certification is an important step in creating a sound plate heat exchanger market and benefits the industry as a whole.