DESIGN & MANUFACTURING

CASE STUDY

Graham Hart Delivers Highly Engineered Heat Transfer Equipment with aspenONE® Engineering Suite

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"Graham Hart has delivered over 2,000 highly-engineered heat exchanger systems over the past 30 years, with the Aspen EDR suite at the core of our team's engineering process. Aspen EDR gives us the confidence to assure our clients that our highly-engineered systems will perform at or above specifications in critical application areas. When it is a challenging high-integrity, high-pressure application, clients know that they can depend completely on Graham Hart to deliver a correctly sized and rated solution."

- Chris Hart, Managing Director, Graham Hart Process Technology, Ltd.

BUSINESS OPPORTUNITY

Incorporated in 1973 and based in the UK, Graham Hart (Process Technology) Limited has grown into a company known for its high level of commitment to customer service and for its excellent standards of technical expertise and product quality. Graham Hart is a privately held supplier of engineered process systems, supplying heat exchangers and high-pressure equipment to clients worldwide. Its core business is in the bespoke design and fabrication of high-integrity heat transfer systems, as well as pressure vessel systems and other packaged process systems in certain applications.

"When it is a complicated, rigorous or difficult application, we know we have a clear competitive advantage."

CUSTOMER PROFILE - Graham Hart Process Technology, Ltd. - *Design & Manufacturing*

CHALLENGE

To deliver optimized designs that meet stringent performance conditions.

SOLUTION

The Aspen Exchanger Design & Rating (EDR) product suite and Aspen HYSYS®.

BENEFITS

- Competitive advantage in the supply of systems for use in critical applications
- High-quality engineering and design, including FEED, R&D and scale up
- Repeat business from customers who trust the company's use of Aspen EDR to consistently design and deliver successful projects

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GRAHAM HART (PROCESS TECHNOLOGY) LTD.

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Owners and EPCs look to Graham Hart in particular when requiring systems with highly-specified and critical applications. "The more detailed and involved the specifications are from a client, the more interested we are in supplying them," explains Chris Hart, Managing Director. "When it is a complicated, rigorous or difficult application, we know we have a clear competitive advantage."

Graham Hart enjoys a strong record of repeat business from its key EPC and owner-operator clients.

BUSINESS NEED

Graham Hart's value proposition is in the supply of highly-reliable, high-performance heat exchangers. To achieve and maintain this differentiated market position, the ability of its engineering team to propose and deliver best-fit designs to meet stringent performance conditions is paramount. As such, the engineering team needs to be able to depend on the quality, accuracy, reliability and predictability of the software tools used to conduct the modeling and analysis to develop and verify designs. This includes the actual layout and design of heat exchanger systems, including, for example, temperatures, configurations and materials.

Additionally, the engineering team must have confidence in the interface of the heat exchanger with the process system it is serving, and the consistency and accuracy of the physical properties on which the design depends, especially in terms of consistency between the overall process model and the heat exchanger model. As oil and gas and petrochemical economics become more fluid, the ability to optimize the capital cost of the designs and the ability of the software to support rapid and more efficient bidding and design are also important as Graham Hart continues to expand worldwide.

SOLUTION

Graham Hart has used the Aspen Exchanger Design & Rating (EDR) product suite as a core component of its heat exchanger design process since the company was founded. This dates back to Graham Hart's selection of the original BJAC software, about 30 years ago, which was the original thermal design software product that later evolved into the Aspen Shell and Tube Exchanger Design software module. In addition to shell and tube heat exchangers (of various designs and types), Graham Hart also produces air cooled heat exchangers, which are also designed using Aspen EDR. Since the original selection of that software, Graham Hart has consistently used the Aspen EDR suite as the core thermal design tool for virtually all of the heat exchanger systems that it designs and delivers, gaining excellent results and a strong record of repeat business from its key EPC and owner-operator clients.

Chris Hart also points out that Graham Hart is a best-in-class heat exchanger fabricator that also licenses and regularly uses Aspen HYSYS® during the design process. He explains, "The tight integration of Aspen Exchanger Design and Rating tools with Aspen HYSYS provides tremendous value to our clients during the heat exchanger design process, including the use of consistent physical properties of fluids, as well as black oil."

"The ability to communicate electronically with customers who have developed process designs in Aspen HYSYS and the ability to import P&IDs from the Aspen HYSYS model is exceptional. It gives us a workflow that achieves optimized, superior designs without compromising on efficiency."

Recent projects for which Graham Hart has supplied heat exchangers designed using Aspen EDR include critical applications at large greenfield process plants being built in Saudi Arabia, China and Egypt.

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CASE STUDY

VALIDATING DESIGNS

Graham Hart supplies systems to clients that employ several process engineering design suites. Most often, clients standardize on the aspenONE and the Aspen EDR suite, but sometimes they employ other software systems. "The standard of the exchange of information between clients and ourselves is almost entirely done through data sheets," says Hart. "Our clients have complete confidence in Aspen EDR software and in our engineering team's work, which is validated and confirmed through the performance specifications contained in those data sheets."

BENEFITS REALIZED

The overall benefit Graham Hart Process Technology gains from the use of the aspenONE Engineering suite is three-fold. First, the rigorous and accurate thermal design models coupled with cost estimation capabilities of the software provides them with the confidence to bid, engineer and supply systems for use in critical applications. From order placement to delivering the full design to its clients, Graham Hart rapidly achieves their high, on-time in-full (OTIF) score of 99.4%.

Second, the workflows supported within the software enables Graham Hart to be agile and perform engineering and design effectively and efficiently. From exchanging Aspen HYSYS models with clients, to extracting physical properties and P&IDs from the Aspen HYSYS model, to being able to automatically optimize across a large number of heat exchanger design arrangements for the least cost solutions in Aspen EDR, the aspenONE Engineering suite supports efficient design execution.

The third benefit the software provides to Graham Hart is repeat business from long-time clients. Customers of Graham Hart, such as many leading EPCs, know that they can confidently expect equipment designed with Aspen EDR to meet the design intent and performance specifications that they require to achieve a successful project.

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AspenTech is a leading supplier of software that optimizes process manufacturing — for energy, chemicals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit **www.aspentech.com**.

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For more information on Graham Hart systems, please visit **www.graham-hart.com**.

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