PROCESS HEATERS

BROACH

The G. C. Broach Company is a unique, independently owned organization of experienced professionals whose only endeavor is the design and construction of direct fired process heaters.

The company was established in 1960 on the premise that the dependability, longevity, and performance of any heater are all directly equated to the soundness and thoroughness of the basic engineering techniques employed in the design and construction of the unit. And, that the common causes of most operational problems and failures could and should be identified, recognized, and eliminated in the basic design of the equipment.

Through consistent dedication to this premise we have established an outstanding reputation throughout the process industries for expertly translating customer specifications into heater equipment of unsurpassed quality and reliability. We have developed and patented proprietary processes and equipment to achieve maximum thermal efficiency at a lower cost.

Broach heaters, in all of the basic designs, services, and configurations, are on stream in plants throughout the world, wherever constant reserve-capacity heater performance is demanded.

Our capabilities are outlined in this brochure. We would welcome the opportunity to discuss your heater equipment requirements with you.

G. C. Broach

Broach Corporate Office houses the design, engineering and administrative groups.

Broach Manufacturing Complex

OUR FACILITY

A Broach heater is the result of combining experienced people with specialized engineering and manufacturing facilities which are unequaled in the world.

The Broach manufacturing complex was designed and built exclusively for the construction of process heaters. Located on a 17-acre tract in Tulsa, the plant is served by the Union Pacific Railroad via the company's private rail spur. Its central geographical location in mid-America gives quick, easy access to all parts of the nation and the world, with a choice of rail or water barge transportation.

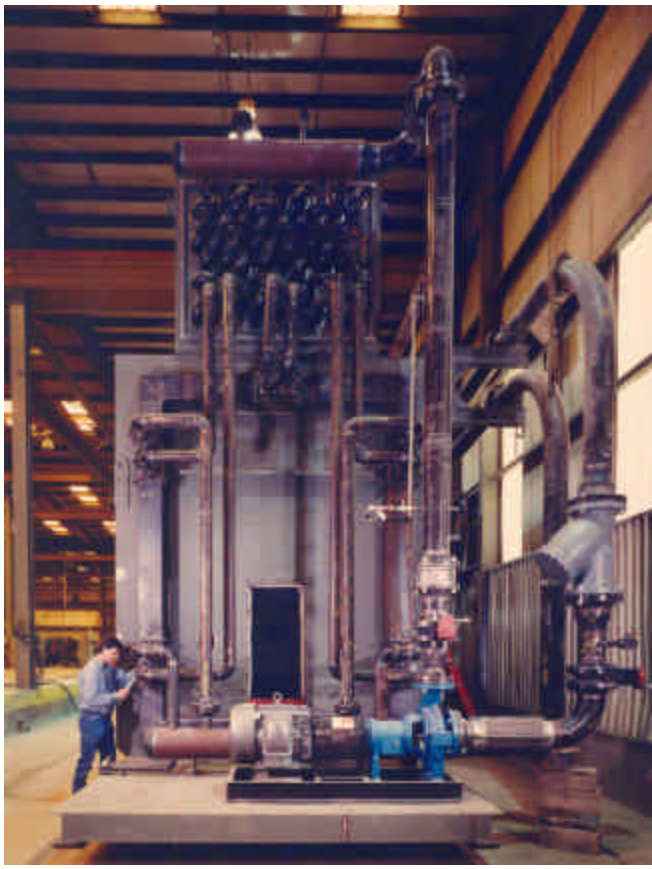
One of the unique features of the facility is that all manufacturing functions are performed under one roof, in environmentally controlled conditions, so that weather is not a factor in scheduling. Consistent, thermostatically controlled temperatures and uniform mercury vapor lighting are maintained throughout to provide year-round control of welding and refractory quality.

Other features of the Broach facility include: complete tube fabrication and assembly areas; fully-powered overhead bridge-cranes with 22' 6" under the hook; and 10 final assembly bays which each open through its own individual 15' wide by 22' high door to direct rail car loading facilities.

From initial design, through engineering, manufacturing, and shipment, the Broach heater is a product of one, exclusive location.

The G. C. Broach Company was the first to completely computerize heater design. Here we see our IBM 1130 machine that we used in 1977, with our very attractive operator at the keypunch console, with Mr. G. C. Broach looking on. The machines that we use today, at each designer's desk, are 1000 times more powerful than the 1130 machine, and occupy one 500th of the space.

ENGINEERING/DESIGN



A concept of total reliability and performance is the keynote of all Broach engineering/design functions.

Broach's engineering/design staff utilizes the latest in computer technology, combined with their own years of seasoned experience in heater design, to thoroughly analyze the customer's specifications and requirements in order to create the best, most efficient heater for a particular project. The ultimate design is a detailed correlation of the many process and mechanical variables that affect the overall performance of the unit, with all vital data summarized and clearly defined.

Special emphasis is given to fundamental design factors which rarely find their way into a bid tabulation, such as uniform heat and flux distribution, firebox configuration, combustion volume and heat release rates, flue-gas flow, disposition and selection of refractory components, and the mechanical integrity and stability of the heater structure and stack.

Our totally professional, rigorous engineering/design procedures encompass every aspect of performance and operability of a heater, and results in a heater fitted perfectly to its job, a heater that offers total reliability and performance. Our personnel are available worldwide for assistance in erection, start-up, service, or technical analysis.

Fabrication of a 67,000,000 BTU/Hr Skid Mounted Heater and Heat Medium System.

MANUFACTURING

A unique combination of highly experienced and dedicated engineers and craftsmen who take pride in manufacturing the best heater possible is the cornerstone of the Broach organization.

Our manufacturing facilities include the most modern tools, fabricating techniques, welding procedures, refractory, and quality control methods available.

Heavy lifting capacity, constant temperature and lighting control, and special equipment give us exceptional fabricating advantages which result in greater quality and efficiency for our product, and cost savings plus increased reliability for our customers.

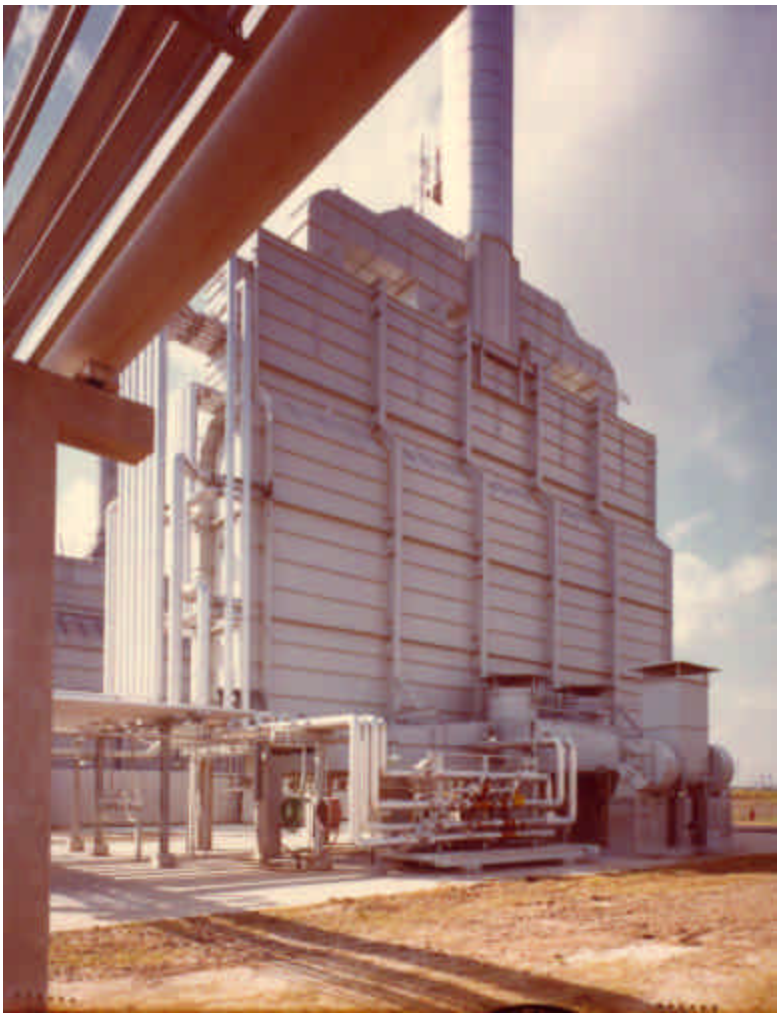
One example of the innovative approach used is our direct car loading system. The completed unit is withdrawn from the individual assembly bay doors onto a tract mounted transfer car. The transfer car is aligned with our private rail spur and the unit is withdrawn from the transfer car onto the rail car. The shop floor and the transfer car are both rail car height so the unit does not have to be lifted for loading. This system eliminates the possibility of any damage to a unit during loading, and affects a net saving to the customer by eliminating expensive lifting costs.

Skilled craftsmanship by dedicated experienced individuals, environmentally controlled inside fabrication, and experienced technological applications assure on-time delivery of your Broach heater which is renowned for its unequalled service and performance.

378 M^2 33,000 BPD Reformer Heaters

BROACH HEATERS

125,400,000 BTU/Hr
Radiant / Convection Process Furnace



130 M^2 Process Heater with Broach
Adjunct Loop Preheater

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