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# Sintering oven and batch furnace solution

When Thermacore, a leader in the field of advanced thermal management recognised that it needed to decrease its time to market and increase its production speeds it approached Elite Thermal Systems to develop a solution.

Commenting on the reason why investment in the new equipment was necessary, Gavin Wood, Materials Manager of Thermacore Europe, said, "We discovered the need for Elite's services when it became apparent that the production stage of a core product could be optimised. Without the capacity to support the market demand for sintered heat pipes, we knew investment in new equipment had become essential. Elite Thermal Systems' engineers developed a very innovative approach to the problem. Their solution presented us with a design encompassing the implementation of a batch brazing oven and a high temperature sintering furnace. The sintering furnace now enables us to process ten times the quantity at one time, thus hugely increasing our capacity for this product."

The brazing process is carried out in a 300°C air recirculation batch oven, which incorporates a forced cooling system and a custom designed load carrier/ transportation system. The heating and cooling cycle is controlled very precisely to maintain the integrity and quality of the brazed joints. On completion of the process cycle the operator is alerted by audible and visual alarms. During the unloading process the oven is held at a "stand by" temperature in readiness for the next load.

The sintering process is carried out in an elevator furnace with a two trolley/hearth system that minimises lost time during the unloading/loading stage. The heat pipes are loaded into special carrier jigs on the furnace hearth, which are then covered by the retort. The retort is then purged with inert gas prior to being elevated into the preheated furnace chamber. Throughout the process cycle a reducing atmosphere is maintained inside the retort. The sintering process is fully automated throughout the heating and cooling cycle providing close temperature control within the retort to optimise product quality and yield. On completion of the process the operator is alerted by audible and visual alarms. The hot retort is removed from the furnace and placed into a protected cooling area. The second preloaded retort is then elevated into the furnace chamber and the whole cycle is repeated.

Focusing on Elite's commitment to customer service and support Gus Sumner, Maintenance Manager at Thermacore commented, "Elite Thermal Systems understood our requirement and produced a viable solution to our problem. From design to implementation, the service received was very good and although we have no maintenance or service agreement with Elite, we feel assured that if a problem were to occur they would be on-site to solve it."

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