Businesses, large and small, in all sectors across the globe are becoming increasingly conscious of operating costs. Therefore systems need to not only be efficient and reliable but also economical. Ansac have developed the HK Series kiln with this in mind. Thermal efficiency is, ultimately, the crucial factor in the successful operation of any kiln. The key aspects in regards to the HK series and its thermal efficiency are the Pre-Drying System, the Centre-Line-Drive and the complete Heat Tube sealing arrangement.

**Centre-Line-Drive in Operation**

The HK Series is proven to consume up to 40% less fuel than competitors' kilns during Carbon Regeneration. The HK achieves a fuel consumption of 1 kWh per Kg of material processed.

**Thermal Efficiency + Encapsulation**

Heat Tube Encapsulation is the key to thermal efficiency in Carbon Regeneration Kilns. The ability to completely surround and insulate the rotating heat tube eliminates heat loss from exposed areas at either end. The Ansac Encapsulating kiln design minimises thermal losses to the external environment. This significantly increases thermal efficiency, by consuming up to 40% less fuel than other traditional kilns, utilising external drive systems (As shown in the graph above).

The Centre-Line-Drive technology uses the gearbox to suspend the heat tube at the discharge end of the kiln, and a specialized yoke and bearing arrangement at the feed end. This is in contrast to other more conventional Kilns, which are driven by a trunnion or roller arrangement, which leaves certain areas of the Heat Tube exposed. These arrangements allow for excess amounts of heat to radiate into the atmosphere, and decreases the thermal efficiency of the design.

The Centre-Line-Drive arrangement allows the heat tube to be totally encapsulated by ceramic fibre insulation. This leads to a significant advantage in that no areas of the Heat Tube are exposed to the external environment and therefore allows minimal heat loss into the surrounding ambient, leading to greater thermal efficiency.

**Pre-Drying**

The Ansac pre-drying system facilitates the removal of unnecessary moisture, decreasing fuel consumption and the associated costs.

Heat energy, in the form of hot combustion gases generated within the heat chamber, are passed through the feed in order to preheat the material and vaporize excess moisture.

Insulation around the pre-dryer encapsulates the heat energy making the most efficient use of it.

The University of Western Australia have completed an in depth study of the benefits of pre-drying on Ansac Kilns. The study indicated that;

*Ansac’s pre-dryer typically:*

+ Reduces moisture content of the feed from around 35% to around 25%. This reduction allows for significant fuel savings.
+ As well as increasing the temperature of the feed as it is delivered into the kiln, allowing for lower fuel consumption when raising the feed temperature to the desired level.

We believe our engineers have produced the most thermally efficient Rotary Kiln available on the market today.