

Developments in Billet Casting Ring Technology

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Abstract



Pyrotek continues to focus Research and development efforts into key customer components. Pyrotek's goals are to try and improve performance of key components to help improve efficiencies for our customers. Calcium silicate has been established for many years as the primary material for key components such as transition plates and hot top rings used for billet casting. Indeed, calcium silicate has many desirable thermal and mechanical properties ideally suited for this application, but also has some inherent weaknesses. Pyrotek has studied both the thermal and mechanical behaviour of calcium silicate within this demanding application to try and understand which properties to retain and which properties to improve upon during the development of a new material.

As a direct result of these studies an engineered material solution has been developed. The material is called K28-00. When the material is coupled with a specialised reinforcement material an extremely robust composite is achieved, this being called K28-01.

Pyrotek understands that adoption of any new material, such as K28-01, into a critical process such as billet casting needs to be comprehensively monitored, assessed, and proven. Therefore, Pyrotek has also invested a significant amount of research and development time in enhancing our existing calcium silicate product by introducing an engineered design solution. By doing this it enables our customers to gain improved performance whilst retaining a long-established product. Pyrotek has called its engineered calcium silicate transition plate "Ring-Fit". This technology is currently dedicated towards the Wagstaff transition plate technology.

The goal of this paper is to communicate Pyrotek's continued commitment to our customers by understanding specific component process issues. Comprehending how those issues develop within our product offering enables us to develop technically engineered material solutions to address those specific component process problems.

Keywords: Transition plate, Hot top rings, Composite material for billet casting.