



PYROTEK FRACTURE-GUARD TRANSITION PLATES

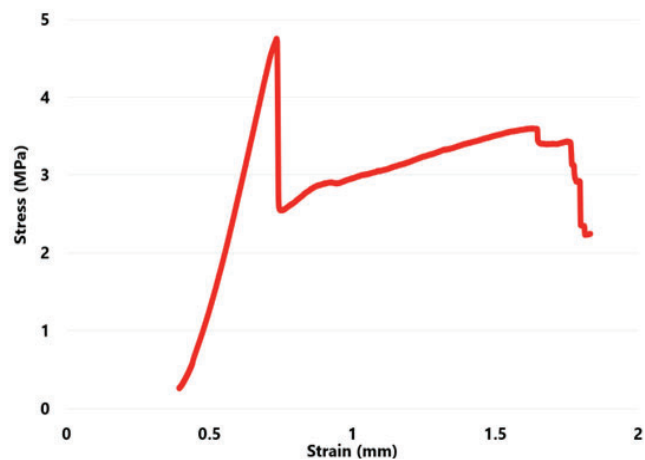
FOR VERTICAL DIRECT CHILL BILLET CASTING

Pyrotek Fracture-Guard Transition Plates are replaceable ceramic components installed in Hycast® Gas Cushion (GC) vertical direct chill (VDC) billet mould assemblies. They create the leading boundary of the mould before primary solidification at the casting ring.

Pyrotek Fracture-Guard Transition Plates are made from a composite refractory with exceptional mechanical properties. Strategically oriented reinforcement is added to an advanced matrix to “guard” the transition plate from fracture and deliver reliable performance in the demanding application. Transition plates must withstand thermal shock during the start of a cast when molten metal is introduced to the mould. During a cast, a large thermal gradient is generated within the component causing internal stresses. Additional thermal stress is created during the cast since the transition plate is constrained in the mould assembly. The composite refractory provides superior thermal shock performance to withstand cast start after cast start. The low thermal expansion reduces stress from distortion and constraint to levels that are easily managed by its high strength, elasticity, and toughness. These attributes are apparent in a stress-strain plot from a three-point bend flexural test showing unique elasticity, high strength, and oriented reinforcement providing unmatched toughness.

Additional benefit is provided by superior thermal and chemical properties. A low thermal conductivity prevents process parameter changes and ensures presolidification is prevented. Enhancements to the material are added to prevent chemical attack with challenging alloys and improve non-wetting capability. Further non-wetting performance and oxide mobility improvement is provided by a ZYP Boron Nitride Lubriccoat EAS-25 protective coating application.

All Pyrotek Fracture-Guard Transition Plates are made from Pyrotek’s K28-01 composite refractory and are coated with ZYP Boron Nitride Lubriccoat EAS-25 protective coating. See **1876 Pyrotek K28-01** and **1376 ZYP BN Lubriccoat EAS-25** technical datasheets for more detailed material and coating information.



BENEFITS

- Low thermal expansion
- High strength and toughness
- Low thermal conductivity
- Thermal shock resistant
- Non-wetting
- Machined to stringent tolerances
- No refractory ceramic fibers (non-RCF)

APPLICATIONS

Pyrotek Fracture-Guard Transition Plates are designed specifically to improve performance in Hycast® GC VDC billet casting moulds over conventional carbon fiber reinforced calcium silicate materials. Contact a Pyrotek sales engineer for product information to meet specific application requirements.

ADDITIONAL INFORMATION

This Technical Datasheet (TDS) does not constitute a specification.

