

UNIFRAX APPLICATION STORY



Product Solutions: Insulfrax® and Isofrax® Rigiform™ Shapes
Industry: Ferrous
Applications: Pouring sleeves used for steel ingot casting, bottom pouring moulds
Location: Europe

DECEMBER 2018

Business Challenge

There are various methods employed by steel makers to produce steel ingots (large slabs). High output, large volume, requires the use of the continuous casting process, a modern production process used extensively on a global scale. However, there are also a large number of steel producers that provide special grades of steel. These plants rely on the traditional method of ingot moulds for their production. This uphill casting technique involves the pouring of molten steel into the base of the mould (using a refractory lined transfer system). As the liquid steel fills the mould it cools and solidifies. The aim is to maintain metal temperature as high as possible during casting to avoid surface and structural defects of the ingot. Lining the upper section of the mould using a 'hot top' system achieves this.

The transfer of the molten steel from the transfer (transport) ladle to the transfer system is a critical process. This must be carried out quickly and efficiently to avoid minimum heat loss from the molten steel during transfer.

Application

The traditional method for casting steel ingots is the uphill casting system. The molten steel is transferred by ladle to the casting station. Using a sliding gate system for tapping the liquid metal from the ladle base, the steel is poured through a pouring sleeve into the feed tube. This feed tube transfers the molten steel to the base of one or more ingot moulds where the casting process takes place.

Unifrax has successfully supplied Rigiform shapes in both Insulfrax and Isofrax grades for this niche application. These have been manufactured using AES (Alkaline Earth Silicate) Wools, and are non-classified fibres, under EU health and safety regulations. During manufacture they are combined with specially selected inorganic and organic binders to give rigid insulating shapes with exceptional characteristics.

*“reducing heat bill,
maintaining
metal quality”*



Solution

Our various vacuum forming facilities, located strategically across Europe, have gained a wealth of experience for the production of a variety of shapes and grades to meet the demands of the ferrous industry. The vacuum forming process permits considerable freedom to vary shape, thickness and hardness.

The pouring sleeves allow metal pouring without significant heat loss and, if required, argon injection during pouring of the molten metal.

Insulfrax and Isofrax pouring sleeves are proven in this demanding application for ingot casting. The end user enjoys the benefits of the vacuum formed shapes resulting in the production of high quality steel alloy ingots.

To allow improved sealing to the ladle sliding gate system, complex shapes combining both flexible and rigid custom made parts can be made to order.

Customer Advantages

- High temperature stability
- Low thermal conductivity
- Resistance to thermal shock
- Lightweight
- Complex shape capability



About Unifrax

Unifrax is a global leader in high-performance specialty products used by many industries in a diverse group of industrial applications. Our products provide substantial improvement in thermal performance, save thousands of dollars in energy costs and can help reduce your operations environmental footprint.

Contact Us

To learn more about Unifrax Thermal Management Solutions, contact your Unifrax sales representative or the Unifrax Application Engineering Group in your region:

North America: +1 716 768 6460
Brazil: +55 19 3322-8000
Europe: +44 (0) 1744 88 76 00
India: +91 22 2921 2200
Asia: +86 533 3288764



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