



## HOLLOTEX\* EG RUNNER ST - THE LIGHTWEIGHT ALTERNATIVE TO CERAMIC GATING SYSTEMS, NOW ALSO AVAILABLE FOR STEEL CASTING!



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HOLLOTEX EG Runner, introduced in 2009, revolutionised the construction of gating systems for hand-moulded iron castings. It eliminated the need for ceramic components and gained popularity in the European and American iron casting markets. However, it had limitations in withstanding high pouring temperatures used in steel casting.

To address this, HOLLOTEX EG Runner ST was developed with an optimized formulation and a refractory coating. Additionally, the shape of the components was modified to improve the flow distribution of molten metal.

## INTRODUCTION

The introduction of HOLLLOTEX EG Runner in 2009 provided for completely new opportunities in the construction of gating systems for hand moulded iron castings. Conventionally, wherever gating systems could not be incorporated on the pattern plate, ceramic components had to be used. Following a tentative start, the system was finally established in the European and American iron casting markets in 2011, with a demand of several hundred thousand units.

In addition to the simple handling and application benefits of HOLLLOTEX EG Runner, the system was also appreciated by users as it eliminated the need for removal of refractory pieces of the used hollowware from the sand system.

However, since the product consists mainly of cellulose, mineral components and carbon fibres for integrity, it could not withstand the high pouring temperatures used in steel casting. Consequently, the use of HOLLLOTEX EG Runner was limited to iron casting with pouring temperatures of up to 1450 °C. For this reason, the challenge was taken up to develop a system for higher pouring temperatures. In addition to optimising the organic and inorganic raw materials, an additional internal, highly refractory, coating of the pipes has been introduced in the production of HOLLLOTEX EG Runner ST (Figure. 1).

Furthermore, the shape of components of the HOLLLOTEX EG Runner ST have been optimised. Casting trials have revealed that the 90° deflection of the molten metal flow by the L-pieces resulted in turbulence, and metal chocking, during the direction change. This issue was addressed by the introduction of a less acute bend giving a more even flow distribution (Figure 2).



Figure 1 a+b. HOLLLOTEX EG Runner ST components with high-temperature resistant internal coating

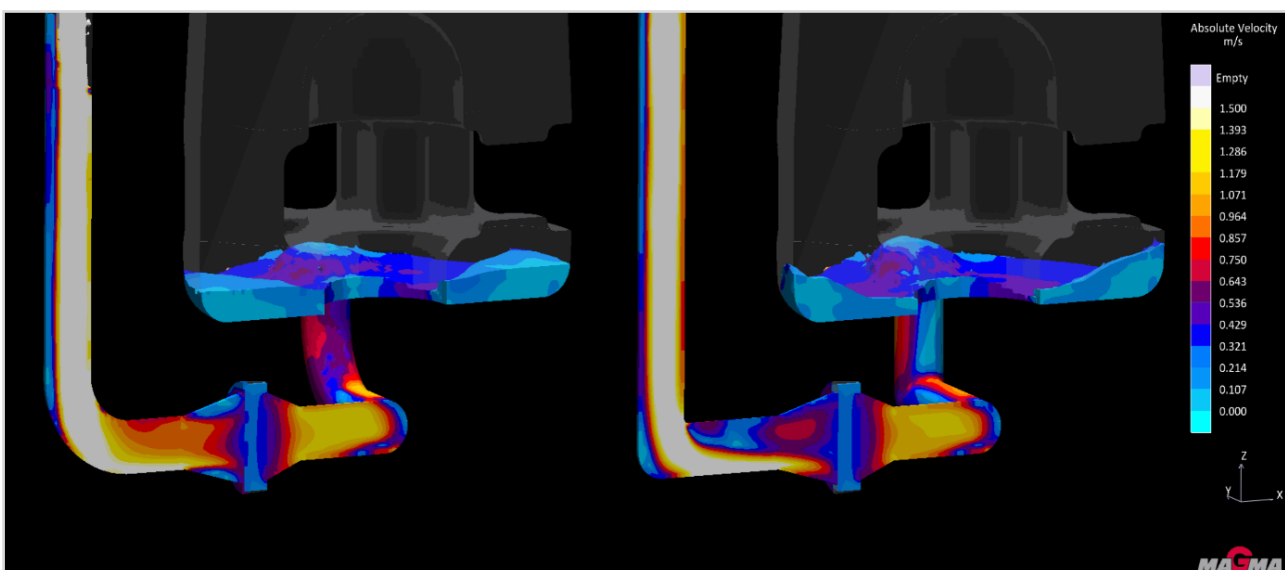


Figure 2. The bend on the left shows significantly more uniform flow velocities across the pipe diameter compared to the L-piece on the right



## ADVANTAGES OF HOLLLOTEX EG RUNNER ST

The HOLLLOTEX EG Runner ST casting system provides the following advantages:

### Simple assembly

Pipes, elbows and T-pieces provide an enlarged diameter at one end, enabling push-fit connection. The individual HOLLLOTEX EG Runner ST components are simply inserted into each other at their ends. They can be joined without gluing to form the required configuration (Figure. 3).

### Low weight

The low weight simplifies the preparation of the gating system. Due to its quick assembly an increased productivity in mould production is achieved. It also reduces the physical strain on the employee who assembles the gating systems. Due to the low weight, cross joints can be formed without the need for time-consuming gluing of the pipes with adhesive tape or hot glue. The use of reinforcements supporting the gating system is no longer necessary, eliminating the need for removal from the moulding sand during reclaim.

### Easy to cut

HOLLLOTEX EG Runner ST is easy shortened by using a hand saw (Figure. 4). This means there is only a marginal exposure to dust. In comparison, dry cutting of ceramic gating systems generates dust, and wet cutting requires the pipes to be dried afterwards. To assist in the accurate cutting of the tubes, a scale is shown on the outer surface of the tubes.

### Simplified warehousing

The use of HOLLLOTEX EG Runner ST significantly simplifies stockkeeping. Due to the simple shortening, all components are available in one standard length only. As a result, there is no need to keep stock of different pipe lengths.

### Less residues and waste

Due to the composition of HOLLLOTEX EG Runner ST, there is almost no contamination of the sand system. In addition, there is no need to remove ceramic fragments. The low weight, which is only approx. 1/10 of that of a ceramic system, also reduces disposal costs.

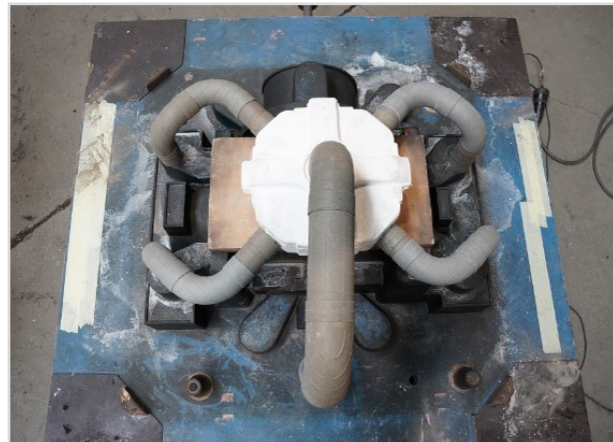


Figure 3 a+b. Ready-assembled gating system. Simple assembly due to the push-fit connection



Figure 4. Simple cutting using a hand saw

## APPLICATION/INSTALLATION OF THE HOLLLOTEX EG RUNNER ST GATING SYSTEM

As with the system for iron casting, care must be taken to ensure good compaction of the moulding sand in the immediate vicinity of the HOLLLOTEX EG Runner ST system. Trials have confirmed pouring temperatures of up to 1600 °C can be used. Casting weights of up to 5 t have been produced so far. Compression of the pipes across the diameter should be avoided to prevent damage to the inner coating.

## SUMMARY

HOLLLOTEX EG Runner ST is now also providing an alternative to conventional ceramic gating systems for steel foundryman. Currently, diameters of 50 and 70 mm are available. As the system becomes established among steel foundries, further diameters will follow. We recommend the use of HOLLLOTEX EG Runner ST for casting temperatures of between 1450 and 1600°C.

### ABOUT THE AUTHOR

Andreas has worked at Foseco since 1986 and is currently Technical Manager Ferrous Foundry Department Germany. In his technical leadership role, he is responsible for the technical application of all FOSECO products. Andreas acts with his team as an interface between customers, development and production. Andreas enjoys cycling, hiking and sports in general. He likes watching football especially from his most favorite team, Bayern Munich.

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Stephan originally studied mineralogy and started his career at Foseco as a diploma student in steel filter development 25 years ago. Since then, he has held a variety of technical roles including cast iron metallurgy product management and is now European Product Manager Ferrous Filtration. Stephan is the father of three daughters and a keen swimmer and cyclist.

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