ECO-Riser®
for iron castings

GTP SCHÄFER
THE RISER COMPANY

Product description

The ECO-Riser concept is based on the principle of optimizing the performance of a highly exothermic riser by reducing the release of the exothermic energy to the adjoining mold material with an insulating layer or diverting it to the inside of the riser (see Image 3).

Due to the balanced combination of exothermic mass inside the riser and an insulating outer shell, it is possible to achieve a 20% higher modulus with the same geometry (outside diameter and height). Measurement results from the center of the interior of the riser show a shift in the solidification point when compared with conventional exothermic risers (see Image 1).

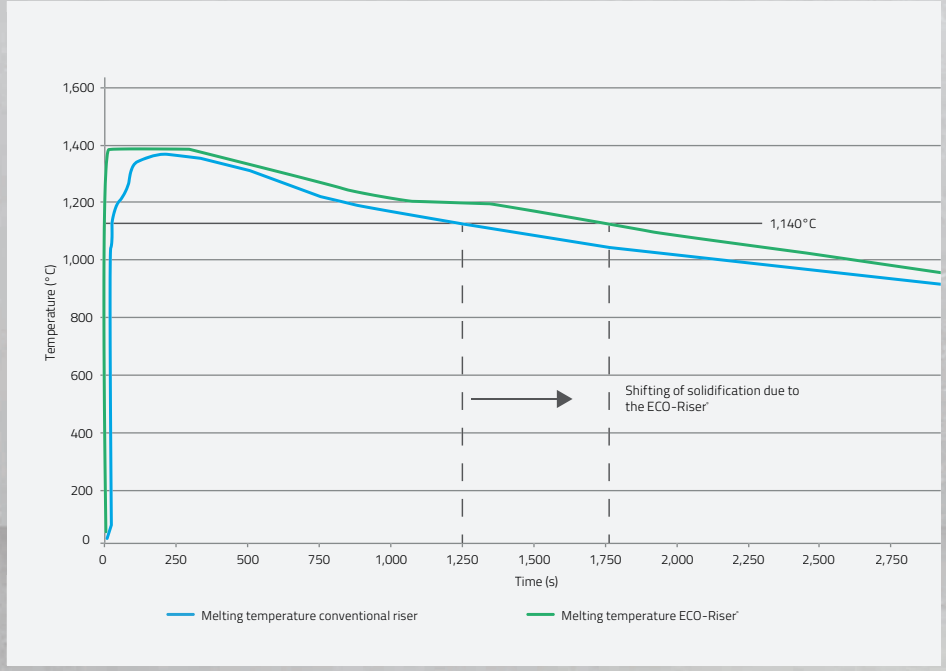


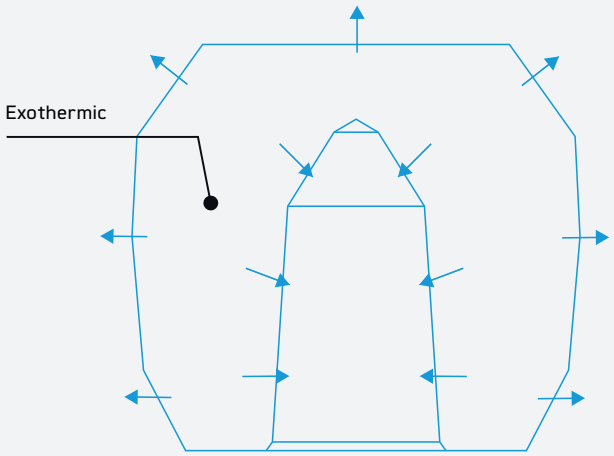
Image 1: Delayed solidification in interior of riser

ECO-Riser®


Insulating outer shell
Exothermic feeder mass inside
Application-specific accessories

Functional comparison

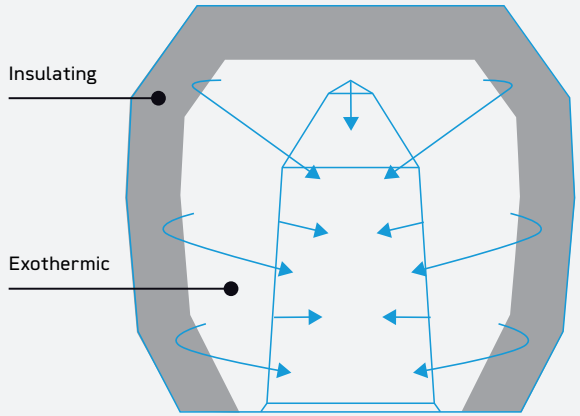
Conventional riser



Conventional THERMO-Riser®:
heat loss via the exothermic outer layer

Image 2: Heat output of a conventional exothermic feeder

ECO-Riser®



ECO-Riser®:
insulating outer layer directs energy into the riser interior

Image 3: Heat output of an ECO-Riser®

Product benefits

- increase in modulus with the same geometry
- higher yield by using a geometrically smaller riser (reduction in recycled material)
- reduced heating of the core or the mold material in the imme-diate vicinity of the riser
- positioning close to adjacent casting parts possible
- better energy balance and high process reliability
- minimal entry of burnt off exothermic material into the mold material

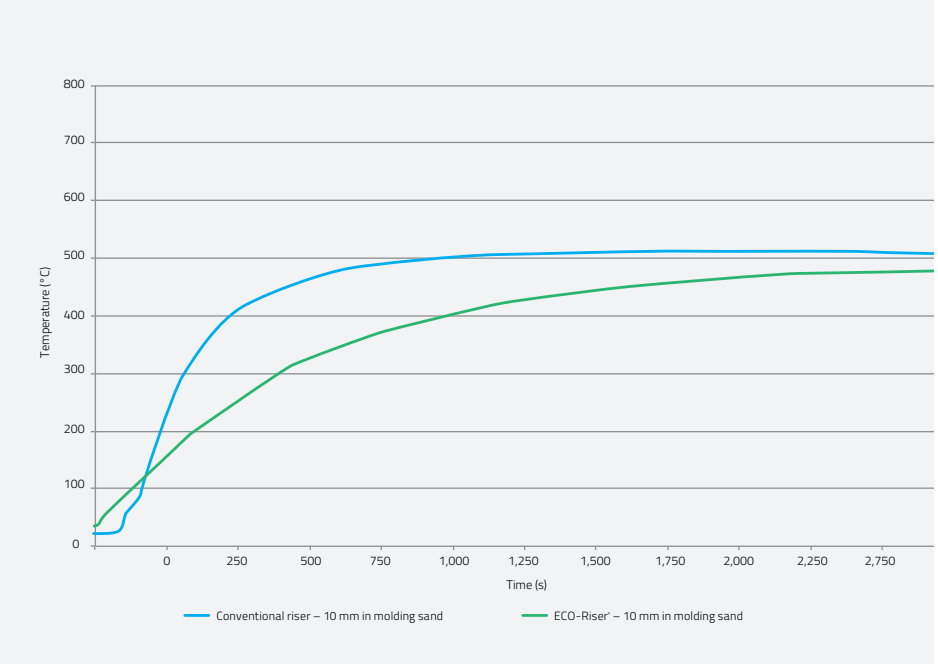


Image 4: heat transfer to the surrounding mould material

Case study 1—positioning on the pattern layer

In case study 1, it was possible to feed a casting by using a geometrically very small ECO-Riser® ECO 2339 on a side feeder dome, which otherwise could not be achieved technically. In a conventional side feeder application, either the riser neck would have to be extended so far that it would be frozen off, or the conventional riser feeding the casting would have to be heated with negative effects on the solidification of the wall of the casting.

Key data

Used riser	ECO 2339
Module	3.6 cm
Volume	125 cm^3
Distance to the component wall	10 mm
Used accessories	n/a

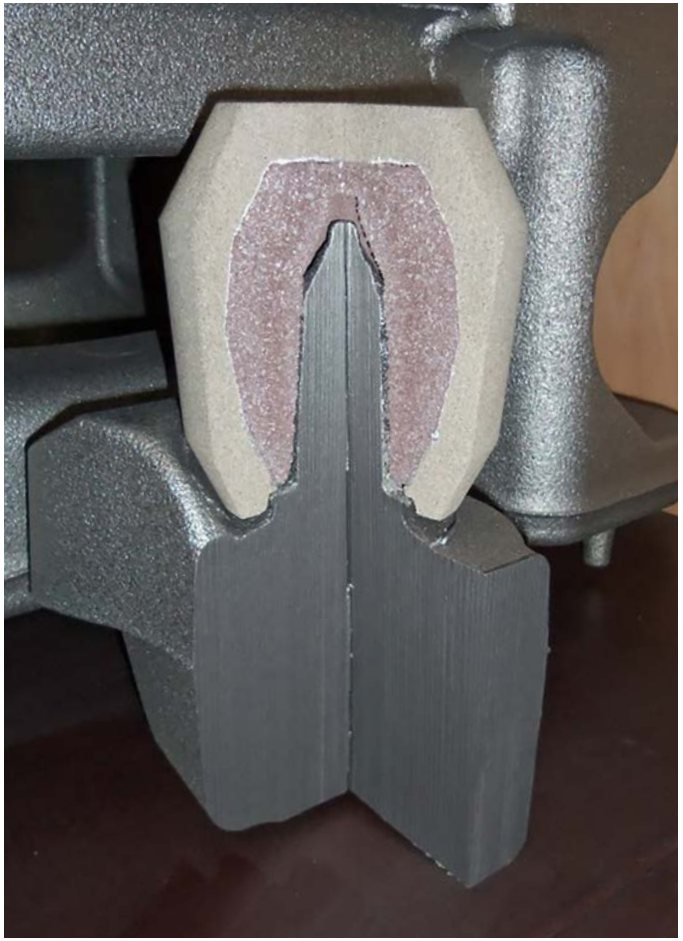


Image 5: ECO-Riser® on the pattern contour

Case study 2—positioning in the core package

In case study 2, an ECO 747 ME25N ECO-Riser was injected into a core part, where the riser was only partially surrounded by about 8 mm of sand. Despite this small wall thickness, the ECO-Riser was not heated by the adjoining casting wall. Thus, the solidification of the casting was not adversely affected and scabs and other surface defects were eliminated.

Key data

Used riser	ECO 747 ME25N
Module	2.2 cm
Volume	115 cm^3
Distance to the component wall	8–10 mm
Used accessories	ME60-25N

Image 6: Positioning in the core package

Highlights

- Maximized modulus with minimal space requirements
- Yield improvement
- No heating-up of surrounding core and casting sections
- Flexible positioning

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