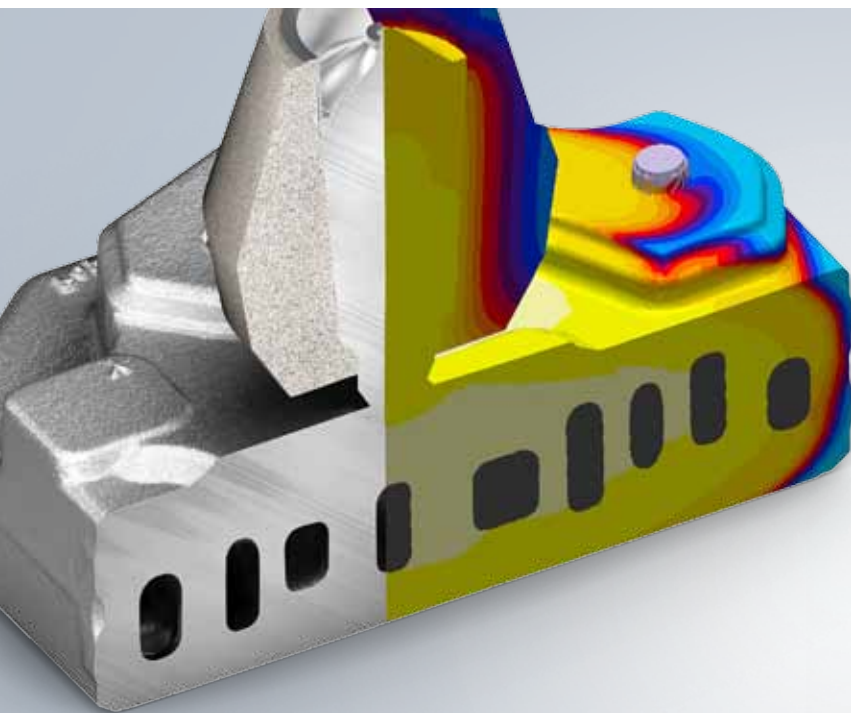


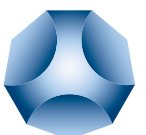


EXACTCAST Risers and Sleeves

Product Line Overview



ASKCHEMICALS
We advance your casting



Market-leading feeding solutions for perfect castings

EXACTCAST feeding solutions represent innovative solutions and the highest process reliability in the foundry. For instance, the min-riser technology combining several patents offers unique efficiency. These productivity-enhancing developments are industry-leading solutions. Modern casting concepts are subject to ever-higher quality and cost-efficiency requirements that do not stop at foundry auxiliaries. Our objective is to reliably support the foundry industry to maintain their strong position on the global markets by refining feeding systems on a continuous basis.

One crucial contribution is provided by our research and development. This can be described as the interaction between research powered by innovation and development based on market and customer specifications. Our customers must meet requirements that are growing in complexity. Just a few examples are the reduction of emissions, the elimination of casting defects, and the supply of consistently high quality, not to mention the pressure of costs affecting many foundries. These requirements can be met not only with qualified, motivated personnel and outstanding technologies, but also top-level research and development focusing on the elaboration of efficient and eco-friendly solutions, and without sacrificing key performance parameters.

ASK Chemicals offers its customers an integrated approach that extends far beyond a mere range of products. Our applications engineering and technical sales experts keep an eagle eye on the entire process stream and provide our customers with solutions that are tailored precisely to the prevailing conditions and their needs at all times. This know-how embodied by our specialists is supplemented with a comprehensive range of services that benefit our customers with genuine added value. For instance, our design services can be applied specifically to the optimization of the entire process stream – from the development of the feeding and gating system to series production – thereby revealing to our customers key savings and improvement potential.

- Inventors of the mini-riser
- Patented technology
- Eco-friendly solutions
- Local production facilities
- Integrated services offering added value

Basic Information

EXACTCAST Products

- Mini-risers
- Riser caps
- Sleeves

EXACTCAST Types



Water glass bonded risers

- Low emissions
- Simple handling
- Free of organic materials



Cold Box bonded risers

- Reduced weight
- Simple handling
- Patented Cold Box microspheres technology

EXACTCAST Formulations

➤ IN formulations

The IN formulation is an insulating mixture developed for use with all metals, including steel.

➤ EX formulations

The EX formulation is a standard exothermic mixture developed for all ferrous materials. Feeders and riser caps with this mixture exhibit a low fluorine content.

➤ EXF formulations

These are fluorine-free, exothermic mixtures. Fluorine-free mixtures not only offer ecological benefits, but also improve the quality of casting.

Custom solutions

Apart from the system solutions mentioned in this brochure, ASK Chemicals also offers you custom solutions to fit your individual process. Please contact us to discuss your specific needs.

The EXACTCAST mini-riser – the formula for success

One crucial factor affecting the productivity of a foundry is the fettling needed on the finished cast part. EXACTCAST mini-risers, which offer here clear advantages over natural sand and exothermic feeder caps.



Fluorine-free EXACTCAST risers for a clean environment and better casting

The fluorine-free risers from ASK Chemicals offer you crucial quality advantages and can eliminate fluorine contamination of the sand. This benefits both the environment and the foundry by reducing the quantity and disposal costs of the used sand.

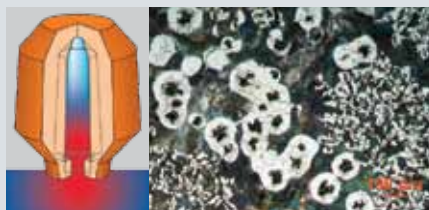


Elimination of surface defects

The patented, fluorine-free risers from ASK Chemicals enhance productivity by eliminating surface defects caused by fluorine reactions.



Nodular graphite without degradation



Degraded nodular graphite

Reduction of graphite degradation

The patented, fluorine-free recipe helps minimize graphite degradation in ductile iron that is usually encountered in the feeder's zone of action.

Mini-risers for standard applications

High-performance, versatile mini-risers for ideal results

EXACTCAST ADS

EX
EXF

EXACTCAST KMV

EX
EXF

The ADS riser is a high-stability solution suitable for No-Bake and hand-mold applications. ADS risers are free of fluorine. The riser can also be fitted with an open spring pin for use on automated green sand molding lines.

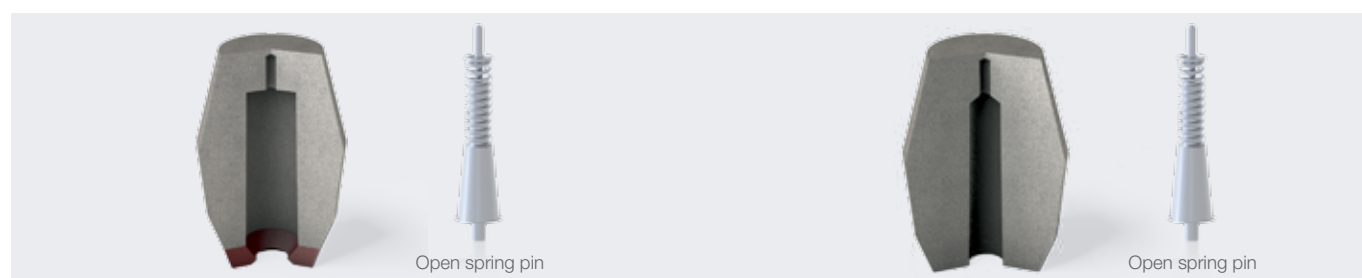
The KMV mini-riser is a particularly low-weight solution for use with a range of molding types. This versatile riser can be fitted with a spring pin or simply placed directly on the casting. The KMV is a highly exothermic solution available in a fluorine-free formulation.

Benefits

- Low emissions
- Available fluorine-free
- Reduced molten iron content for improved yield

Benefits

- Low weight
- Reduced molten iron content for improved discharge
- Optimized yield for steel casting



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
ADS	■	■	■	■	■		■	
KMV	■	■	■	■	■	■	■	

■ = recommended, ■ = partly recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Mini-risers in steel casting

New ways for metal feeding

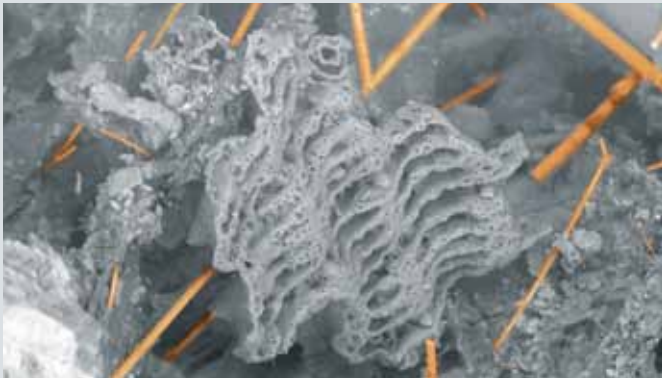
Conventional sleeves encountered in steel casting fill the molds with fibers, including rice husks that can lead to casting defects. Moreover, these slurry sleeves do not utilize their full volume for counteracting shrinkage defects. The yield effected is only 30 %. The remaining 70 % of the volume is used to maintain the heat in the 30 % of the molten metal needed for feeding.

This is exactly where the EXACTCAST KMV mini-risers come in, our fiber-free solutions for steel casting. The volume at the riser can be reduced without sacrifice to the feeding performance. The exothermic compound does replace the non-feeding material and maintains the metal in its molten state. The KMV mini-risers therefore present an efficient and reliable alternative to conventional slurry sleeves.



Casting defects caused by fiber sleeves

The photo shows surface defects caused by riser material inclusions.



Casting defects caused by rice husks

The REM image clearly shows riser material residue, here fibers (orange) and calcinated rice ash, leading to casting defects. Casting defects caused by fibers are eliminated with fiber-free mini-risers from ASK Chemicals.



Reduced feeder volume

Thanks to its reduced feeding volume and its exothermic formulation, the mini-riser offers interesting savings potential in steel casting applications and yield improvements.

Mini-risers with metal neck

Breaker cores are no longer needed

EXACTCAST BKS
EXACTCAST BKS C

EX
EXF



EXACTCAST
KVM-QM

EX
EXF



The BKS water glass bonded mini-risers and the organically bonded, lightweight KVM-QM make use of a loose metal neck in the bottom part of the riser and the corresponding spring pin. These provide a specially defined breaking point that makes it easier to detach the feeder. Fettling costs are reduced considerably as a result. In some cases, there is no need at all for rework. The BKS C mini-riser featuring a centering hole is designed for use on a rigid pin. Both variants are available in a fluorine-free formulation.

Benefits

- No breaker cores needed
- Extremely small contact areas to the casting
- No contact between mold section and exothermic feeder material
- A range of variants for your processes



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
BKS	■		■	■	■		■	
KVM-QM	■		■	■	■		■	

■ = recommended, ■ = partly recommended

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Mini-risers for automated high-pressure molding machines

Dynamic mini-riser system with reduced riser neck diameter

EXACTCAST FDS

EX
EXF

EXACTCAST KMV-QT

EX
EXF

FDS risers are used with spring mandrels, reducing greatly their fitting surfaces. In addition, they do not directly contact the casting. They are available fluorine-free.

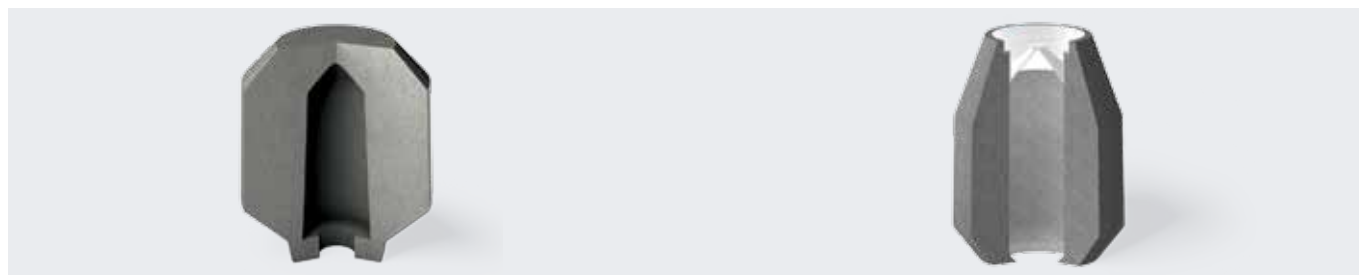
KMV-QT is a Cold Box bonded, cost-effective, lightweight feeder that is used with spring pins for minimized contact areas. The riser can also be used directly on the casting. They are available fluorine-free.

Benefits

- Low emissions
- Reduced riser neck diameter for reduced fettling costs
- The spring pin helps reduce contact areas, surface defects, and pattern wear

Benefits

- Low weight
- Reduced riser neck diameter for reduced fettling costs
- Plastic caps eliminate feeder inclusions on the mold surface



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
FDS	■		■	■	■		■	
KMV-QT	■	■	■	■	■	■	■	

■ = recommended, ■ = partly recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Mini-risers with freely moving metal neck



The most efficient and effective mini-risers

EXACTCAST
OPTIMA KL

EX
EXF



EXACTCAST
OPTIMA KMV-CC

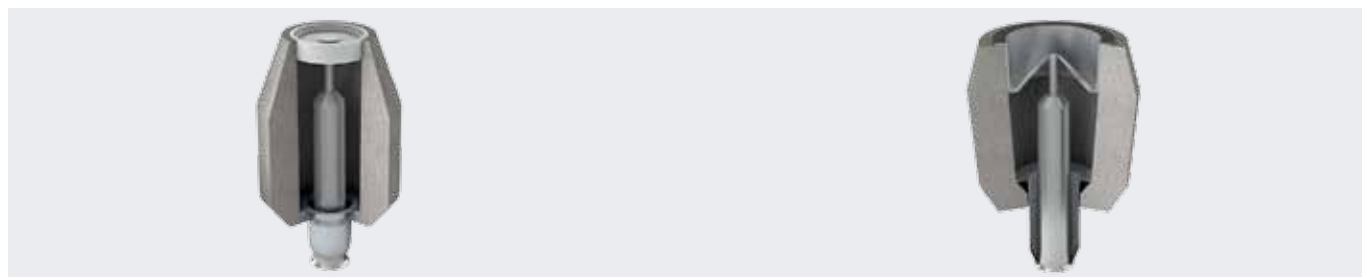
EX
EXF



The EXACTCAST OPTIMA risers offers all the advantages of the BKS and KMV risers with a loose integrated metal neck in the bottom part of the riser and the corresponding pin. These act as a precisely defined breaking point. In addition to the benefits provided by the BKS and KVM-QM feeder, the virtually frictionless sleeve and the integrated riser cap prevent crumbling particles from falling into the mold. Both variants are available fluorine-free.

Benefits

- No breaker cores needed
- Extremely small contact areas
- No contact between mold section and exothermic riser material
- A range of variants for your applications
- Riser particles are prevented from falling into the mold
- A 100 % inorganic variant of the OPTIMA KL riser with metal cover is available on request.



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
OPTIMA KL	■		■	■	■		■	
OPTIMA KMV-CC	■		■	■	■		■	

■ = recommended, ■ = partly recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Optima KL in competition

Increased productivity of the molding line

Riser applications with rigid pins usually destroy the riser during the compaction process, and the crumbling riser particles can fall into the mold. This can also be the case when spring pins are used under high compaction pressures. The OPTIMA KL and OPTIMA KMV-CC risers are fitted with a cover of non-friable material. Mold contamination and the associated casting defects are therefore eliminated, raising the cycle times on molding systems. There is virtually no need to purge the molds with air afterwards.

Problems encountered with various risers



- ⊖ Particles of riser material on the pattern surface
- ⊖ Purging the molds with air takes time

Result: Reduced productivity of the molding system

Solution in the form of EXACTCAST OPTIMA



- ⊕ Time savings
- ⊕ Shorter cycle times

Result: There is virtually no need to purge the molds with air afterwards

Riser caps with the efficiency of mini-risers

Improved discharge with feeder caps

EXACTCAST
KIM insertable

EX
EXF



EXACTCAST
KIM-QM

EX
EXF

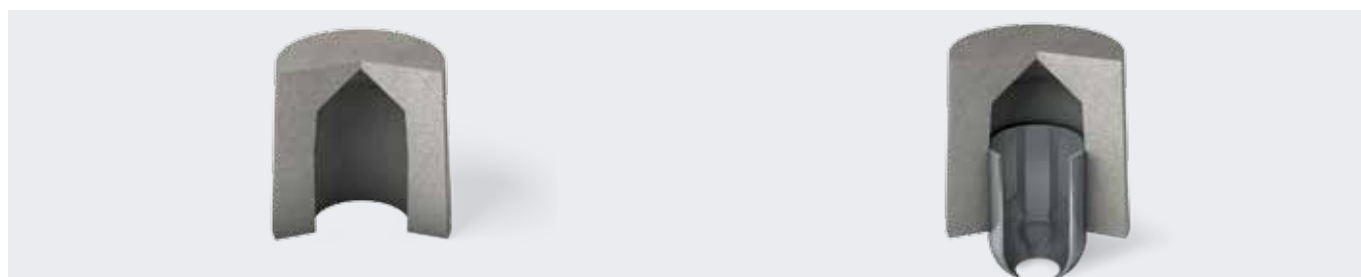


The new, insertable mini-riser series EXACTCAST KIM was developed for customers seeking to reduce their circulating material and hence the associated costs. The solution is the KIM risers, which exhibit double the wall thickness of conventional riser caps, and so require less metal as a result.

Thanks to the special combination of its material, this riser exhibits a very low overall weight. Available in a fluorine-free formulation, with or without breaker core, or with a reduced metal riser neck diameter.

Benefits

- Improved yield
- Additionally high insulating effect
- Available in a range of sizes



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
KIM	■	■	■	■	■	■	■	■
KIM-QM	■		■	■	■		■	

■ = recommended, ■ = partly recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Riser sleeves for open riser applications

Precision designs for a range of applications

EXACTCAST
neck-down risers

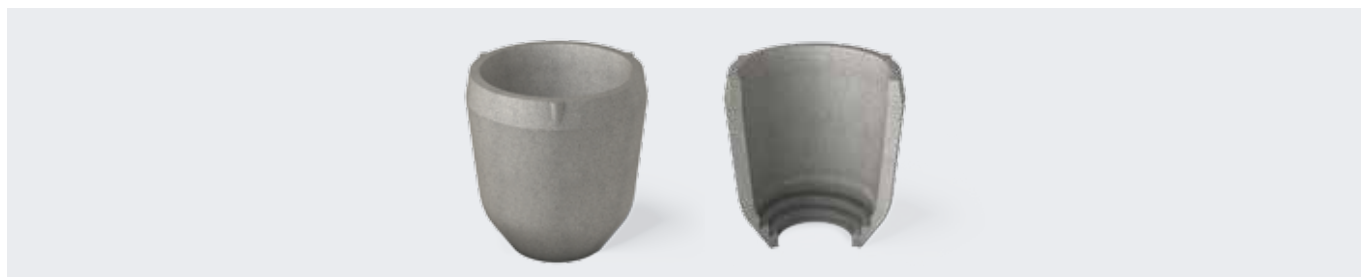
IN
EX
EXF



ASK Chemicals EXACTCAST neck-down risers are designed primarily for open riser applications. They are available in insulating and exothermic/insulating formulations. They are also available with a tapered geometry and fluorine-free, with or without breaker core.

Benefits

- Smaller contact area
- Dimensional accuracy
- Constant thermal properties and performance



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
Neck down	■	■	■	■	■	■	■	■

■ = recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Insertable riser caps and sleeves

Excellent dimensional accuracy

EXACTCAST
Insertable riser caps and sleeves

IN
EX
EXF



Riser caps and sleeves are available in highly exothermic and insulating designs. They are characterized by high strength and dimensional accuracy. They are suitable for inserting into molds and automated molding lines with core setters. They can also be used together with breaker cores and are available fluorine-free, with or without breaker core.

Benefits

- Low gassing
- Constant thermal properties and performance
- Suitable for use with breaker core



	Molding process		Metal type				Application	
	Green sand and high-pressure molding lines	Chemically bonded	GI	DI	Steel	Nonferrous metals	Placed on the pattern	Inserted in the mold
Insertable sleeves	■	■	■	■	■	■	■	■

■ = recommended

These are solely recommendations. For more details, please consult your ASK Chemicals contact.

Added Value for our Customers

Application technology and technical sales – for complete process transparency

Application technology and technical sales at ASK Chemicals offer our customers comprehensive expertise in all areas of foundry technology and metallurgy. We offer a comprehensive service that focuses on the production process as a whole and helps customers not only to cut costs but also to enhance their processes. ASK Chemicals also conducts casting defect analyses and offers its customers the opportunity to have tailored training sessions on the customer's own premises.

Benefits

- Improved decision-making thanks to greater transparency
- Reliable recommendations
- Quick response
- Customized solution development
- Cost-in-use reporting (i.e. savings)
- Casting defect analyses
- On-site training sessions

EXACTCALC

EXACTCALC software, which is exclusive to ASK Chemicals, was specifically designed to assist the foundry engineer with riser and gating system design. With EXACTCALC you will receive critical and comprehensive calculations: casting weight, modulus, riser feeding distance, riser size, riser neck contact dimensions, gating system dimensions and filter size.

Benefits

- Accurate recommendations
- Customizable “learning feature” specific to your foundry
- Printable results



Design Services – for perfect casting results

Our Design Services team monitors the entire process from the development of the design concept and validation right up to the production of the cast part prototype. Our engineers have a wide range of experience and a clear understanding of all aspects of foundry technology and metallurgy. Our Design Services team has the right combination of design, production and simulation expertise, co-operates with external companies and service providers, and enjoys extensive industry experience. ASK Chemicals' simulation service offers wide-ranging technical knowledge and understanding combined with state-of-the-art simulation programs (MAGMA, Novacast, FLOW-3D and Arena-Flow®).

Benefits

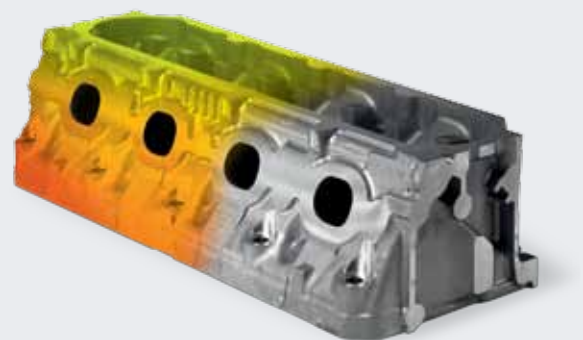
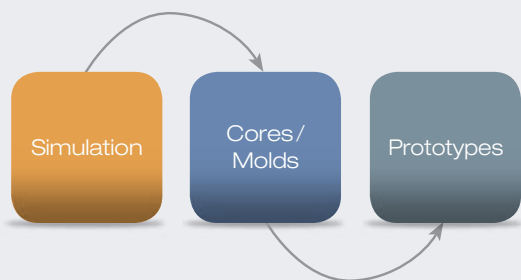
- Higher productivity and optimized catalyst consumption
- Manufacturing process design, including inorganic technology
- Calculation of optimal feed
- Optimized design and manufacture of model plates, core boxes and molds
- Less scrap
- Shorter product launch times
- Quicker time to market

Simulation services

The simulation of casting processes provides foundries with invaluable casting mold information. Specifically, this benefit allows for the optimization of gating and feeding systems, overflows, venting design and risers. Moreover, it provides critical insight into the influences and effects directly related to casting integrity, such as cooling and heating measurements, filling and solidification times.

From the idea to the prototype

ASK Chemicals supports your entire process from the concept to prototype production. Your benefit: you enjoy wide-ranging expertise from a single source.



Research and development – for innovation near you

Our Research and Development department performs both innovation-driven groundwork as well as market and customer-driven development. Interaction between these three areas is of fundamental importance in terms of offering our customers technologically sophisticated products and efficiency-enhancing solutions at all times. Through close cooperation and the constant exchange of ideas with our application technology and technical sales specialists, research and development at ASK Chemicals is always in tune with the market and also maintains a presence on the customer's own premises.

Benefits

- Many years of experience
- Global presence and availability
- Comprehensive knowledge of the regional sand types and technological requirements
- Short response times for our customers
- First-class equipment

Comprehensive research and development services

Pilot foundry

- Fully equipped research foundry
- Mold production, mold/core package assembly and casting
- "Real world" foundry process representation

Metallurgical investigations

- Comprehensive examination of the graphite structure and metallic matrix: graphite size, number of nodules, degree of dispersion, nodularity, ferrite/pearlite ratio
- Preparation of metallurgical reports

Sand laboratory

- Examination of high-temperature materials
- Testing of tensile strength, compression and transverse loading
- Sand characterization and analysis

Product development and technical support

- Casting defect analysis
- Full spectrum chemical and polymer analysis
- Product, process and test method development



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