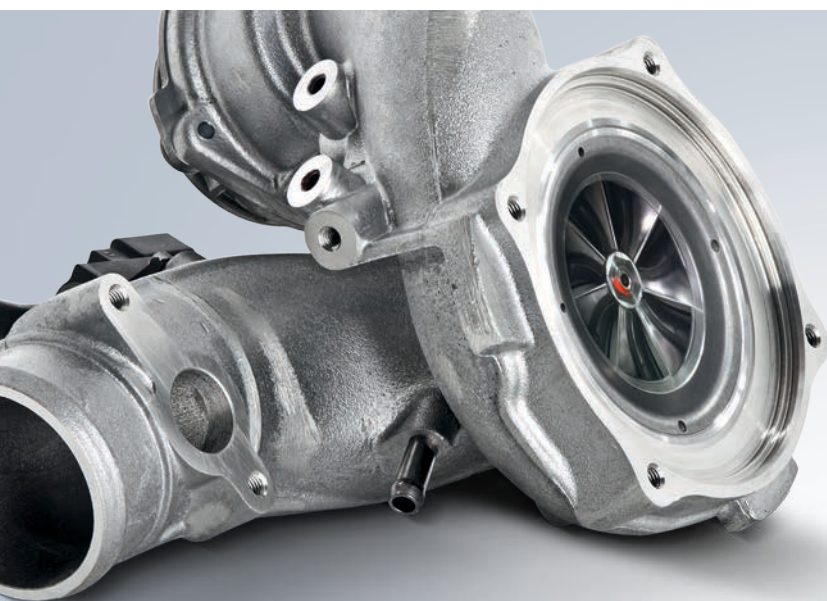


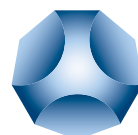


Investment Casting Filters

Product Line Overview



ASKCHEMICALS
We advance your casting



Improving Performance with Cleaner Metal

ASK Chemicals (legacy) has represented superior quality, excellence and innovation within the investment casting filtration market for over three decades. The company developed fully sintered reticulated ceramics in the early 1980s. This revolutionary technology represents the beginning of filtration within high-temperature alloys. Thanks to this advancement, investment casters worldwide now enjoy higher quality and cleaner metal with exceptional yield enhancements.

ASK Chemicals UDICELL reticulated ceramics – world renowned for their quality – represent the pinnacle brand in the industry. Produced to the very highest standards and using only the finest materials, this filter excels in terms of performance, quality and consistency.

In its position as an innovation leader, ASK Chemicals has introduced major patented technologies throughout its history. The edge-coated products and our high surface area filters are testament to this fact.

ASK Chemicals has also developed a holistic business approach designed to maximize our customers' added value.

In conjunction with our superior product portfolio we offer three outstanding complementary services to our customer base: Technical Services, Design Services and Research & Development.

- Developed fully sintered reticulated ceramics (legacy)
- Over 30 years of innovation
- Highly controlled in-house production
- Custom solutions
- Holistic value-added services

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.

Basic Information

Investment casting filter families

➤ UDICELL

Highest quality and purity investment casting filter based on zirconia

➤ EXACTFLO Alumina

Highly pure alumina filter

Industries served

Aerospace

Investment casting filters for structural castings, as well as engine blades and guide vanes within the aerospace industry

- Superalloys and aluminum alloys



Land-based energy

Investment casting filters for the manufacture of casting parts for energy generation (power plants, gas turbines, hydro and wind power)

- Superalloys



Biomedical

Investment casting filters for the medical field for perfect castings

- Superalloys



Automotive

Investment casting filters for the manufacture of highly intricate engines and engine parts, such as turbo chargers and highly durable exhaust manifolds

- Steel and superalloys



Master melt alloys

Filters for the production of base alloys required in investment casting production

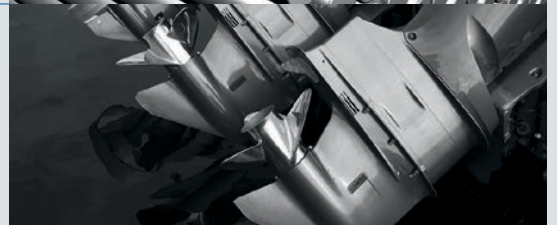
- Alloys



Commercial castings

Investment casting filters for many applications in the production of parts, equipment and machinery for the sports and recreation industry

- Steel and aluminum



UDICELL Cup Filters

Top performing filters for variable use



Cup filters are widely used because of their ease of use. Proper placement in the cup is important. ASK Chemicals produces the highest quality cup filters in the industry. Our filters can be flexibly tailored to meet customer-specific requirements. We also provide our UDICELL filters in a wide variety of specifications and pore sizes.

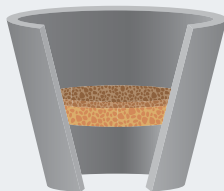
Benefits

- Minimization of non-metallic inclusions
- Low-turbulence mold filling guaranteed
- Available in tapered design with edge coating and/or fiber gasket

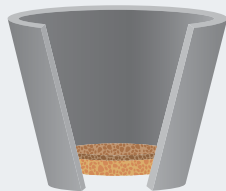
Filter placement in the cup

Proper installation of the filter ensures that functions successfully. Improperly placed filters will result in inconsistent flow rates and potentially improper sealing that can create gaps for molten metal to flow through.

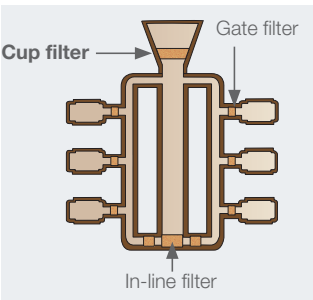
Incorrect placement



Correct placement



Cup filter



Filter size	Flow rate			Capacity	
	10 ppi	15 ppi	20 ppi	air melt	vacuum melt
inch	kg / sec	kg / sec	kg / sec	kg	kg
2.8 TOD x 1	6.2	5.7	5	95	98
3.9 TOD x 1	12.6	11.5	10.3	192	237
4.81 TOD x 1	19.6	18	16.1	300	369

TOD = tapered, outer diameter on top
The details supplied should be regarded as reference values and not warranted values.

UDICELL Gate Filters

Custom designs for the best filtration



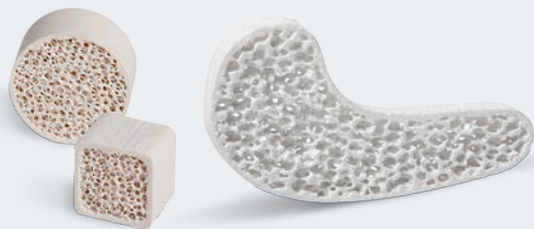
Coated gate filters are an effective option for the filtration of investment castings, as the gap between the filter and the casting is smallest here. ASK Chemicals offers gate filters in multiple shapes and sizes, and they are also available with a coating.

Benefits

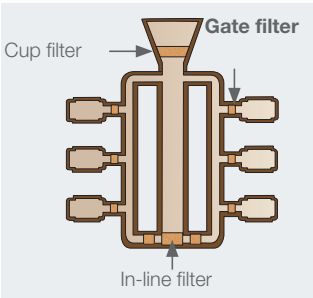
- Filtration closest to casting
- Filtration directly on the casting
- Available in multiple shapes and variants

Shapes

- Round
- Square
- Doughnut
- Custom



Gate filter



Filter size mm	Flow rate			Capacity	
	10 ppi kg / sec	15 ppi kg / sec	20 ppi kg / sec	air melt kg	vacuum melt kg
13	0.19	0.17	0.16	3	4
19	0.44	0.39	0.35	7	9
25	0.78	0.70	0.63	12	16

The details supplied should be regarded as reference values and not warranted values.

UDICELL In-line Filters

Reticulated filters for increased cleanliness



In-line filters provide filtration closer to the casting, even with fine pore size filtration. In-line filters reduce metal turbulence, thereby preventing shell mold erosion. ASK Chemicals offers in-line filters with a variety of coatings and in various shapes and sizes.

Benefits

- Reduction of turbulence in the runner system
- Available with edge coating
- Filtration close to casting

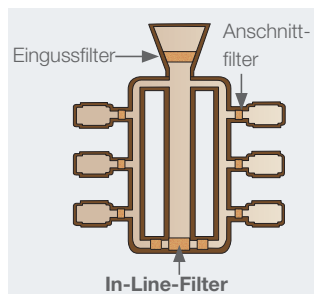
► INFO

Edge Coatings

FG – Range of fiber gasket materials to ensure a snug fit
SEC – smooth uniform edge coating for straight wall filter
FEC – durable edge coating applied to tapers and special shapes
Standard – no edge coat



In-Line-Filter



Filter size mm	Flow rate			Capacity	
	10 ppi kg / sec	15 ppi kg / sec	20 ppi kg / sec	air melt kg	vacuum melt kg
50 OD x 25	3.15	2.84	2.55	50	63
75 OD x 25	7.20	6.48	5.83	111	143
100 OD x 25	12.60	11.34	10.21	198	254
125 OD x 25	19.35	17.42	15.67	309	397

OD = Outer diameter
 The details supplied should be regarded as reference values and not warranted values.

UDICELL Tube and Dam Filters

Filters for master alloy production



Tube and dam filters are used in master melt alloy production within a Tundish furnace. ASK Chemicals offers custom shapes and sizes for different Tundish designs. Filters comprising multiple pore sizes are also available.

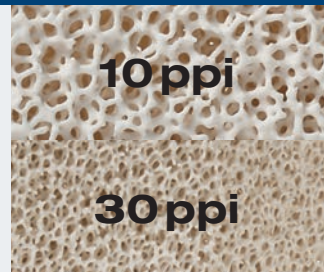
Benefits

- Suitable for a wide variety of Tundish designs
- Multiple tubular sizes and diameters available
- Available with coats, NewWave and dual pore
- Allows for multi-stage filtration

► INFO

Dual pore

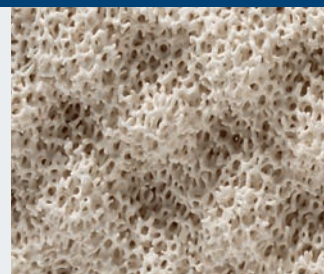
ASK Chemicals can produce filters with different pore sizes in a single filter, thereby enabling double filtration. The coarse pores on the inlet face of the filter protect the finer pores on the outlet face. Filters are available in any combination of pore sizes.



► INFO

NewWave

The NewWave design increases the surface area of the filter face and the undulating surface reduces metal splash during pouring. It also makes for improved priming.



EXACTFLO Alumina Filters

Excellent filtration for the highest demands



Alumina filters for the aerospace industry are ideally suited to the most demanding of applications. Available in dual pore, edge coatings, various pore sizes and shapes.

Benefits

- Reduced inclusions in aluminum alloys
- Comes in a variety of sizes and shapes
- Available in special designs
- Customizable

Alumina filter for the aerospace industry

The aerospace industry makes use of castings for the most demanding of applications. Consequentially, the quality required of these castings is of the utmost importance. EXACTFLO Alumina filters are an ideal solution for the production of aerospace castings. The fully sintered EXACTFLO filters exhibit excellent strength and optimum effectiveness in the removal of impurities from molten metal.



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

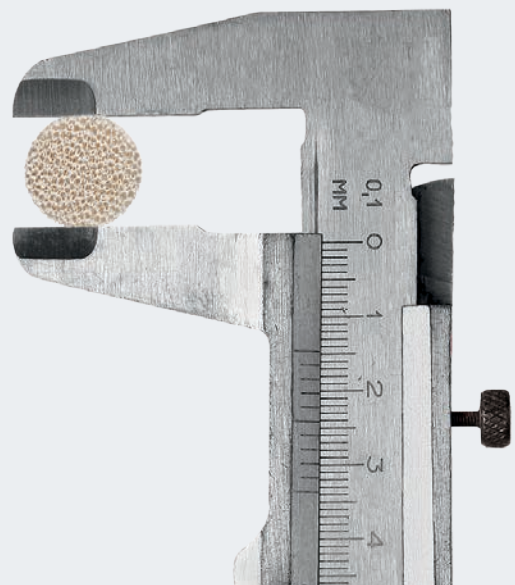
Technical expertise at your command

We support our customers with our technical expertise.

Our team of experts joins forces with our customers to find the ideal filter for their specific application(s).

We consider every critical factor: metal type, metal temperature, pour weight, pour time, required filter shape, filter placement and type of casting.

All these criteria must be considered...one size filter simply doesn't fit all situations.



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

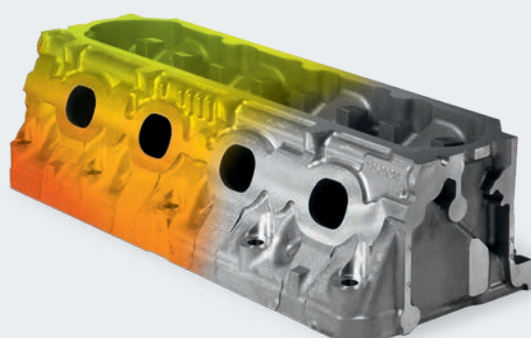
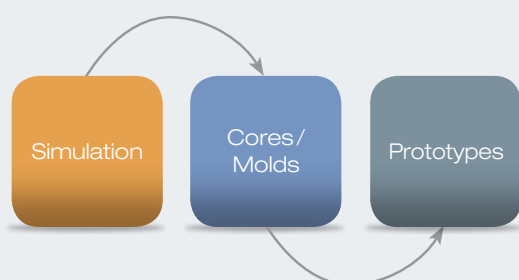
- Higher productivity and optimized catalyst consumption
- Manufacturing process design, including inorganic technology
- Calculation of optimal feed
- Optimized design and manufacture of model plates, core boxes and molds
- Less scrap
- Shorter product launch times
- Quicker time to market

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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Please contact ASK for any questions concerning the usage of these marks.

ASK Chemicals GmbH

Reisholzstraße 16–18
40721 Hilden, Germany
Phone: +49 211 71 103-0
Fax: +49 211 71 103-70
info@ask-chemicals.com
www.ask-chemicals.com

Ulrich Voigt
Phone: +49 173 7270607
Ulrich.Voigt@ask-chemicals.com

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