



# Innovations in riser technology





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# Chapter 01.

## **Company**

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## The GTP Schäfer principle

**We focus primarily on what we do best – the development, production, and distribution of exothermic and insulating riser systems as well as other innovative products that assist our customers in the production of high-quality castings.**

This is why GTP Schäfer is today one of Europe's leading manufacturers of foundry consumables. These include risers for castings used in the machinery and transport industry, drive housings, truck axle housings, components for wind turbines, and brake and safety components. Our product portfolio offers a broad range of risers, produced to strict quality standards for a wide variety of applications. Our end users include iron, steel, aluminum, and nonferrous metal foundries with both automatic and manual molding operations.





## Our customers are our key partners

Today, we continually promote the development of innovative riser systems in close cooperation with our customers. This partnership provides foundry specialists with tangible economic advantages, including lower energy and metal consumption during the casting process, less time spent on finishing, and enhanced surface qualities.

At GTP Schäfer, we also act as technology consultants for our customers, providing intelligent solutions to the growing challenges of their daily operations. Our focus in this area is on optimizing the overall production process, from the choice of individual application technologies to the efficient finishing of the castings.

An integral part of our guiding principle is always to keep our customers at the heart of our thinking, taking their entire production process into account and ensuring that our risers integrate seamlessly in their processes.



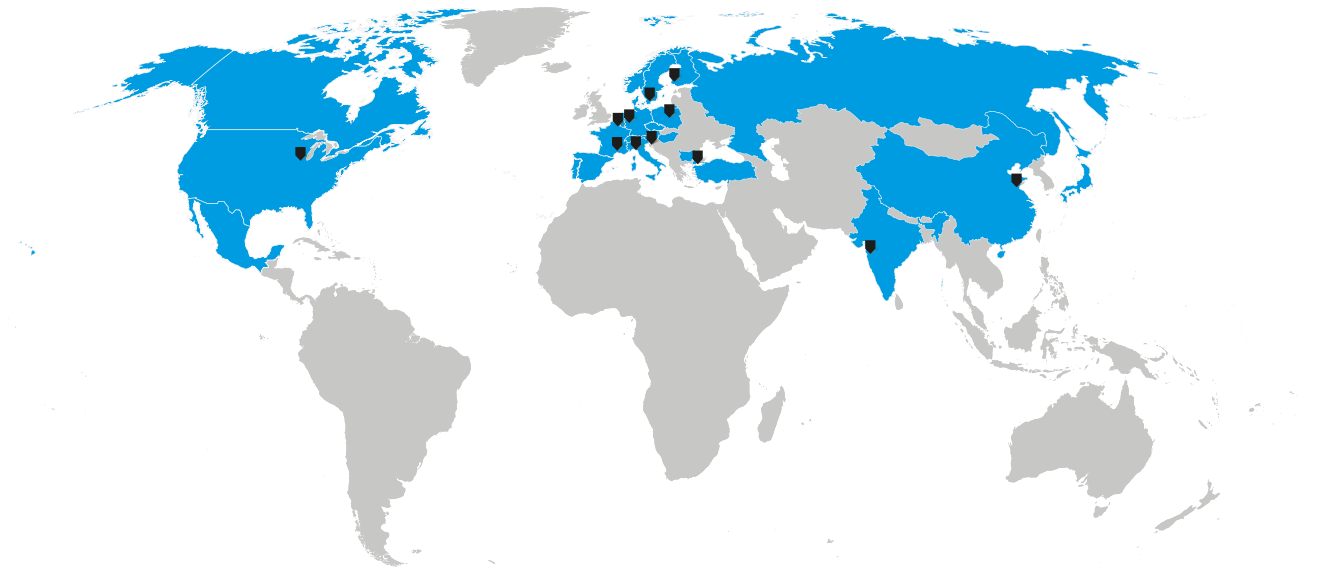
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## Global network

**We are a global company with operations in Germany, the USA, China, Turkey, and India. Our exclusive focus is on developing, manufacturing, and delivering innovative, high-performance riser systems.**

More than 160 employees work at our headquarters in Grevenbroich, in the industrial heartland of western Germany, where we have been producing riser systems since 1988. In recent years we have expanded into Europe, the USA, and Asia, enabling us to supply foundries all around the world. Together with our sales and service partners, we work with customers in over 25 countries.

As a family-owned business, we combine innovation, sustainability and strong growth with personal contact to our customers, employees, and suppliers.





# Standards

**The GTP Schäfer principle is also highly relevant to our own standards. We have very clear ideas about how we want to develop and manufacture our products.**

In addition to maximum efficiency and satisfying the requirements of our customers, our products also need to meet the exacting standards we set for ourselves. Unconditional reliability and outstanding quality are two crucial aspects in this respect. One of our principle goals is to continue manufacturing proven products, enhanced through practical innovations, with the aim of securing steady, well-founded, sustainable growth. We never forget where we have come from and what a long way it has been to get to where we are today. We are an independent company and intend to remain that way.





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# Chapter 02.

# **Products**



# Functional, innovative riser technology

**Our products – exothermic and insulating risers – are specifically used by foundries to improve casting quality. The exothermic reaction between aluminum and oxygen enables the riser to keep the metal molten for a longer period, effectively controlling the point of final solidification in the riser.**

GTP Schäfer is well-known for its functional, innovative riser systems, which enable foundry experts to accurately implement the increasingly complex, refined

casting geometries their customers require, right down to the finest detail. In order to achieve this high standard, they need to work with increasing compaction pressures in their molding lines. The constant advances that our customers achieve and the continual developments in their technologies are also altering the requirements they have with regard to our riser systems, which means a continuous process of innovation is essential.



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## Riser systems

In addition to our ability to adapt our riser systems to our customers' requirements for optimal geometries and application technologies, we can also individually customize the riser materials. On the binder side, we distinguish between standardized water-glass and cold-box-bound risers. Other standard binder systems used in the foundry industry can be applied as needed. With regard to the thermophysical properties, we can supply insulating, exothermic, or exothermic-insulating formulations, according to requirements. To protect the sand system in the foundry, we offer fluorine-reduced and virtually fluorine-free blends.







### Special-purpose products

Specially designed products such as riser feet, Williams cores, and special-purpose breaker cores complete our product range. In this area, we develop application-specific products in partnership with our customers, which are realizable in small, medium, and large production series.

### THERMO-Riser® (TG)

This group of products consists of exothermic and insulating risers with optimized volumes for use in both machine and manual molding. Using risers of this type, foundry experts can cover a modulus range from 0.8 cm to 8.0 cm. This product segment is completed by a wide range of breaker cores, enabling our riser systems to be ideally adapted to the changing needs of our customers.

### Sleeves (KX)

In the area of exothermic/insulating sleeves we offer a standardized product range. Due to the various riser materials and breaker core geometries available, these products provide foundry experts with a wide range of potential applications. Apart from their use in manual molding operations, the sleeves can be used in automatic molding lines and either molded or accurately inserted.

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## POINT-Riser® (PX)

**These risers have been specially developed to meet the challenging requirements of high-pressure moulding lines. They include a self-centering, internal contour and enable “POINT-exact” feeding of the relevant hot spots with the smallest possible footprint.**

Using our proven modular system, our risers can be customized to suit the individual application, part geometry, or material grade by adding elements from our extensive range of accessories. These include such things as exothermic reduction plates and flat metal disks, which are tailored to suit the specific riser modulus. The development of the ME disks as an option for our POINT-Risers® has enabled us to offer customers a riser system that has been optimized with regard to all aspects throughout the entire production process. Thanks to its minimal space requirements, even on critical model contours such as flanges, cams, or ridges, the riser can be precisely positioned on the relevant hot spots when planning the gating and riser system. Thanks to the high mechanical strength of the ME

disks, even high risers positioned close to the press head present no problem and optimal sand compaction below the riser is guaranteed at all times.

The ME disk sets a defined break point on the riser neck, which ensures the reliable removal of the riser rest right above the casting surface.

The use of our POINT-Risers® with the ME disk makes it possible to optimize all areas of the production process affected by the risers. The process features rational molding technology, the accurate feeding of the hot spots, and optimized fettling and cleaning operations.





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# Chapter 03.

# **Innovations**

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## 100% focus on riser systems

Our entire research and development capacities are devoted to delivering the best possible riser systems. This includes perfecting geometry and measurements, working on improved or new raw materials, and developing processes to produce even better risers. Our research and development departments in Germany and the USA work to identical standards and use the same procedures to ensure that our products have the same consistent quality wherever they are manufactured. Our technical center in Germany also has a facility to replicate production at laboratory scale, enabling us to develop under realistic conditions. The improvement of existing risers and the development of new solutions are always carried out in close collaboration with our customers. In our experience, this is the only way to achieve the best results.





# Exothermic performance

The choice of riser type depends both on casting requirements and customer-specific conditions. As a manufacturer of riser systems, we need to be able to set and consistently reproduce exothermic properties in serial and mass production scenarios. This is the only way to ensure that our customers can achieve constant, reliable, process results. In this respect, the consistent high quality of the raw materials used and the coordinated interaction of all parameters throughout the production process is crucial.

For individual formulations, tight quality tolerances are set and controlled via standardized testing procedures. This involves the use of standardized test samples in conjunction with appropriately calibrated measuring equipment. The control of exothermic characteristics is an essential part of the quality control system within our production process.



## Constant highly effective products

The performance of a riser is characterized by how long the solidification of the metal can be delayed, in order to compensate for the solidification shrinkage of the casting. Depending on the modulus and the geometry of the casting, various qualities of exothermic, exothermic-insulating, and or pure insulation are required. In terms of the riser modulus, it is important to ensure that the exothermic properties of the riser material are adjusted

accordingly. The requirements of risers with a small modulus that are used to cast parts with correspondingly small hot spots are different to those with a high modulus used in correspondingly large castings. These properties can be achieved through the strategic use of our raw material portfolio.





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# Chapter 04.

## **Customer service**

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## Customer service

Ensuring high-quality care and advice for our customers is, in our view, one of the essential requirements for a manufacturer of foundry consumables. Since the company was founded, we have focused on analyzing the challenges faced by our customers in close cooperation with them and jointly developing appropriate solutions. In this area, analysis should not be confined solely to the riser system, but also include the entire casting and application technology.

In addition, customer-specific conditions and requirements, such as the molding process and the sand system, need to be considered in the planning of the riser and gating system. Only when all relevant factors have been considered in the analysis can an optimal result be achieved.

In most cases, these tasks can be solved through the use of existing standard products. If this is not possible, special products and customized solutions can be

developed in close cooperation with the customer, flexibly and at short notice, suitable for small, medium, and large production series.

If desired, we can provide the complete range of project management services – including the proposal stage, the planning, testing, and definition of the technique, and mass production. This strategy ensures that we are always available to our customers as an equal partner, working together with them in a technical capacity right from the early stages of a project and continuously providing added value to optimize their processes.

In addition to supporting new projects, we also help our customers optimize existing production components. As a supplier, helping our customers to manufacture high-quality cast components consistently and economically enables us to continuously develop long-term customer relationships.



*Consultation*



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# Chapter 05.

# **Management system**

# Management system

**GTP Schäfer aims for constant high standards in quality, safety, environmental protection, and energy management. The continuous improvement of our processes, products, and services is an integral part of every aspect of our corporate philosophy.**

This holistic approach to standards is guaranteed by our fully documented, integrated management system (IMS) that ensures quality, safety, environmental protection, and energy management. We take our responsibility to fulfill strict ethical and legal requirements extremely seriously. That is why we ask accredited certifiers to examine our IMS independently and with respect to the following standards:

- DIN EN ISO 9.001
- DIN EN ISO 14.001
- DIN EN ISO 50.001
- 12th BImScV (Bundes-Immissionsschutzverordnung), the German emissions regulations

Our IMS is continually examined, both internally and by external experts:

- Riser system and trading goods
- Technical support and logistics services

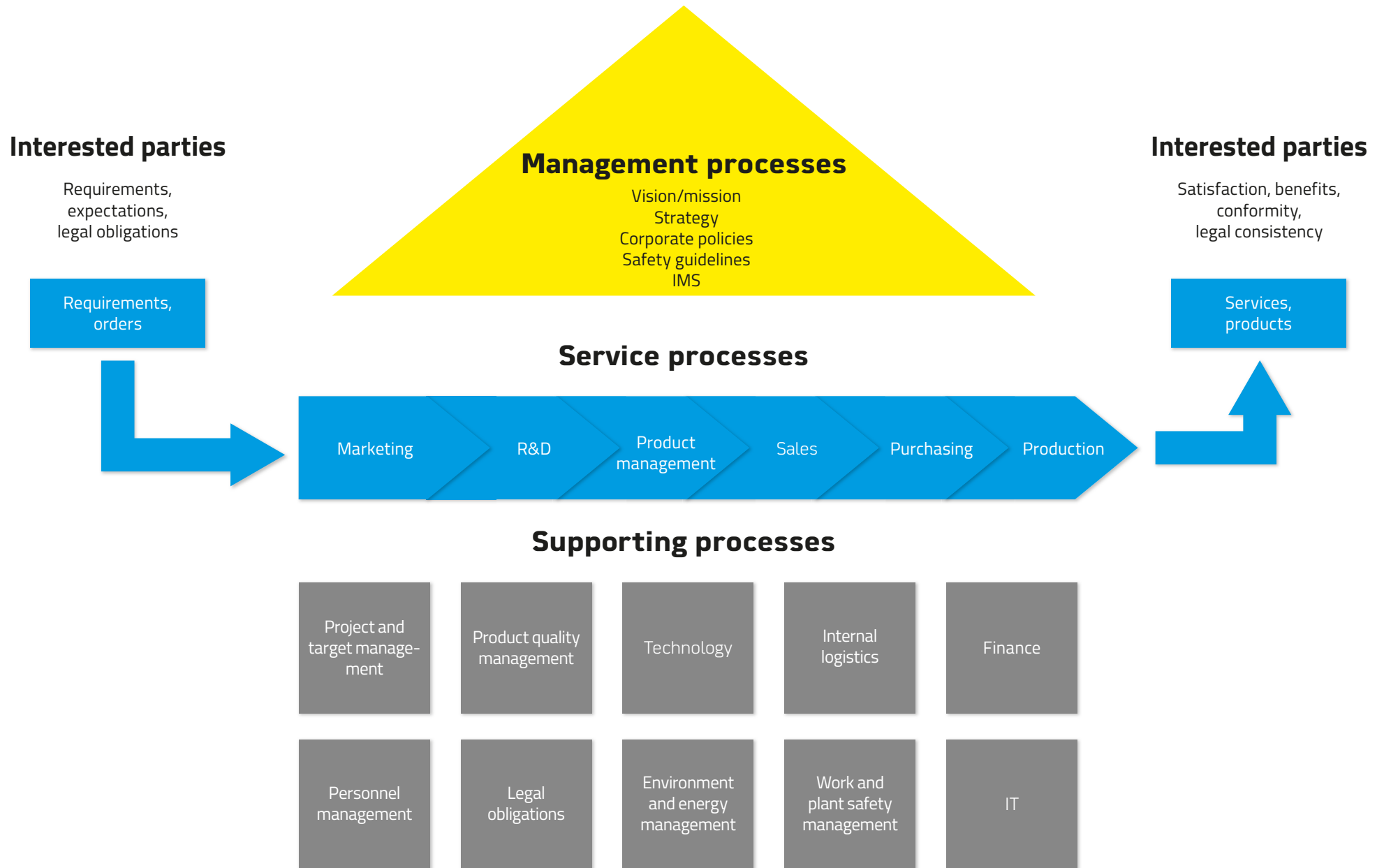
## **The IMS is organized as follows:**

- The organigram shows the connections between areas of responsibility and the individual parts of our company, including its departments and employees. A glance at the organigram should be enough to see who is in charge of who and how the channels of communication are organized.
- The process organization shows the flow of information and materials between business processes needed to complete tasks. Rooms, buildings, time, materials, and employees are all included with the aim of achieving optimal results within a shorter time if possible.

- Business processes are divided between management, delivery, and support. The interaction is fully documented.

For the IMS, all relevant internal and external subjects as well as interested parties are defined within the context of the company. Corporate policy and its aims are all formulated within the IMS and their relevance are examined as part of the annual management review.





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# Chapter 07.

# **Employees**

## Shaping the future together

Professionalism, a passion for what we do, and respect are our foremost priorities at GTP Schäfer. Our team of dedicated, highly committed people leverage their wealth of knowledge in a spirit of mutual appreciation. We provide our customers with outstanding products and services, ensuring our market position as an innovation partner for riser technology. We supply our products to customers in over 25 countries worldwide.

As a family-managed company, we combine innovation and sustainability in an atmosphere of trust in all our dealings with employees, customers, and suppliers.

Steady growth and the gradual expansion of our global presence has enabled us to continually expand and develop our team of experts. Today, people from more than 20 countries work together at GTP Schäfer to achieve one single aim in the best interest of our customers, enabling us to broaden our horizons each and every day, improving both as a team and as individuals.





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