

Packaging design

From the initial idea to its practical implementation



 **KRONES**

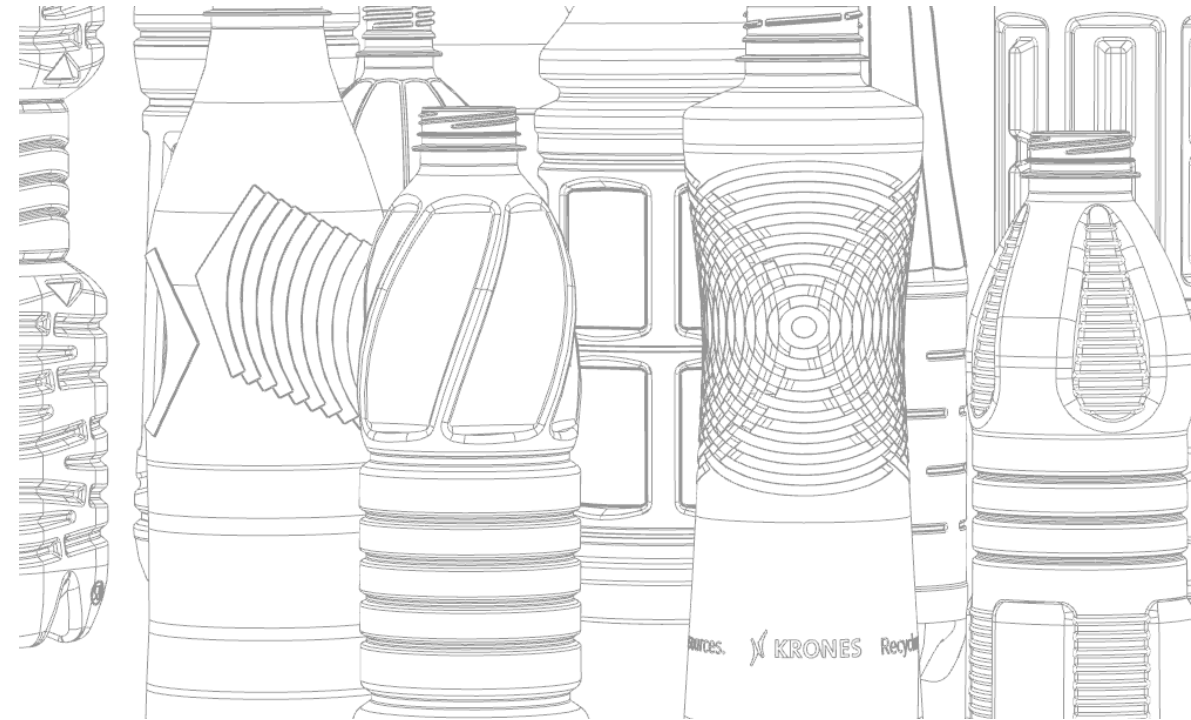
On the direct road to achieving your goal



The road to the ideal packaging always begins with a lot of questions. Which of the solutions is best for your product and your application, depends on a whole range of individual factors. Analysing and answering these is the task of the Krones design and consulting team. From preform design to secondary packaging: Together with you, the team first determines where the journey should go and then brings you safely to your desired destination.

What you can expect from Krones

- Professional expertise for the entire life cycle of your packaging
- Consulting services and other service activities from the design concept through to series production
- Development of solutions based on their individual framework conditions and influencing factors
- Support in the selection and specification of packaging materials
- Technologies for the manufacture, filling and recycling of your packaging



The design process at a glance



Good design is not simply a coincidence, but rather the result of a structured process. It starts off with a clear definition of goals which we then develop together with you.

We systematically work towards achieving the perfect solution. On completion of the project, you will hold a packaging in your hand that is fully developed in every way and with which you can start series production immediately.



Our services

Project check and concept design



Project check

Everything begins with a clear goal: In the project check, we provide you with an overview of our services while simultaneously determining your specific requirements and framework conditions. The result is a definition of goals that we have decided upon together and which the subsequent project contributes to reaching one-hundred percent.



Concept design

As soon as it is clear what your packaging should exactly achieve, the creative work begins: Our design team develops precise concepts – depending on the scope of the project, for a new individual packaging, a rebranding or a functional redesign of an existing packaging.



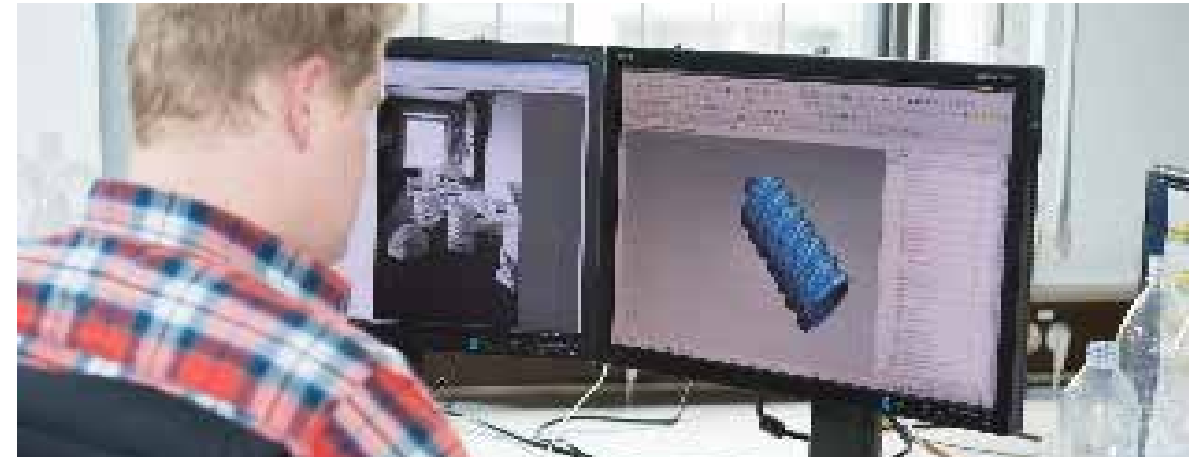
Our services

Visualisation, engineering and 3D mock-ups



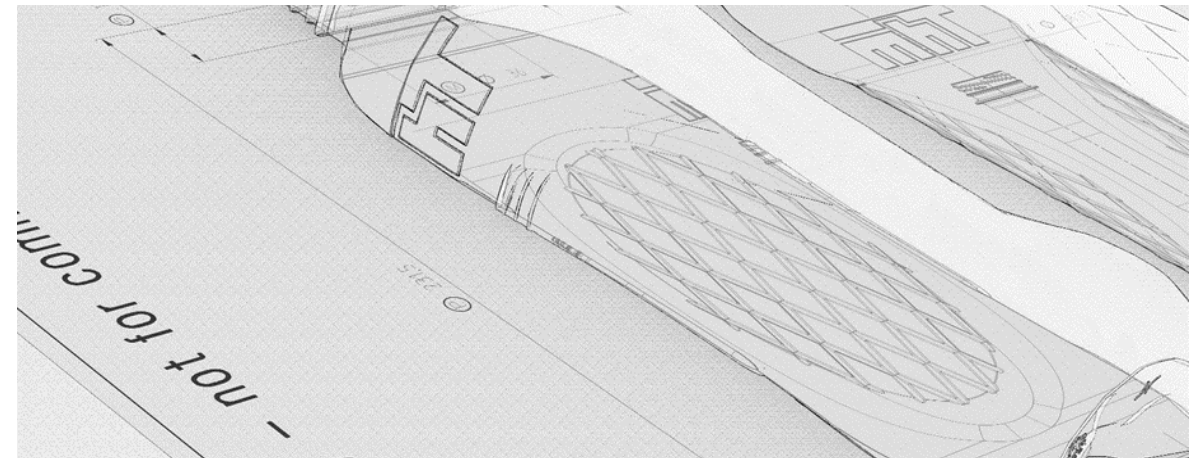
Visualisation

Images and models provide a valuable tool – for example for making technical comparisons or creating a common understanding of the goals. In line with the project in hand, we create a wide range of options: From “high-end hero shots” through to explanatory videos and 3D prints.



Engineering and 3D mock-ups

Once all of the specifications and wishes have been decided, we start converting the concept into a precise 3D model which makes it possible for all the resulting dimensions to be checked for feasibility and compatibility.



Our services

Preform dimensioning and FEA simulation



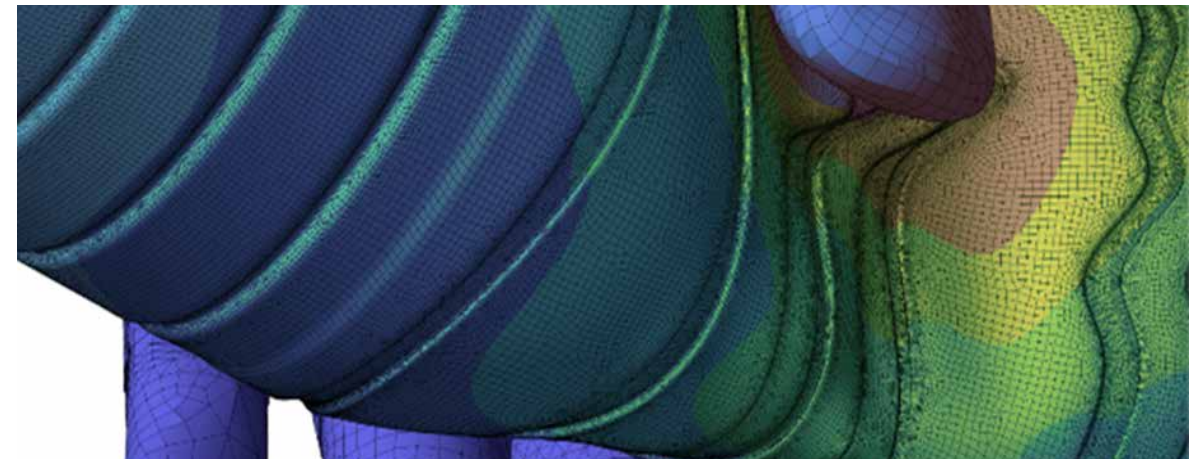
Preform dimensioning

The better the geometry of a PET bottle and its preform suit one another, the smoother and more efficient the process will be. With our subsidiaries MHT and IPS Plastics, we have the entire knowledge of the world of preforms and their production directly in our company.



FEA simulation

Can the design withstand the real framework conditions? What effect do logistics or storage processes have on the packaging? The finite element analysis (FEA) gives precise answers to these questions. This way, any stumbling blocks can be identified right from the beginning and eliminated in the early stages. This saves you valuable time, as well as a lot of money and other resources.



Our services

Pilot mould and laboratory tests



Pilot mould

No mould, no PET bottle: Each year, we at Krones manufacture around 20,000 moulds for blow moulders. This wealth of knowledge and experience is already mirrored in the initial pilot mould which we use to perform production tests for your bottle.

Laboratory tests

To optimise the blowing process, we carry out defined test procedures on sample bottles in the Krones technical centre. The progress and results of the test are documented with precision and transparency. We will gladly provide you with the sample bottles if required, thus allowing you to, for example, start consumer tests or test their compatibility with existing line equipment.



All influencing factors at a glance



There are a large number of influencing factors to be taken into account all along the design process. Their interaction and reciprocal effects are individual in every project – as are the solutions we develop for them.

The influencing factors we consider

- Consumer expectation and behaviour
- Brand identity
- CO₂ footprint
- Environmental compatibility
- Production, logistics and storage processes
- Material selection and lightweighting
- Label and closure options
- Recyclability
- and much more ...



The influencing factors in detail

Target group and framework conditions



Target group

It goes without saying that a brand identity should be unique and be reflected in the bottle design. However, the look and feel are no longer the only aspects important for consumers: ecological responsibility is taking on an increasingly important role. The greater the inclusion of sustainability concepts in design decisions, the more the brand identity will benefit from this. Our team can help you to identify potential and opportunities for saving on resources, above all energy, material and CO₂.

Framework conditions

The environment plays an important role, as the product behaves differently under different conditions, such as the climate, altitude and storage conditions (e.g. in refrigeration).



The influencing factors in detail

Product and caps



Product

Krones offers many different filling technologies that are exactly tailored to the specific needs of your product. The selected technology has a considerable impact on the freedom of design. This is why it is particularly important to weigh up the pros and cons of every decision.

Caps

The world is changing and new regulations are being introduced to guarantee increased sustainability – including the directive on tethered caps. We are at the forefront here and can advise you on the consequences and opportunities that accompany such changes.



Influencing factors in detail

Decoration and secondary packaging



Decoration

The bottle decoration is key if you wish to give your product a perfect finishing touch. From wrap-around labels to direct print, we offer you a number of different options to make your product stand out from the rest.

Secondary packaging

Secondary packaging also has a significant influence on the overall impact of your product – and should therefore be selected and designed with the same level of care. Here it is important to consider the conditions under which the products are to be stored, how they will be presented on the retail shelves, if a standardised crate dictates the outside measurements or if a particular packing pattern must be observed.



A strong network



Whether a design or systems contract: You can benefit from the cumulative expertise of the Krones Group in all of our projects. Our products originate from our own development work, are manufactured in our company and looked after by an international service team from different Krones Group locations.

The two subsidiaries IPS Plastics and MHT form an essential part of this network. As proven specialists for injection blow moulding technology, they are always at your service to answer detailed questions and provide precise solutions. Regardless of whether they regard injection moulding tools, the design of preforms and caps or turnkey systems for their production and recycling.



Fact-based sustainability



There is no general answer to the question of which packaging is the most sustainable, as: the true climate and environmental impact of one and the same product may vary greatly depending on its application and framework conditions.

Particularly because this topic is so complex and, above other things, can also have serious consequences, it deserves to undergo a thorough analysis. As part of our objective sustainability consulting, we create individual life-cycle analyses on a range of packaging options for you. With informative ecological assessments, you can weigh up the respective advantages and disadvantages, and make your decision based on facts.



The goal has been reached – but it is not the end



It is the most wonderful time in every project: You are handed your finalised design and can introduce it onto the market immediately. As a turnkey supplier, we are only too pleased to assist you with this as well.

Machine technology and digitalization

Whether it is the manufacture of beverages and packagings, filling and labelling, putting containers onto pallets and storing them, or recycling the plastic materials used in packaging: In the Krones Group portfolio you will find just the right answer for each task in your production process – both with regard to machine technology and the corresponding digital solutions.



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