

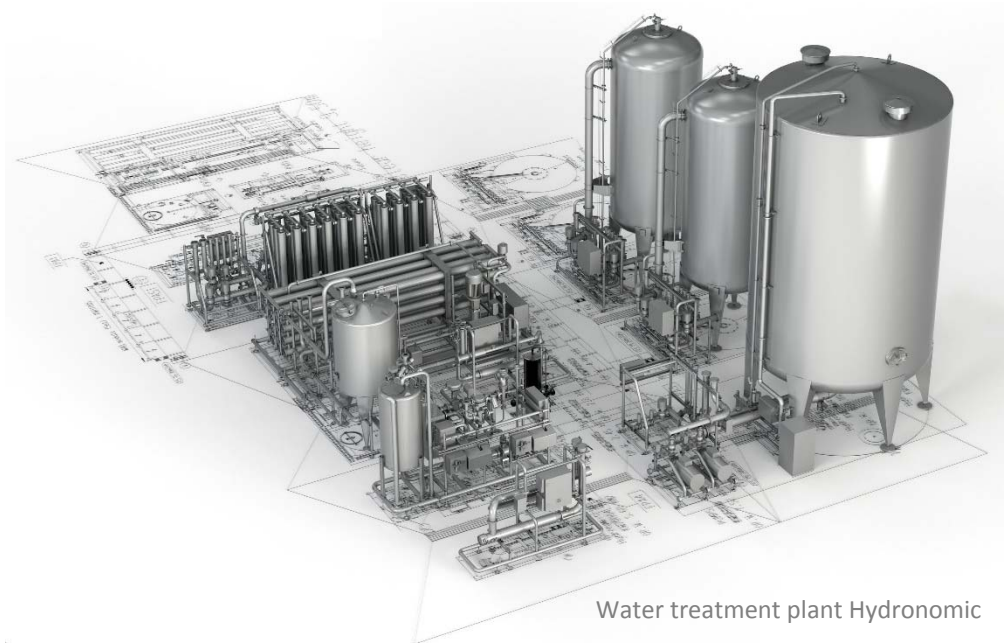
## Krones AG

# To bend or not to bend - that is the question!

**Acceleration of design and related processes through integrative systems exemplified by piping design and manufacturing with Smap3D Plant Design. With a stunning implementation; topped off with a big dose of euphoria.**

Krones AG is in high demand worldwide as a specialist in process technology systems, among other things. Particularly for a globally active company such as this one, which claims to be synonymous with system technology, there are high expectations from policy, industry and its own customers

with regard to the hot topic of “digitalization”. It stands to reason that digitization is also applied in-house in order to be able to adequately support the customer in the fourth industrial revolution - by providing machines and plants with high quality standards and high levels of networking.



Water treatment plant Hydronic

*“We are already reaping the benefits of Smap3D Plant Design shortly after implementation: Automated data transfer to CAD, ERP and other systems not only improves the efficiency and speed of day-to-day design work, but other departments also benefit from the solution since relevant data are provided early on for further planning and changes.”*

Volker Richter, Head of Mechanical and Process Engineering

## Identification of optimization potentials for existing design processes

“Our main concern is to make the entire design process based on the existing 3D CAD system even more efficient,” said Volker Richter, Head of Mechanical and Process Engineering for Soft Drinks, Dairy and Water. In particular he and his team are responsible for the design of process equipment with a focus on the soft drink industry, mixers, CIP systems and thermal product systems.

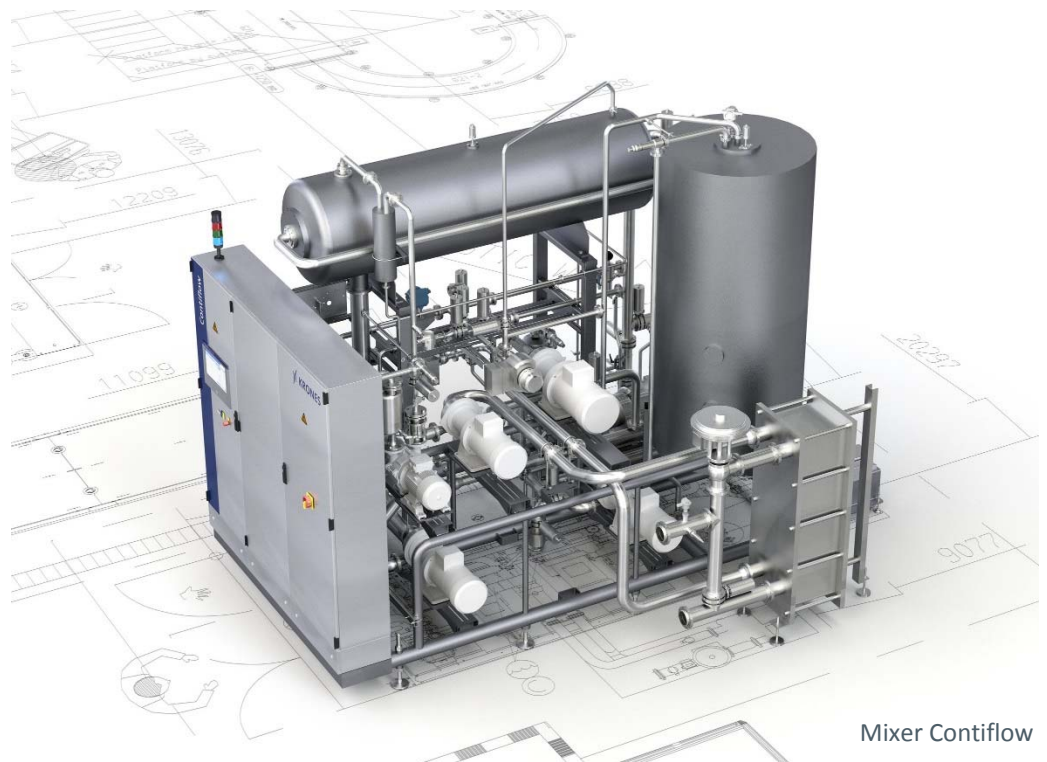
The design of pipeline sections - with a view to their production - plays a significant role at Kronos. The maintenance effort required to create the pipelines in the 3D design proved to be extremely time-consuming. For example, changing the pipe size required a complete redesign, although other elements could be retained.

However, another potential for optimizing the existing processes could also be identified: Without a centralized pipe library, information about existing components was collected in an Excel spreadsheet. With access by several employees, this form was not optimal for handling.

An interface to the existing SAP landscape was also desirable. Finally, the company needed the ability to integrate all data from the design, the pipeline planning and from the parts lists at the push of a button.

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Volker Richter, Kronos



Mixer Contiflow

## Flexible indeed! Bending under optimized conditions

With the introduction of Smap3D Plant Design's 3D pipeline planning software Smap3D Plant Design, Kronos AG is relying on an inter-nationally used software solution. For an optimal process chain, Smap3D Plant Design is the software solution for plant design and 3D design that combines exactly what is essential for consistent planning: the individual detail with the overall perspective - from pipe features in centrally defined pipe specs with 3D plans, to complete 3D piping systems.

With this solution, during the design process, the designer can check whether pipes are mechanically bendable, e.g. exceed a certain length known as the "minimum bending

length." For orbital welding, this information is essential: An automated welding seam is only possible on the basis of a minimum length so that the welding gun can be positioned accordingly. Even if a manual seam is no longer an option as a result of falling below the minimum pipe length, the designer receives a notification from Smap3D Plant Design and the pipe is not even generated!

This eliminates reworking and correction in the design and manufacturing. Volker Richter appreciates this functionality: "As early as the design stage, Smap3D Plant Design informs us if we fall short or exceed a length. That alone can result in huge savings."



Aseptic, thermal product treatment VarioAsept

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### Less redesign

With Smap3D Plant Design, the designers at Krones can significantly reduce the number of redesigns. Previously, a complete redesign was necessary when a change was made to the nominal pipe diameter. This problem is now eliminated. The central definition of pipe specs also contributes to an accelerated design process. The Excel spreadsheet is now a thing of the past: all relevant information is contained in the Smap3D Plant Design

pipe library. The well-stocked library also benefits new employees, who can access and benefit from the existing knowledge of the entire department.

On the whole Volker Richter expresses the result in the following tangible terms: "In the field of soft drink systems alone, we can save three quarters of a man-year with Smap3D Plant Design."

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Volker Richter, Krones

### Digital twin and automated data transfer

A central feature of "Industry 4.0" is the networking of systems in accordance with uniform data flow and control of all relevant processes along the value chain. The digital twin as a virtual image of these processes can also be found in the design department at Krones: the data from the pipeline design are transferred from Smap3D Plant Design into the existing PLM system. Using an interface from Smap3D Plant Design, Krones imports the pipe spec data directly and automatically into SAP via ECTR.

At the same time, the data for the construction of pipes is transferred directly to the bending machine in the Krones pipe processing center. These automations not only save time, but they also provide a solid source for better assessment and reporting as processes can be tracked and followed across multiple areas. The "virtual factory" is not just an empty phrase: At Krones, the concept becomes a reality, one which could also be groundbreaking for other industrial companies and groups.

*"The plausibility checks and other functionalities in Smap3D Plant Design provide the designer with early information about whether changes in his planning are necessary and whether the pipes can be manufactured. Even the considerable expense of a redesign when changing the nominal pipe diameter is eliminated: Smap3D Plant Design adapts all other parameters that are needed to the newly entered value - the drawing can remain in use! An incredible savings potential!"*

Volker Richter, Head of Mechanical and Process Engineering

## Fast go-live, driven by euphoria

When discussing the collaboration, both Smap3D Plant Design GmbH and Krones describe a fast and highly professional implementation. The fast go-live was made possible by a sound concept, which is based on Smap3D Plant Design's detailed survey of the current processes in the analysis phase. According to Volker Richter of Krones, "The very efficient cooperation between Krones and Smap3D Plant Design has developed an amazing momentum of its own: The structured procedure and the many early successes have created a euphoria that has accelerated the entire process of introducing this solution."

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In an effort to get the most out of the existing systems and the new Smap3D Plant Design software solution, the existing skills of both the individual department managers and users was bundled. Stefan Islinger (Information Management IM-CAD Support), with his collective software expertise, was able to formulate the catalog of requirements precisely and take into account the adjacent processes.

Volker Richter on the other hand, with his specific expertise in mechanical construction, was crucial for the connection to the central bending center. Smap3D Plant Design GmbH, with its team from technology, sales and training, provided for a practicable and quickly implementable concept as well as for a quick introduction, which was accompanied in a targeted manner by their individually adapted training courses.

Maxim Lich, Vice President of Smap3D Plant Design at Smap3D Plant Design, is very pleased about the fruitful cooperation: "The implementation at Krones is exemplary: an analysis of the existing processes enabled the implementation to be prepared systematically and step-by-step. The strict adherence to the planning as well as the valuable experience of those responsible have made the implementation as pleasant as it is successful, for everyone involved."

[www.krones.com](http://www.krones.com)



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