Water design

Complete concept for water,
exactly in line with your requirements

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When is the re-mineralisation of water necessary?

Health-related issues and trends, and even environmental reasons contribute to minerals being added to water more and more frequently.

Environment

Increasing environmental contamination also pollutes untreated water. More and more traces of man-made substances can be found in natural water sources.

Trends

Depending on the age, sex and origin of the consumer, there are a range of products where the focus is directed on the respective background and personal lives of the target group.

Health

More and more frequently, consumers consciously choose fresh, organic products – free of ingredients that could harm the body (e.g. sugar).

Essential
Untreated water loses all of its minerals during the intensive, yet necessary, treatment process.

Required

Possible

Remineralisation during water treatment

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The all-round carefree solution: water design from Krones

As an all-round partner, we support you throughout your entire production lifecycle – from product development and factory planning, appropriate systems technology and consumables, through to after-sales business – and thus create a water that is exactly just as you want it:

Formula development

We work with you to develop a formula that meets your requirements. In addition to our experienced experts, you are also supported by a certified water sommelier in order to fulfil your individual requirements when it comes to the water quality and required taste of the end product.

Systems expertise

With the Hydronomic series, Krones provides an individual programme for the careful treatment of your untreated water. This way, you can give your water precisely the character that suits your product and appeals to your customers.

Minerals

You receive a complete package from us containing all of the necessary consumables and ingredients such as salts and minerals. The ingredients are, of course, perfectly adjusted to suit your formula.

Let us commence your water journey together!

In detail
Formula development

Three scenarios – and always the right Krones solution

1 **Do you already have a finished formula for your future product?**

The experts from Krones design the Hydronomic systems technology to ideally suit your product – and in doing so absolutely take both the untreated water quality and the desired end water quality into consideration.

2 **Are you looking for support in the development of formulas and remineralisation of your water?**

Krones combines a trained water sommelier's wealth of knowledge with many years of experience in process technology – thus offering you accumulated expertise to create an individual formula for the remineralisation of your water. We model water samples (depending on the type/scope) just as you want them, in internal or external tests. The chemical analysis is verified by external laboratories. A water sommelier or relevant test panels at Krones are then responsible for the sensory evaluation.

3 **In addition to targeted remineralisation, would you also like to add flavours or special ingredients to increase the value of your product?**

Are you looking for an all-round partner for formula development and implementation? Get the most from our comprehensive network, which combines the widest range of professionals dealing with the subject of water:

- With its wealth of knowledge and experience when it comes to the treatment and production of beverages, **Krones** excels.
- **KIC Krones** provides all of the consumables and additives needed for remineralisation with the Hydronomic.
- And thanks to our cross-sectoral network, we have access to **experienced partners** at any time if required.

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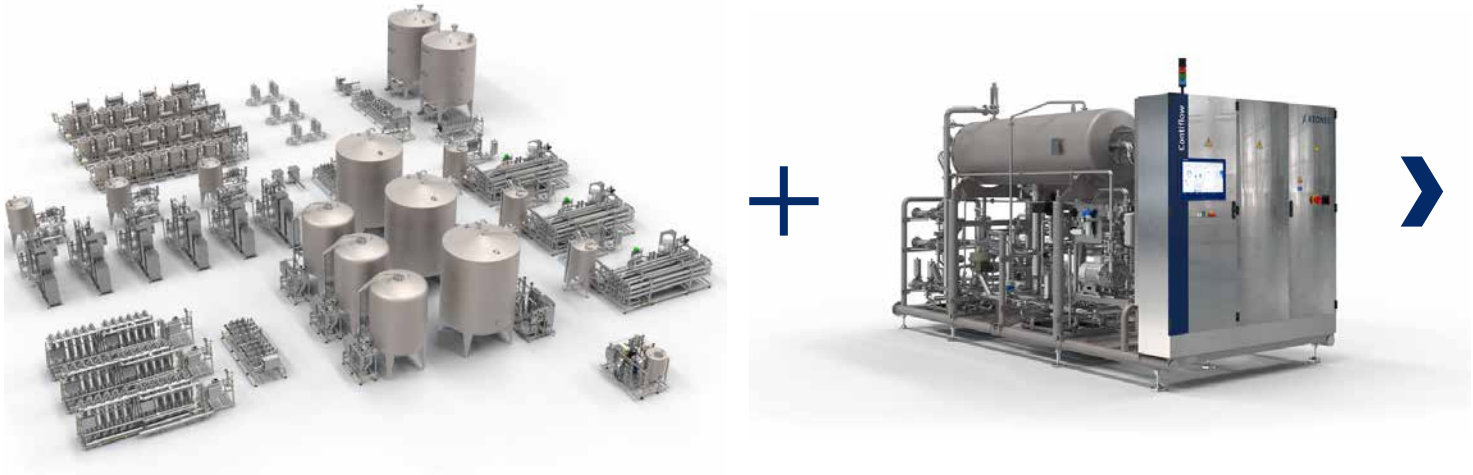
Line expertise
The Hydronomic series at a glance

Whether conventional mineral water, with added vitamins or flavourings, or mixed with tea or juice: water can be used in a variety of fashions – and the Hydronomic series offers modules for all steps of the treatment to create individual waters.



The Hydronomic water treatment system (left) can also be combined with the Contiflow mixer. It mixes up to eight different liquid components in an inline system and also deaerates or carbonates the product if necessary.

* Colour, flavouring, plant extracts, acid

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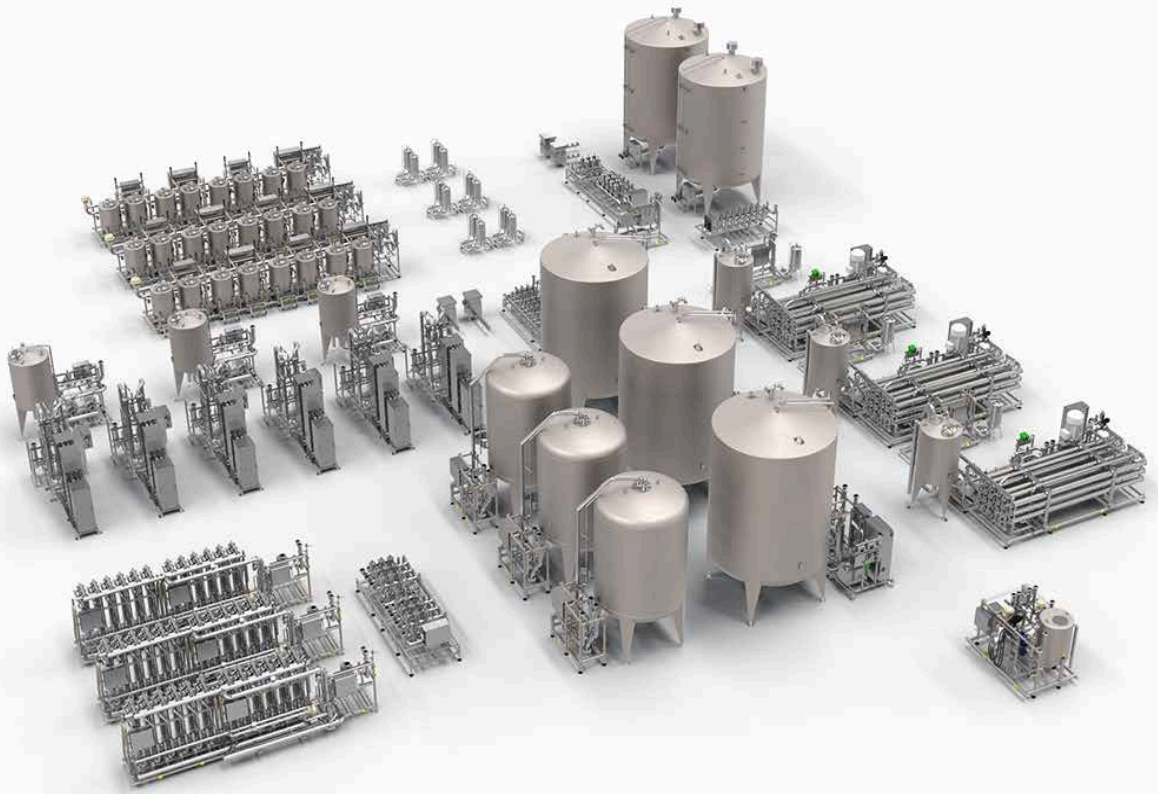
The Hydronomic series
Benefits to you

- It operates with a water treatment process which is tailored exactly to your requirements
- It prepares between 5 and 120 cubic metres of water per hour – optionally with a variable production quantity
- Minimised quantity of waste water thanks to its sophisticated technology
- Best possible access for operators and service personnel
- It can be expanded thanks to modular design
- Hygienic design throughout:
  - Guarantees the highest microbiological safety and reduced cleaning work
  - The stainless steel design allows for complete sanitisation with hot water



Our solutions for your water treatment

We adapt the equipment for your individual treatment steps exclusively to suit your economic and technological requirements. With our modular component system, we will always find the correct solution – from the high-end all the way to a cost-attractive basic version.

Hydronomic MF/GAC (Media Filtration)

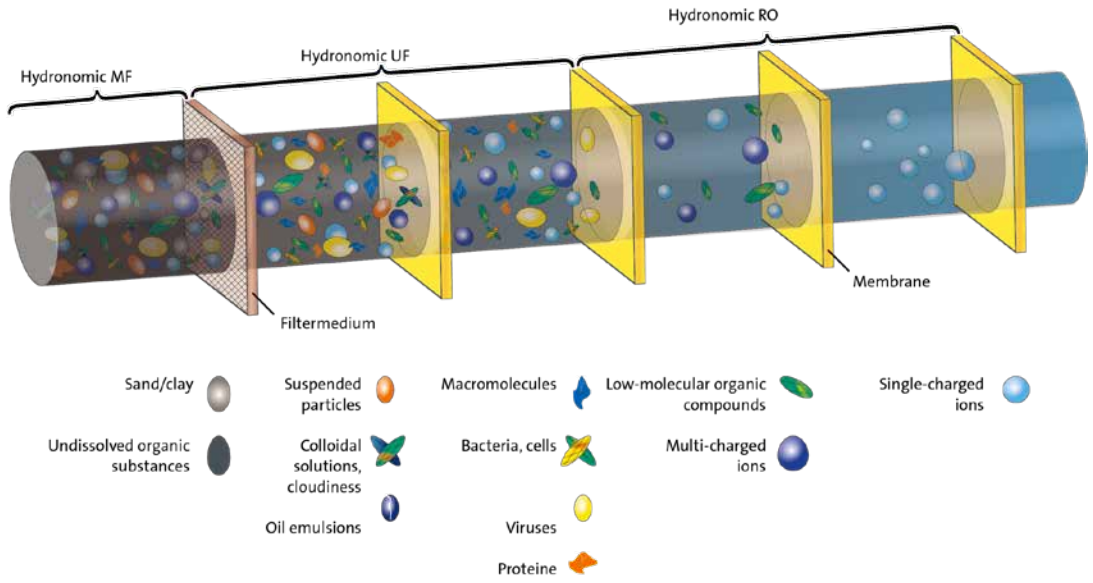
It filters and adsorbs any unwanted and undissolved water content (suspended solids, odorants, organics, chlorine, iron, manganese, etc.) with different filter media (e.g. silica sand, manganese oxide, basalt and activated carbon).

Hydronomic UF (Ultra Filtration)

Uses the most up-to-date membrane technology with hollow fibres (pore size of 0.02 µm) for the ultrafiltration of water in in/out operation

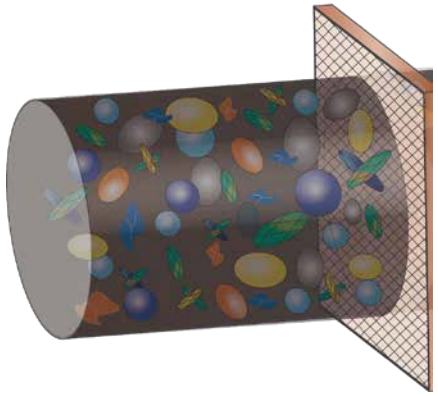
Hydronomic RO (Reverse Osmosis)

Desalinates water with membrane technology in a reverse osmosis technology where the wound membrane module is flushed tangentially

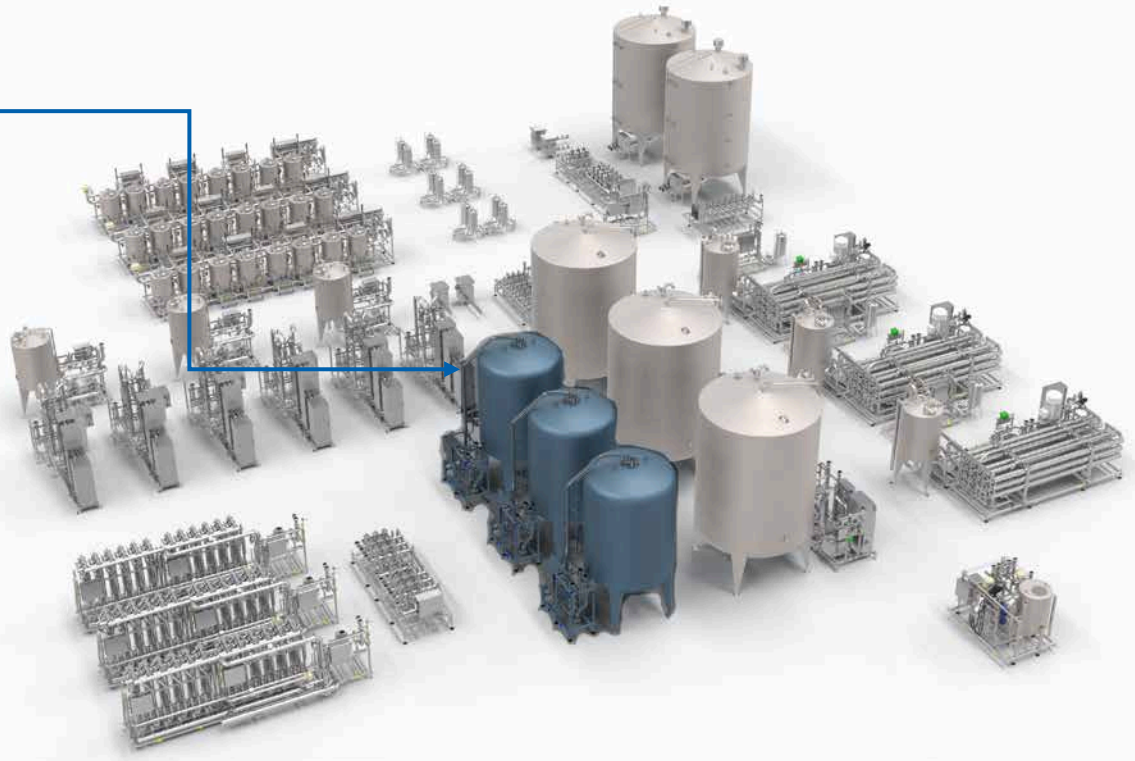


The modules in detail
Hydronomic MF/GAC

The module filters and adsorbs any unwanted and undissolved water content (suspended solids and odorants, organics, chlorine, iron, manganese, etc.) with different filter media (e.g. silica sand, manganese oxide, basalt and activated carbon).



- MF: media filtration
- UF: ultrafiltration
- RO: reverse osmosis
- EDI: Electro-deionisation
- MDS: mineral dosing station

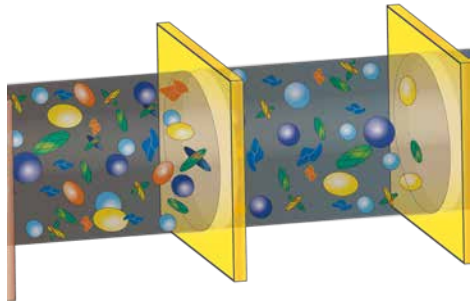


The modules in detail
Hydronomic UF

The Hydronomic UF uses the most up-to-date membrane technology with hollow fibres (pore size of 0.02 µm) for the ultrafiltration of water in in/out operation. Typically, ultrafiltration is also used to extend the production time of an (optional) downstream reverse osmosis system by additionally filtering the water.

Highlight

The individual control of the filter modules in the Hydronomic UF guarantees uninterrupted production. Only ultrafiltrate is used during backflushing.



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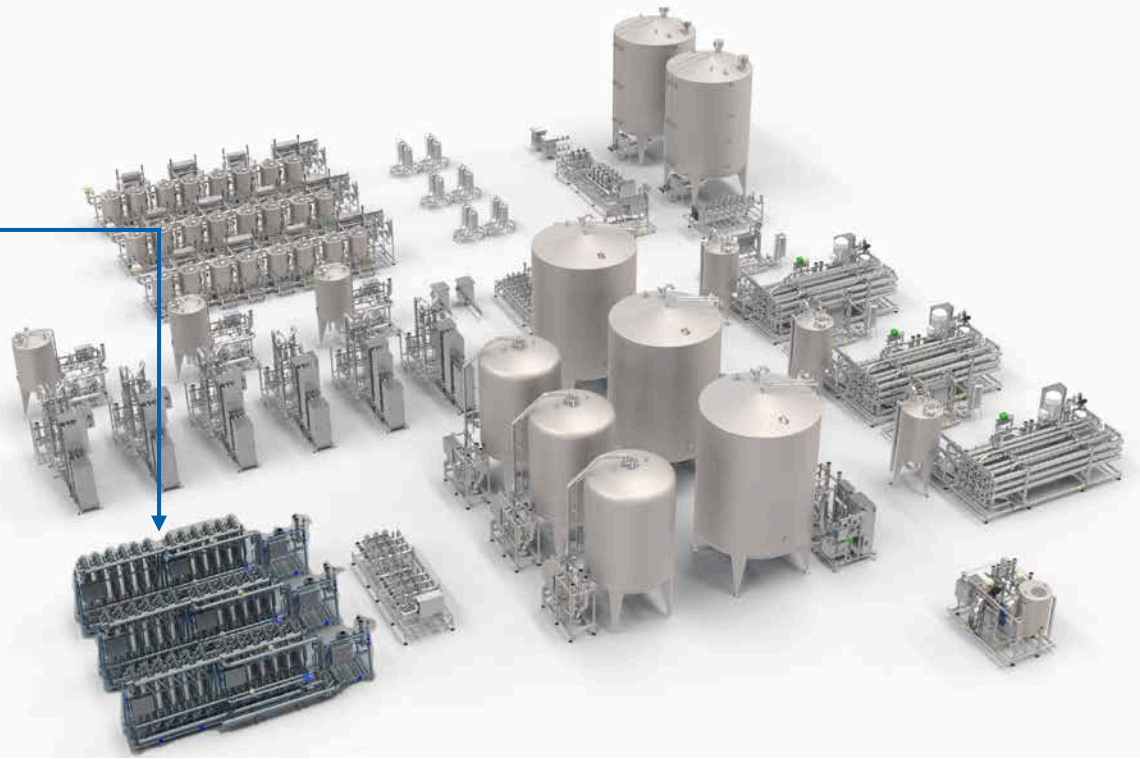

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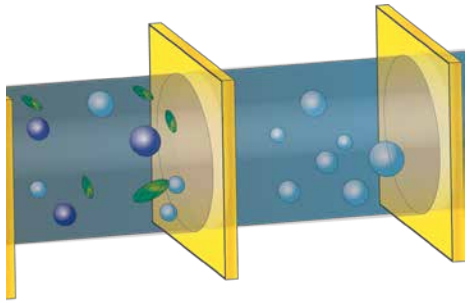
The modules in detail
Hydronomic RO

The Hydronomic RO module serves to desalinate water down to a usual residual content of less than three percent. The generated water is then especially treated/remineralised for the respective application.

Highlight

Variable output regulation and automatic yield control ensure the highest possible flexibility and minimise scaling on the membranes. The membranes can also be flushed with permeate to minimise scaling and biofouling.



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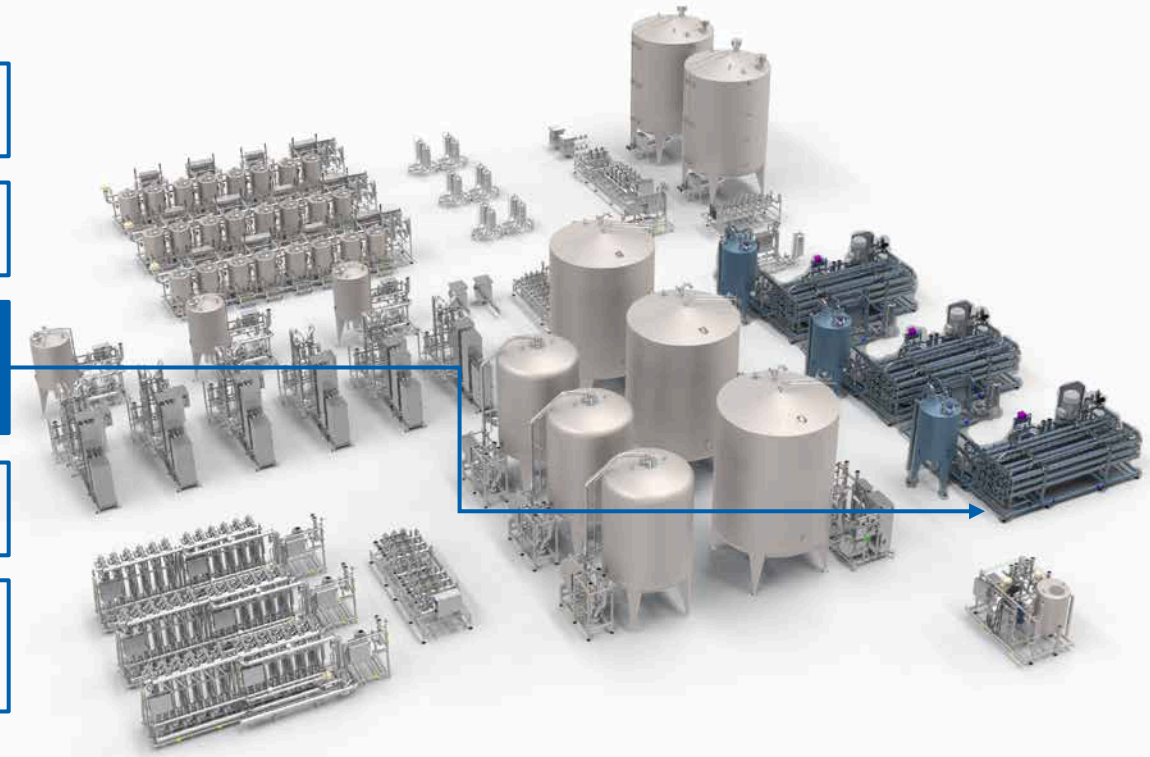

The modules in detail
EDI module

Electro-deionisation (EDI) allows you to produce ultra clean, deionised water which then merely requires the addition of the desired minerals. The use of this kind of additional EDI module is particularly recommended in cases where the untreated water quality fluctuates. This is particularly important in the manufacture of still table water where there must be no deviation in the mineral composition of the product.

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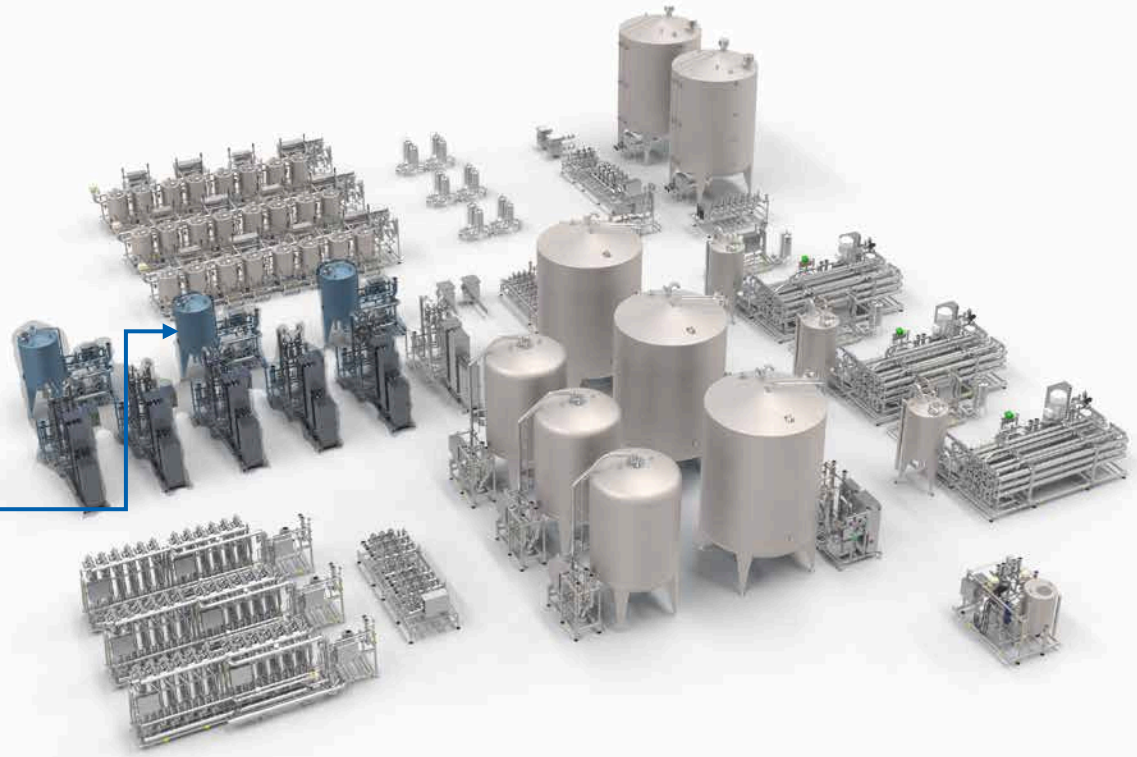

Other modules in detail
Hydronomic MDS

Thanks to the use of a mineral dosing station – in brief MDS module – you can remineralise your water exactly in line with your own formulas – for the highest possible flexibility and individualisation of your product.

- MF: media filtration
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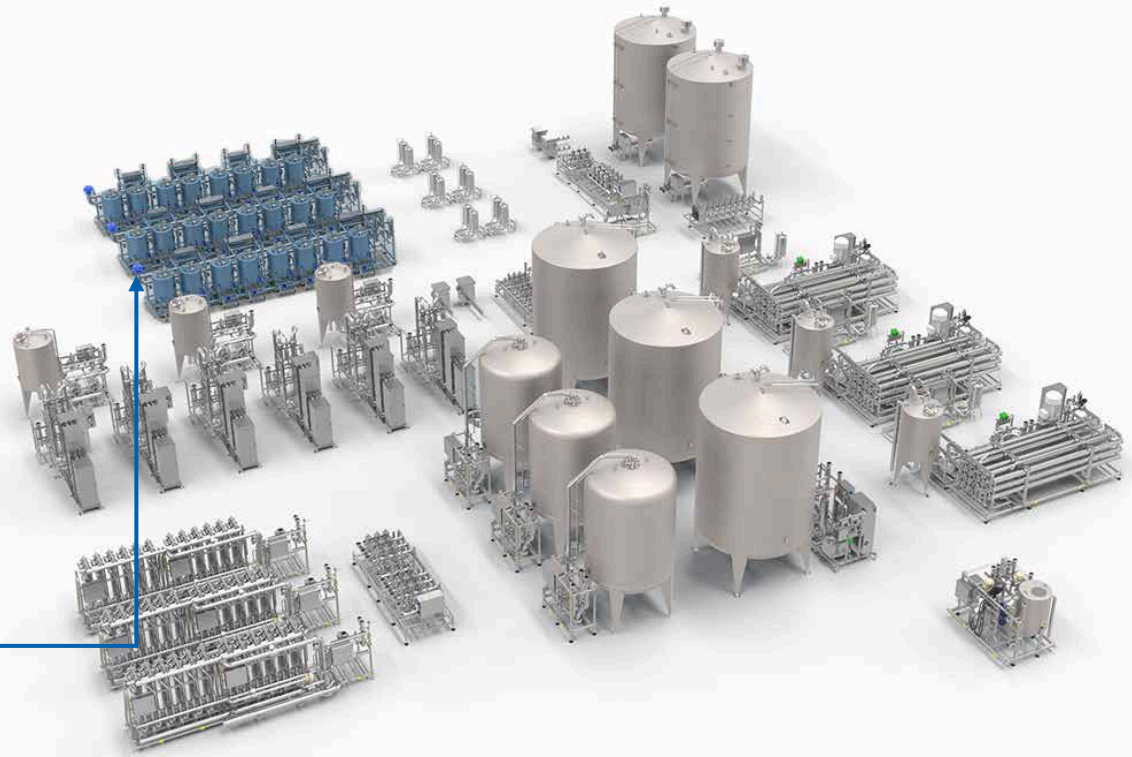
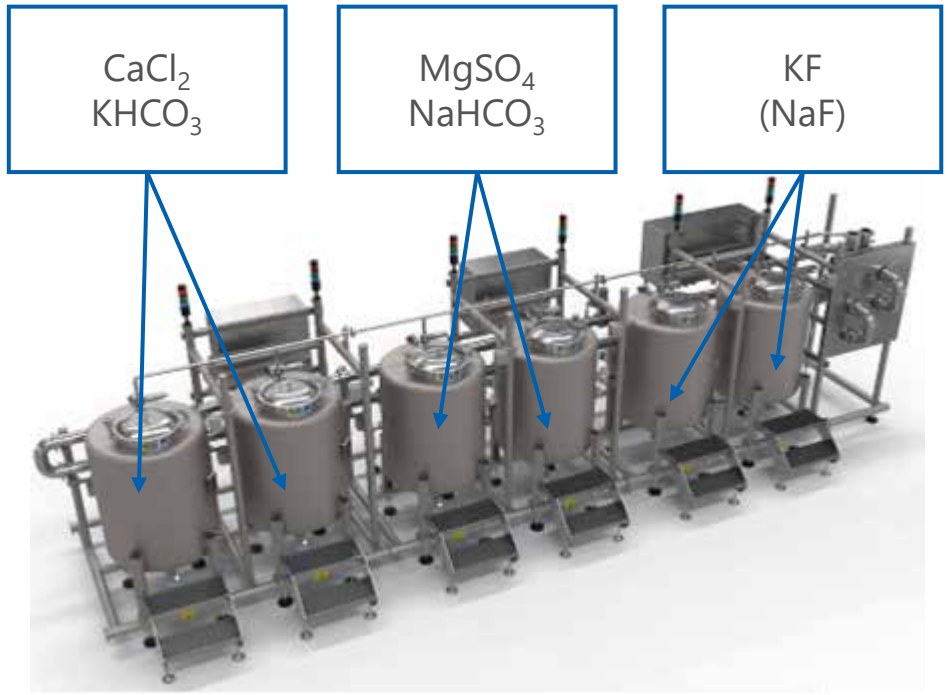
- EDI: Electro-deionisation
- **MDS: mineral dosing station**



The Hydronomic MDS in detail



Example of mineral dosing

The mineral dosing station is the key module when it comes to creating water precisely according to your requirements and formulas. It enables the high-precision dosing of a variety of minerals.

Highlights:

- **Mass flow meter for the highest dosing precision**
  Accurate dosing for TDS values of +/- 10 % in the end product
- **Can be adjusted to individual formulas**
- **Stainless-steel construction**
  Hot-water sanitisation of up to 85 °C
- **Two-tank layout for continuous operation**

By the way: You can obtain the appropriate minerals directly from KIC Krones.

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Systems expertise

Combination of Krones process and filling technology

Regardless of which Krones filling method you choose, we offer the corresponding treatment technology to sustainably ensure the microbiological stability and quality of your product:

Water treatment	Microbiological stabilisation	Filling method
Krones Hydronomic	**Ozonisation (Ozonomic)** + Ultrafiltration **(Hydronomic UF)** or use of a filtration system **(Unipure)**	**Conventional filling (Modulfill** for PET or glass bottles) **Aseptic filling (Contipure AseptBloc)**

Krones runs best with Krones – in detail
Minerals and consumables from KIC Krones

As part of a water design from Krones, you also receive all of the minerals needed for ongoing operation. As an expert for consumables, KIC Krones also supports you in the areas of water treatment and water design with its expertise and ideally adjusted products:

Minerals from the Krones hydrocare series

– Mineral salts for the regeneration of ion exchangers and mineral dosing

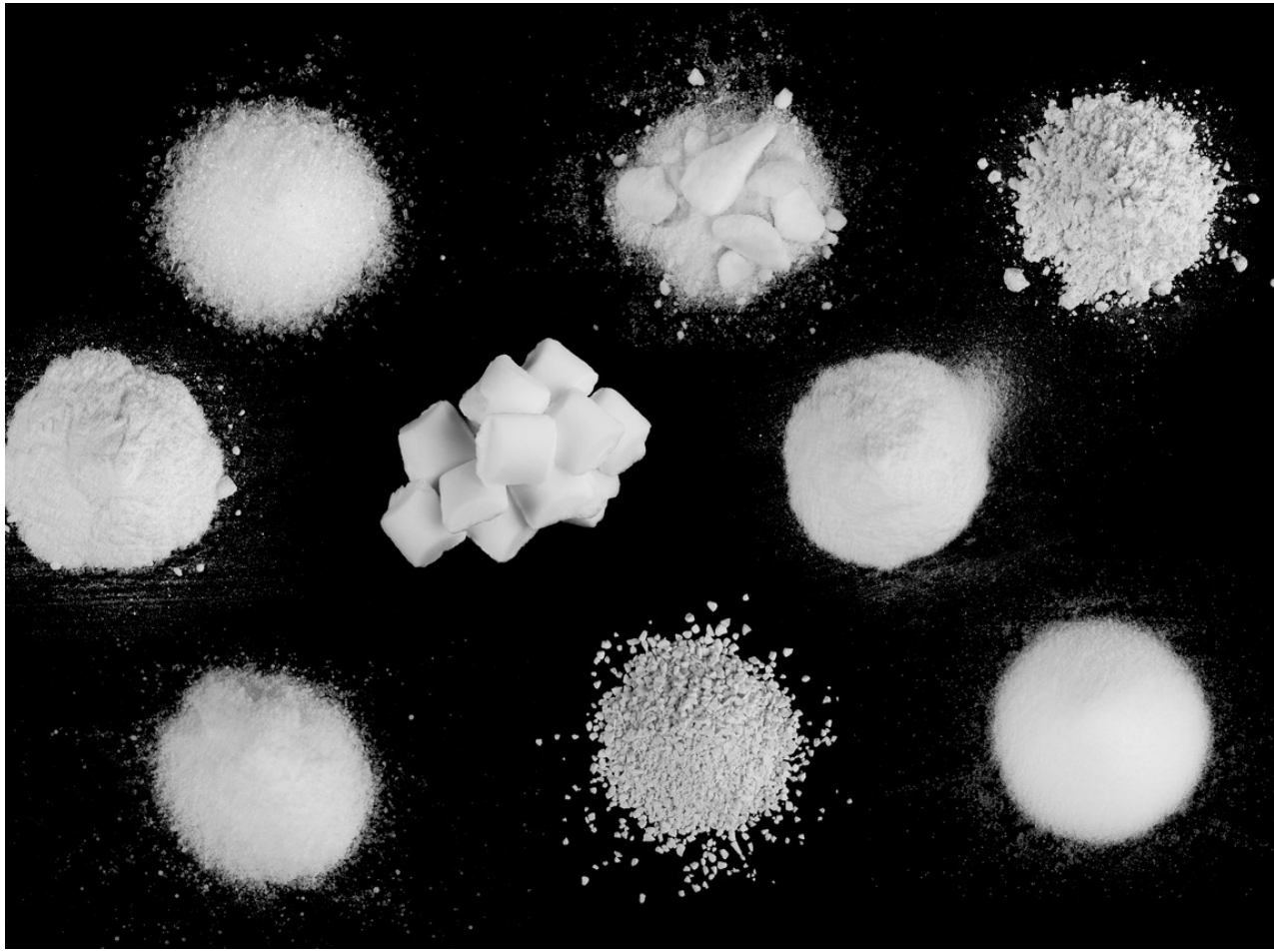
Consumables for water treatment

– Cleaning agents and disinfectants for the complete water treatment system
– Filter elements for the filtration of liquids, compressed air, gas and steam
– Granular filter media such as quartz gravel and activated carbon
– Granular filter media such as manganese dioxide, ion exchange resin, etc. (on request)
– Membranes for ultrafiltration and reverse osmosis (on request)

Krones runs best with Krones – in detail
Minerals and consumables from KIC Krones

Benefits to you

- Are ideally adjusted to Krones systems technology
- Are selected based on the globally varying local conditions and untreated water quality
- Reliably remove all undesirable substances from untreated water, for example undissolved solids, iron, manganese, arsenic, chlorine, bacteria, viruses, etc.
- Support you in manufacturing an end product which precisely meets your requirements and concepts
- Satisfy the high standard demanded by the food and beverage industry



Your ideas in the test

Water with individually adjusted mineralisation is a strong trend, and the demand for individual flavourings and functional additives is also increasing.

Yet even the most minor change to the ingredients must be well considered and thoroughly tested. That is exactly why Krones has an in-house technical centre which allows experiments and the testing of new technologies. Together with Krones experts and water sommeliers, you can improve your product here, optimise the taste, reduce the raw material consumption and much more.

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Equipment of the technical centre

Initial water

- Untreated water from the customer
- Neutraubling city water
- Softened water (ion exchanger)
- RO or EDI water

Krones Contiflow

- Output: 300 l/h
- Water degassing plant
- Carbonation unit

EDI system

- Output: 800 to 2,300 l/h
- Thanks to electro-deionisation (EDI), ultrapure, deionised water can be produced. This serves as an ideal starting point for later remineralisation.

Ionisation device

- Output 300 l/h
- For production of water with an increased pH value (alkaline water)

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Equipment of the technical centre

Mixing and dosing

- Production of milk of lime by means of lime saturators
- Mineral dosing

Filling

- Sterile air workbench with manual filler for low-germ filling of technical samples
- Sterile air filtration and UV light

Sterile tank system

- Volume: 400 litres
- Cooling jacket
- Agitator

Analytics

- Diverse titration examinations
- O_2-, CO_2-, pH-, redox and conductivity measurements
- Photometric ion detection
- Determination of carbonate and total hardness
- FlavorSpec gas chromatograph

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Krones offers water design – and much more

At Krones the focus is on you.

Water producers and fillers

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SOLUTIONS BEYOND TOMORROW

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