



Premium water quality by means of demineralisation

Membrane technology and electrodeionisation

grünbeck



Optimum water by means of demineralisation

Proven product solutions for high demands

Product variety and consistent quality

Recognising needs, determining processes, designing systems – Membrane technology by Grünbeck according to your requirements

Who knows better but the users of our products in the most diverse industries that not all water is alike. The legal requirements, production-related factors and customer-specific demands can vary considerably. The constant in this context, however, is the power of reverse osmosis. It is one of the most important and most environmentally friendly technologies in water treatment.

Reverse osmosis – Retention that is unmatched

In the reverse osmosis process, aqueous solutions of different concentrations are separated by a semi-permeable reverse osmosis membrane. The treated water is called permeate. The permeate is not only used for technical processes but also needed for cleaning purposes, cooling circuits or the humidification of air.

In the reverse osmosis process, the water is treated in accordance with the prescribed quality standards – thus creating perfect conditions. Grünbeck systems will meet your needs. No matter whether you require pure water for technical purposes or ultra-pure water – which to a large extent is free of minerals – for steam sterilisation, for instance. Regardless of the type of water you need, together we will create quality of life with it.

Electrodeionisation – Exchange for your benefit

Electrodeionisation is an electro-chemical demineralisation process. This process – which is a combination of ion exchange and electro dialysis – removes the ions from the water to a large extent.

It provides you with pure and ultra-pure water of the highest quality for your industrial or scientific requirements and applications. And as the protection of the environment is as important to us as it is to you, the regeneration takes place without any application of chemicals.



Reverse osmosis system GENO-OSMO-X with AVRO technology

Advantages of GENO-OSMO-X:

- System recovery of up to 80 % → less waste water
- Energy savings of up to 30 % → highly efficient motor
- Optional interconnection to common BUS systems
- Web connection and emailing for 24-hour overview
- Integrated data logging
- Smart metering
- Automatic, self-controlling system operation → maximum process reliability
- Patented AVRO technology possible as pretreatment
- Touchscreen with operating option for entire system line
- Optional online operation
- High-pressure pump (stainless steel V4A) → long service life



Reverse osmosis system GENO-OSMO-HLX

Advantages of GENO-OSMO-HLX:

- Microprocessor controller with LCD display panel to signal functions and maintenance interval
- System recovery of up to 75 %
- Indication of permeate conductivity at the control unit
- High-pressure pump (stainless steel V2A)
- Capture of concentrate and permeate volume as well as system recovery via flow sensors
- Manual adjusting valves

Water treatment following the example of nature: Reverse osmosis

With the GENO-OSMO-X and GENO-OSMO-HLX, you buy and sell quality of life. Both systems demineralise drinking water and know the special characteristics of this element as well as your expectations. They generate permeate for technical processes. In case of the GENO-OSMO-X, the permeate can be demineralised further via a second reverse osmosis stage (= permeate stage) in order to achieve an even higher permeate quality.

The principle of reverse osmosis

By way of reverse osmosis, a fantastic idea of nature is being implemented technically. In the membrane process, water is pushed through a semi-permeable membrane by means of pressure. While the liquid is being transported through the membranes, dissolved minerals are retained and only the water molecules may pass through the membranes. The cleaned water is called permeate.

Fields of application of reverse osmosis systems:

- Boiler feed water
- Cooling water
- Air washers and air conditioning systems
- Steam sterilisation
- Brewing and beverage industry
- Restaurants and large-scale kitchens
- Industrial companies

Fields of application of electrodeionisation:

- Laboratories
- Semiconductor manufacturing
- Optical industry
- Glass coating
- Metal processing



Rack-mounted modular system GENO-OSMO-X p

Convenient rack-mounted modular system for individual requirements

The rack-mounted modular GENO-OSMO-X systems are preassembled on a system rack made of anodised aluminium. They are the pre-tested plug-and-play solution for fast water treatment at your premises and are available with either of the three pretreatment options: Water softener, AVRO technology or antiscalant process. The easy installation and the individual combination options are particular advantages of Grünbeck's innovative rack-mounted modular systems.

AVRO – Alternative pretreatment for reverse osmosis:

- Patented anti-scaling by Grünbeck
- Without any addition of auxiliary substances
- Protection against the formation of scale
- No generation of side products

Compact technology with high impact

Compact under-sink system GENO-OSMO AVRO 125 RU

The under-sink system is used in doctors' offices and in industry, for instance. It is designed for the demineralisation of raw water whose composition meets the quality requirements of the German Drinking Water Ordinance (TrinkwV).



Reverse osmosis system GENO-OSMO AVRO 125 RU

Reverse osmosis systems

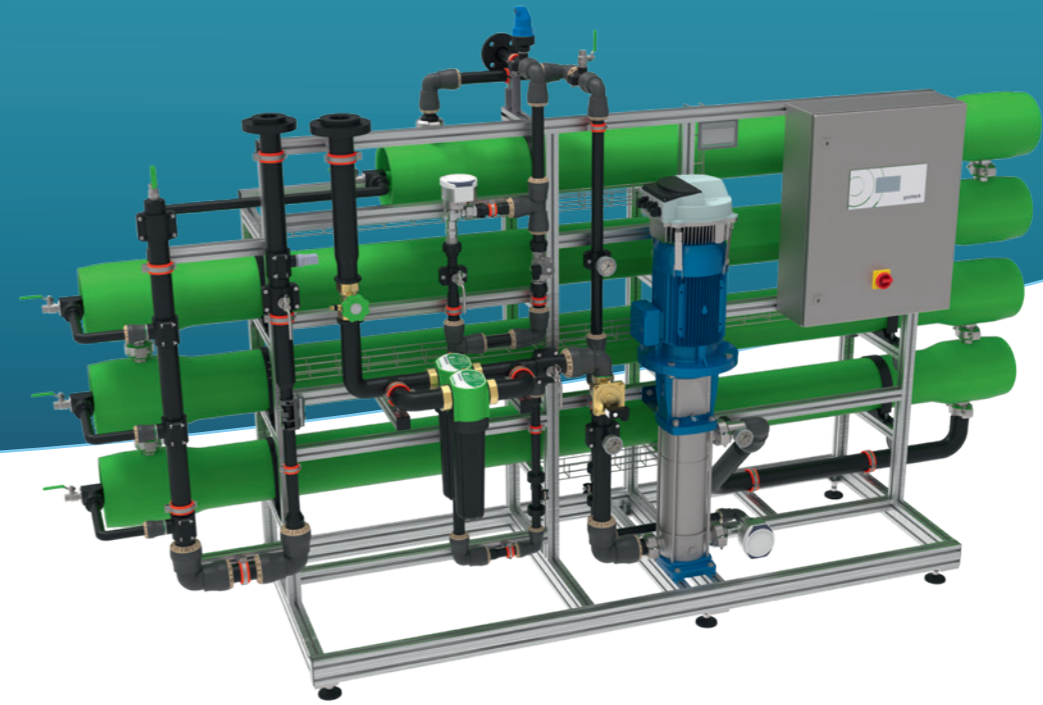
GENO-OSMO RO 125K and AVRO 125

Both systems can be operated either with a water softener as pretreatment or with an AVRO module.



- ✓ Minimal space required
- ✓ High permeate recovery
- ✓ The AVRO technology saves you the effort of pretreating the water

Reverse osmosis system GENO-OSMO RO 125K



Reverse osmosis system osmoliQ:LB

NEW

Functional and reliable thanks to innovative reverse osmosis technology

The reverse osmosis system osmoliQ features an intelligent microprocessor controller with 4.3" graphic touchscreen which provides you with all data at a glance: Among others, it permanently displays the permeate recovery and indicates the function of the water softener or the antiscalant pumps. In addition, you can also call up the water level of the pure water tank on the display.

The main advantages offered by the osmoliQ system by Grünbeck are the optimised pump performance and the automatic adjustment of the motor speed. In addition, the system features a Modbus RTU as well as a frequency-controlled high-pressure pump and it can also be connected to common BUS systems.

Prolonged service life thanks to smooth system operation

The system-friendly operating mode guarantees reliable protection for your system. The smooth start and stop of the high-pressure pump prevents water hammer,

preserves the membrane elements and considerably prolongs their service life. To maintain the value of your system.

Additional advantages at a glance:

- ✓ Web connection and emailing for an overview of the system data in real time
- ✓ Non-contact flow meter, and therefore wear-free
- ✓ High-pressure pump (stainless steel V4A) → long service life

- ✓ System recovery of up to 80 % → less waste water
- ✓ Energy savings of up to 30 % → highly efficient motor
- ✓ Different system sizes with permeate outputs between 4,000 and 30,000 l/h; the permeate output can be reduced by up to 20 % of the nominal capacity



Electrodeionisation system GENO-EDI-X

Exceptional technology for ideal water

With the electrodeionisation system GENO-EDI-X, Grünbeck offers you an economic, continuous electrochemical deionisation by means of a combined electro dialysis and ion exchange process. It is an ideal alternative to conventional ion exchanger systems. This environmentally friendly technology removes almost all anions and cations. The EDI

process is a highly efficient demineralisation process. It is preceded by a Grünbeck reverse osmosis system installed upstream. By means of electrochemical deionisation, the GENO-EDI system takes care of the additional residual demineralisation of the permeate generated by the reverse osmosis system. The electric current ensures the continuous regeneration of the resin.

Convincing advantages of the product:

- ✓ No downtimes thanks to the electrochemical regeneration
- ✓ No storage and application of chemicals required
- ✓ Designed for continuous operation
- ✓ Maintenance-free operation
- ✓ No twin systems required to bridge regeneration times
- ✓ No waste water treatment required



Reverse osmosis concentrate stage osmoliQ:KA

Maximum water recovery

The efficient operation of reverse osmosis systems is more important than ever. The water recovery is a decisive factor for the economic efficiency of a system. Existing systems often harbour enormous potential.

With the reverse osmosis concentrate stage osmoliQ:KA, Grünbeck offers you a suitable solution where the concentrate from the reverse osmosis system is treated, thus maximising the overall system recovery.

Your advantages at a glance:

- ✓ Increase of the total system recovery to up to 90 %
- ✓ Frequency controlled, low-noise high-pressure pump
- ✓ Improvement of the environmental balance of the entire process in accordance with DIN ISO 14001
- ✓ Stand-alone: no impact on the main stage
- ✓ Quick and easy installation thanks to the modular system rack
- ✓ Compatible with any existing reverse osmosis system



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