

# Quality water from Renggli



# Tradition – Innovation.

### Swiss tradition with a great future

Renggli AG, founded in 1927, is an established Swiss family enterprise with international orientation in the realm of complete laboratory solutions. As one of the leading European manufacturers, Renggli designs and implements state-of-the-art laboratories for research, industry, medicine and education.

### All from one source



### Our core competences

#### Counselling Competence

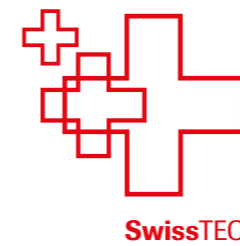
Our laboratory experts are eager to support you in all facets of laboratory technology. They will advise you accurately on all pertinent norms, legal provisions and safety aspects.

#### Planning and Engineering Competence

Our specialists are at your disposal to carry out the planning of the entire project. They even cover the engineering part, from media supply of the individual workplace all the way to interfacing with the building control systems.

#### System Competences

In addition to being a dependable supplier of laboratory installations and equipment, we are your comprehensive one-stop service for counselling, planning/engineering, production, installation and maintenance/service. This is the key and guarantee for decades of perfect performance of your laboratories.



# Water quality standards.



Not all water is always the same. In nature, the most diverse compositions are analyzed. The quality of the water depends on its origin, the rock layers through which the water flows, temperatures and, last but not least, the state of aggregation.

For the laboratory sector, there are three basic types of industrial water:

Ultrapure water standards according to ASTM 1-3			
	Type 1	Type 2	Type 3
<b>Conductivity <math>\mu\text{S/cm}</math> (max.)</b>	0.056	1.0	0.25
<b>Bacteria</b>	<10	<1000	-
<b>Resistivity <math>\text{M}\Omega\text{-cm}</math> (25°C)</b>	18.0	1.0	4.0
<b>TOC max. (<math>\mu\text{g/l}</math>)</b>	50	50	200
<b>Sodium max. (<math>\mu\text{g/l}</math>)</b>	1	5	10
<b>Silica (<math>\mu\text{g/l}</math>)</b>	3	3	500
<b>Chloride (<math>\mu\text{g/l}</math>)</b>	1	5	10

It is self-explanatory that the production of these three types of water requires different processes and as an innovative partner in the field of water quality, Renggli AG offers solutions for this.

### Water type 1 - one system, two options

The ultrapure water systems have a fixed dispenser outlet and a flexible dispenser hose that brings the water to where you work. The system delivers the highest purity water quality that can be produced for all critical applications and areas of application.

### Water type 2

The reverse osmosis EDI system combines reverse osmosis technology with electrical deionization. This system is characterized by low energy consumption, high pure water yield and low operating costs. The latest pump technology with a very low noise level is another highlight. In addition, it does not require any regeneration chemicals. EDI modules use less rinse water compared to similar systems. Typical areas of application are, for example, Food from ultrapure water systems, general chemistry, microbiological media production, etc

### Water type 3

The reverse osmosis system produces high-quality water with very low energy consumption. Thanks to the integrated automatic membrane rinsing programs, these systems can in most cases be operated with untreated municipal water. With an optional upstream softening system, a yield of up to 75% can be achieved.



Reverse osmosis system

# Water softening systems.



## Double softening systems as cabinet systems

The mechanical, fully automatic, quantity-controlled double softening systems are ideally suited to be connected upstream of reverse osmosis systems. When operated without electricity, they offer constant availability of soft water as well as low salt and water consumption. The regeneration takes place with soft water and is corrosion-resistant thanks to the built-in plastic parts. Due to the different models, low volume flows can also be detected (model series LF - low-flow nozzle from 0.19 l / min). This means that no unwanted hardness breakthroughs can occur. The space-saving cabinet container offers space for two resin containers with a common control unit.



For a continuous, currentless soft water production



# Ion exchanger.



## Security through quality

ReDest mixed-bed demineralizer cartridges made of stainless steel work with regenerable, high-quality ion exchange resins. They produce pure water with an extremely low conductivity  $<0.5 \mu\text{S} / \text{cm}$ . The pure water is drawn off by direct connection to one or more consumption points.

## Economy through high performance

The ReDest cartridges are the most economical solution for a pure water requirement of up to approx. 100 litres/day. If the demand for pure water is higher, the manufacturing costs per litre can be reduced by using a reverse osmosis system. All ReDest cartridges are equipped with a quick coupling system, which simplifies cartridge replacement.

## Versatile application possibilities

ReDest devices are ideal for: Combination with washing machines or other automatic clean water consumption points, residual desalination after reverse osmosis systems and supply of after-treatment systems.

Stainless steel mixed-bed - ion exchange cartridges ReDest					
Type		RD 2000	RD 2800	RD 4000	RD 6000
Output	l/h	300	950	1000	1200
<i>Pure water capacity in litres at a total salt content of</i>					
10° dH (300 $\mu\text{S}/\text{cm}$ )		2000	2800	4000	6000
15° dH (450 $\mu\text{S}/\text{cm}$ )		1333	1866	2666	4000
20° dH (600 $\mu\text{S}/\text{cm}$ )		1000	1400	2000	3000
		240 x 480	240 x 600	240 x 700	240 x 1150
Weight	kg	14.5	24.0	27.0	45.0

Operating pressure max. 10 bar

1° German hardness (dH)  $\cong$  1.78 French hardness (fH) oder 1° fH  $\cong$  0.56 dH

## Qualität produzieren

The ReDest water demineralizers produce quality water. The ion exchange resins (anion and cation exchangers) guarantee that very low conductivities are achieved over a long period of time.

If a limit conductivity of  $20 \mu\text{S} / \text{cm}$  is used as a basis for determining the total capacity, the following desalination rates result:

- 75% under  $1,0 \mu\text{S}/\text{cm}$
- 90% under  $10,0 \mu\text{S}/\text{cm}$
- 100% under  $20,0 \mu\text{S}/\text{cm}$

# Regeneration service.



## ReDest regeneration service

The Renggli regeneration service guarantees professional regeneration of the permanent recycling resins using the latest technology. By regenerating the resins, the conductivity of the pure water can be reduced to a minimum again. We guarantee the perfect functioning of the cartridge, the best water quality and optimal utilization of the resin capacity.

## We differentiate between three types of service

### Option 1

You bring us your cartridge. Your cartridge will be regenerated within 1-3 days and is ready to be picked up from us. You can also send us a regeneration order by email 2-3 days before you bring your cartridge. We will then prepare an equivalent, tested and regenerated cartridge, which you can take with you when you bring your cartridge.



### Option 2

You send us a regeneration order by e-mail and send us your cartridge by post or carrier. The sent cartridge will be regenerated within 3-5 days and returned to you by courier. You will always get your original cartridge back.

### Delivery service



### Option 3

You place a regeneration order by email. We will replace your exhausted cartridge with a regenerated cartridge within 2-3 days, without any shipping work on your part. Your cartridge ends up in our producer pool. Each time you receive a completely revised and rechecked cartridge.

### Pick-up and delivery service



## Benefit from our regeneration subscription

You save money with a regeneration subscription. If you buy a 5-subscription, you will receive a 20% discount, and if you buy a 10-subscription, you will receive a 25% discount on the regeneration costs!

## Regeneration service for third-party products

Of course, we also carry out our regeneration service for third-party products. We'd be pleased to give you more information on this service.

# Filter systems.



Contact us!  
041 798 14 50

When it comes to water constituents, a distinction is made between solid particles and truly dissolved substances. Solid particles such as suspended matter and granular particles can be almost completely removed by filtration if the particle size and density are sufficient. The water flows through a porous medium (filter medium) that retains the particles to be filtered out on the surface or inside. Particle sizes of approx. 30  $\mu\text{m}$  to 1 mm are reliably filtered out of a wide variety of media.

Filter systems:

- Fine filter
- Back washable fine filters
- Safety fittings
- Activated carbon filter



# Customized systems.

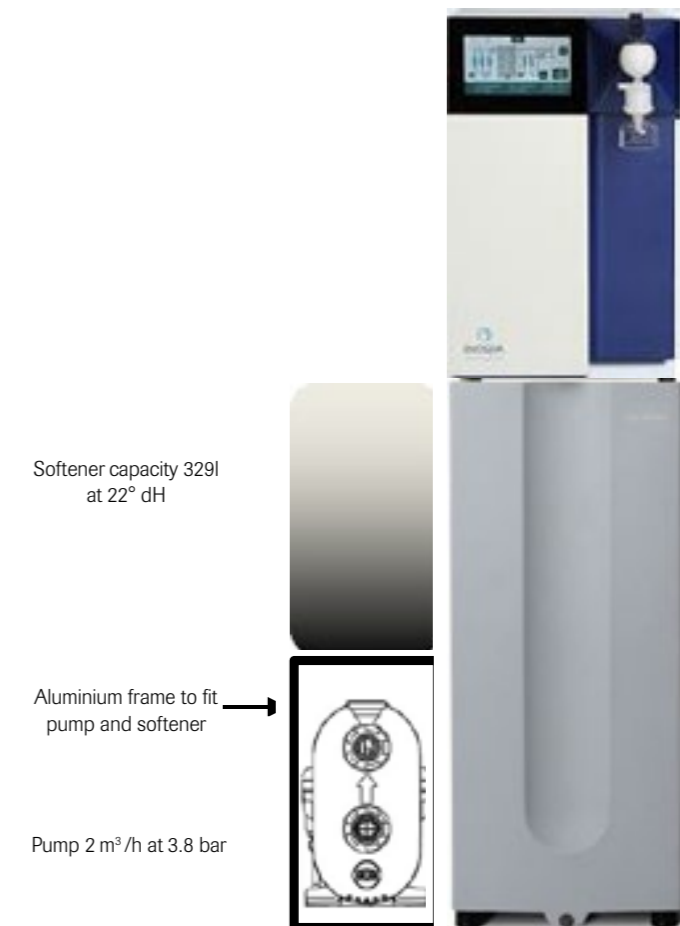


## Our advantage over our competitors: flexibility

Thanks to the experience of our suppliers we have developed special systems at the request of our customers.

For example:

- Combined system
- 80 liter tank
- Softener
- Booster pump
- Aluminium frame, made to fit the pump and softener





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Laboratory  
Systems