



Systems for  
environmental technology

**DECKER**



DECKER SE/KR 3x50 AL



DECKER SE/KR 4x30 BO



DECKER SE/KR 4x50 PP



Individual cartridges up to 50 l



DECKER SE/KR 2x120 BO

## Ion exchanger performance data

Type	No. of cartridges	Resin volume per system	Capacity m³/h	Frame size (Width x depth x height in mm)
SE/KR 2x30	2	60 l	0,6 – 1,2	1250 x 500 x 1600
SE/KR 4x30	4	120 l	0,6 – 1,8	1800 x 500 x 1600
SE/KR 2x50	2	100 l	1,0 – 2,0	1250 x 500 x 1800
SE/KR 4x50	4	200 l	1,0 – 4,0	1800 x 500 x 1800
SE/KR 2x120	2	240 l	1,2 – 4,8	1200 x 800 x 2000
SE/KR 2x180	2	360 l	1,8 – 7,2	1200 x 1000 x 2000
SE/KR 4x120	4	480 l	2,4 – 9,6	1200 x 1000 x 2000
Single cartridge*	1	20 – 50 l	0,1 – 2,0	ø 320 – 360

\* Mixed bed resin for the production of demineralised water

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# Ion exchanger systems with external regeneration service



## Regeneration for loaded ion exchanger cartridges



**Recirculation** of rinsing water or selective removal of heavy metals. Loading is indicated, for example, by conductivity monitoring  $5 \mu\text{S}/\text{cm}$ .

Replacement takes place using exchange units.

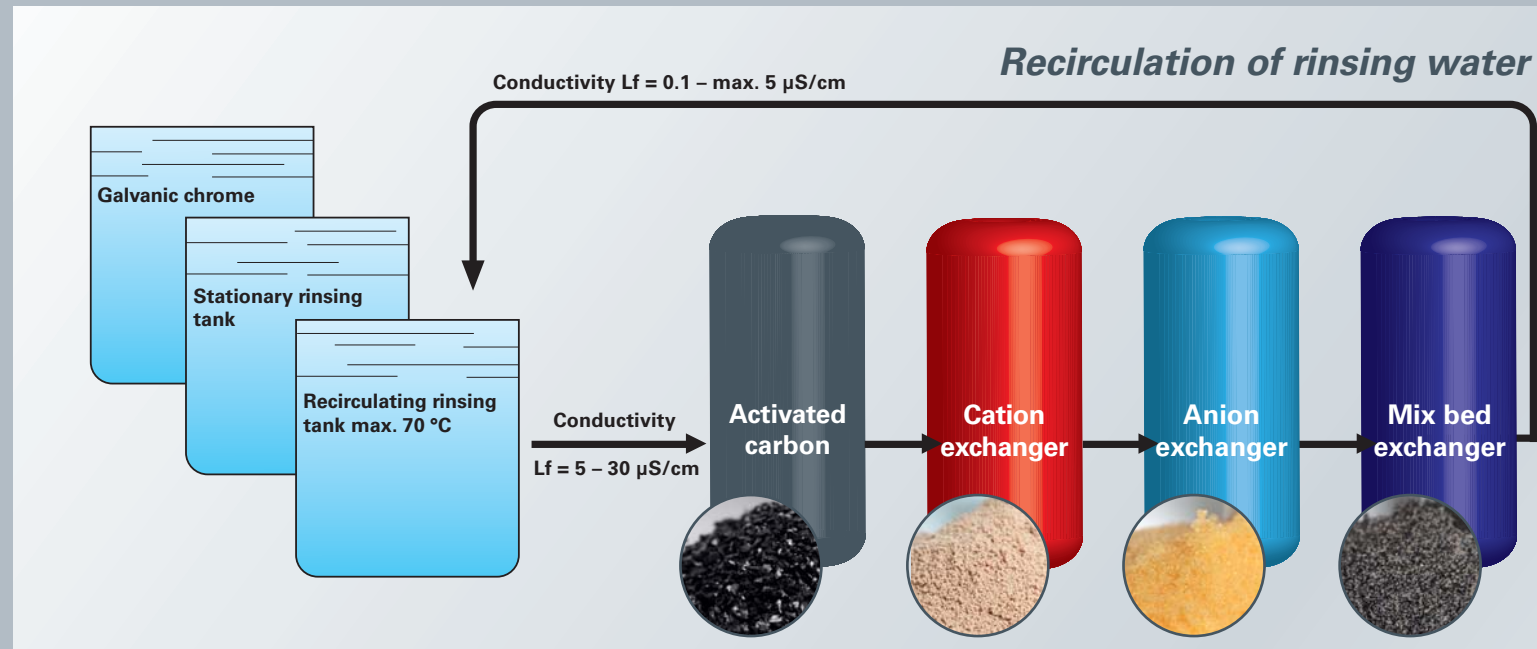


**Transport** using our own transport service, using a parcel service or by direct delivery by the customer.



**Regeneration** of the loaded ion exchanger cartridges in the **central regeneration plant** at DECKER Verfahrenstechnik GmbH in 92348 Berg/Opf./Germany and transport back to the customer.

## Application examples:



### Recirculation system

- Water-saving
- Waste water-free
- Simple operation
- Suitable for temperatures up to  $70^\circ\text{C}$

### Application of circulation

#### Circulation of final rinsing water up to $70^\circ\text{C}$

- Considerable energy costs are saved, as the rinsing water does not have to be constantly reheated.
- Through a suitable design of the activated carbon-cation-anion-mixed bed unit, pure water qualities of  $\leq 1 \mu\text{S}/\text{cm}$  (microsiemens/cm) will be achieved. No flecks will be caused when the water is dried off.

#### Circulation of all rinsing water

##### Bath line with pretreatment/nickel/chrome

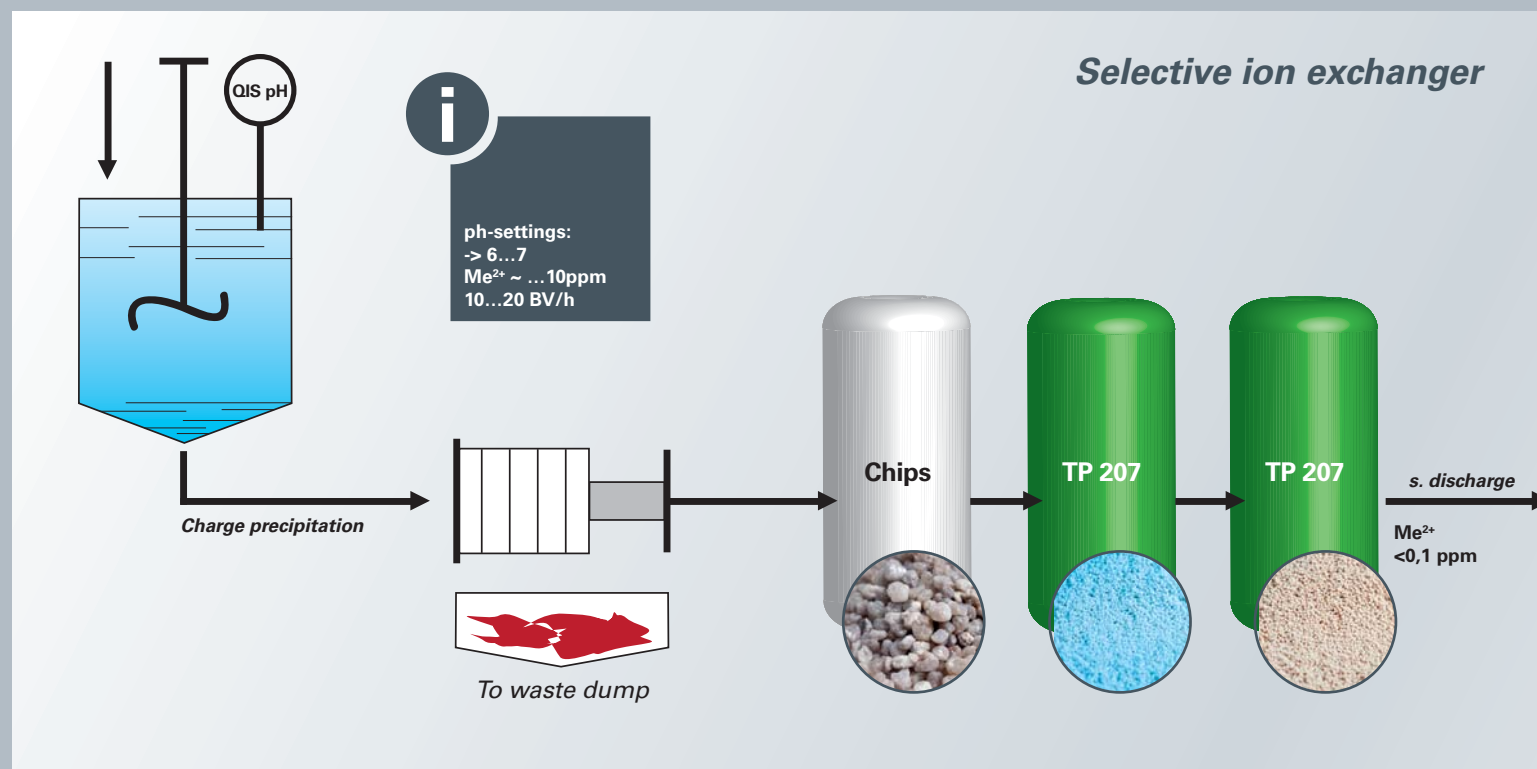
- Rinsing water volume: e.g.  $2.5 \text{ m}^3/\text{h}$
- Advantage of recirculation: No further waste water discharge, Replacement of the resin cartridges: 2–4 times per month

#### Circulation of cyanide or chrome-contaminated rinsing water

- Rinsing water volume: e.g.  $1.5 \text{ m}^3/\text{h}$
- Advantage: No oxidation/reduction of the rinsing water necessary. Less burden on the internal waste water treatment facilities

#### Circulation of rinsing water containing precious metals

- Precious metals (e.g. gold, palladium) can be completely recovered from the rinsing water.
- The costs for the regeneration service are significantly below the credits for the precious metals.
- In some cases, smaller plants may be able to operate completely without further waste water treatment.



### Selective system

- Compliance with limit values
- Metal recovery
- Minimum operating requirements

### Application in selective systems

- Selective binding of heavy metals such as copper, nickel, zinc, lead, cobalt, cadmium, mercury, chrome, etc. downstream of waste water treatment plants. Ultrafiltration and microfiltration plants, heavy metal-contaminated rinsing baths.
- Selective binding of heavy metals or cyanides during groundwater remediation.
- Recovery of precious metals such as gold, silver, palladium, platinum.

### Example

- Waste water:  $10 \text{ m}^3$  per day
- Residual metal content:  $2 \text{ mg/l}$  nickel,  $1 \text{ mg/l}$  copper,  $1 \text{ mg/l}$  zinc
- Capacity: 20 – 30 g metal/resin pro litre.

In this application example, a 50 litre resin cartridge is loaded after approx. 4 to 6 weeks of operation.