

SeparIX

External Mixed Bed Regeneration for highest purity demands

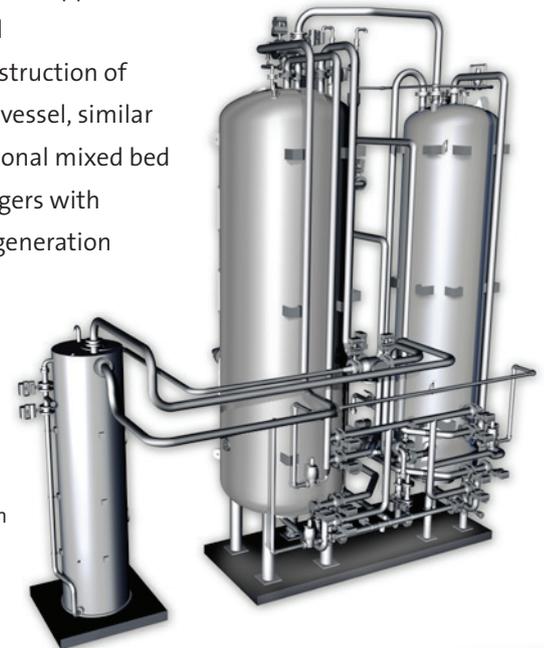
Condensate polishing by mixed bed ion exchangers is a generally applied process in the steam cycle of power plants. Exhausted mixed bed resins are often regenerated externally to fulfill the highest purity demands. The newly developed **SeparIX** technology is a simple and exceptionally robust process using a high degree of separation to externally regenerate the mixed bed resins of condensate polishing plants.

The system consists of two vessels for resin separation and regeneration as well as a third vessel for interim storage of the interface resin.

Compared to previous solutions, **SeparIX** does not require difficult and costly sensor technology or additional chemicals as its separation process is based solely on the physical characteristics of the resins. The high purity of regenerated resins enables ammonia cycle operation.

Benefits of SeparIX compared to other processes:

- > No sensors needed to detect resin types
- > Robust mechanical process with low maintenance requirements and high reliability
- > No additional chemicals needed for separation of cation and anion resins
- > Simple displacement of operational resin loss through resin hopper of interface resin vessel
- > Simple construction of separation vessel, similar to conventional mixed bed ion exchangers with internal regeneration

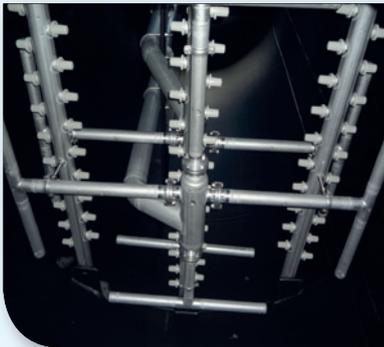


> SeparIX unit for a South-Korean power plant

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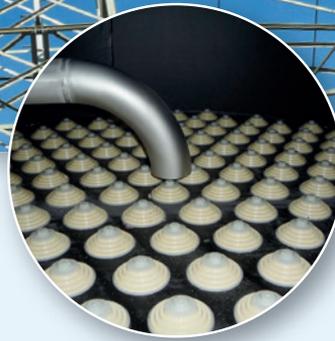
SeparIX principle of operation

Exhausted mixed bed resins are pre-regenerated to achieve constant resin layer heights in the separation vessel, independent from their grade of exhaustion. Only after regeneration are resins separated. This process eliminates the need for costly sensors or specialty chemicals to identify and separate the resin types.



➤ Specially designed resin collectors separate and transfer anion and interface resins to prevent mixing and contamination of the resin types.

The anion resin, on top of the interface zone, is transferred to the anion regeneration vessel. The interface zone, in between the anion and cation resins, is then withdrawn from the separation vessel and stored temporarily in the interface resin vessel, to be re-used in the following regeneration cycle.



This procedure eliminates the main source of resin cross contamination. The regenerated cation resin is conveyed to the anion regeneration vessel and after subsequent mixing of both resin types the regenerated batch is ready to be transferred back to the mixed bed ion exchangers.

The highly efficient transfer from the regeneration vessel back to the service vessel ensures the high purity of the next batch. A spare resin charge can be stored in the **SeparIX** system to reduce the downtime of the service polishers during regeneration.

SeparIX can easily be retrofitted to existing condensate polishing plants.

Technical data

Cross contamination of resins	< 0.1%
Leakage	< 1 ppb Sodium < 1 ppb Chloride