



Application

The polishing filter units of the KOMPaion-SAT-Line are used for post cleaning of effluent after conventional treatment. This is one of the applications of the versatile separation ion exchange process. Other kinds of applications are:

- deionization of tap water
- metal recovery
- loop recycling of rinse water

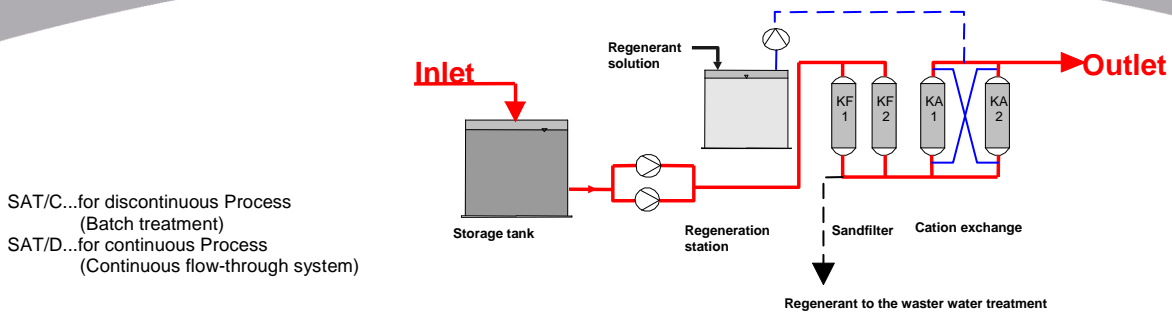
Pre-filtration is a basic requirement for all ion exchange applications. Oil and grease must be kept out of the system.

Any particulate matter or products of hydrolysis are retained by pre-filtration in multi-media or cartridge filters.

Process Characteristics

The proper selection of ion exchange resin is of importance. Most ion exchange resins in use today are synthetic organic materials made up of macro-porous matrix which are able to adsorb ionized substances in solution and release them again in concentrated form during regeneration phase.

The ion exchange resins are filled into fibreglass laminated columns. The feed stream is pumped through the resin bed in down-flow mode. The regeneration is realised in up-flow mode.



Type	SAT/C 2-15	SAT/C 4-25	SAT/C 7,5-32	SAT/C 10-40	SAT/D 6-32	SAT/D 9-40	SAT/D 15-50
Flow m ³ /hr	2	4	7,5	10	6	9	15
No. of Sandfilter	1	1	1	1	2	2	2
Material of piping	PVC or PPH						
Length mm	3000	3600	3900	4500	4600	5400	5800
Width mm	800	1000	1200	1300	1200	1300	1400
Height mm	2000	2200	2200	2200	2200	2200	2200

Length, width and height without the necessary collecting tank.

Description of the plant

All the KOMPaion-SAT-Line plants include the following assembly groups:

- Raw water collecting tank
- Feed pumps (dual pumping station)
- Pre filtration (single or dual filter, cartridge filter or filter bag)
- Selective ion exchange columns
- pH-correction unit

Because of the special character of the application field, the selective ion exchange columns operate in an alternating cross-over array.

In the presented system, two cation exchangers operate alternating in so-called "train configuration". The first exchanger column is used as work column and the second as a polishing (safety) filter. The operation of the plant is divided in following main steps:

- Running: Removal of traces of heavy metals from clarified water
- Regeneration: Activation of the depleted active exchange groups with acid
- Conditioning: Pre loading of the exchanger groups with lye

Advantages

- Optimal use of the resin capacity through pH-adaptation
- Best metal content minimisation in the effluent through adjusting the optimal pH-value
- Low invest cost due to simple construction of the tube battery
- Modern control concept via central PLC unit
- Automatic operation of the regeneration steps
- Low operating expense
- Logical and compact pipe design
- Patented regeneration system