



Ion Exchange Systems

For removal of dissolved solids, alkalinity, metals, other cations and anions

- Single and Multi-Bed Designs
- Designed for Clean Water and Wastewater Streams
- Pre-packaged Modular Systems
- Variety of Resin Options
- On-site and Off-site Regenerable Systems
- Service Exchange/Regeneration Services – including Metal Laden Waste Stream Resins
- Co-Current and Counter-Current Regeneration
- Proven Results at Hundreds of Sites
- Backed by Envirogen Service and Expertise

Ion Exchange System Selection

Product Line	Flow Range (GPM)	Co or Counter Current	Advantages
On-Site Regenerable			
SimPack N+3	400 – 1000+	Counter current down flow service	<ul style="list-style-type: none"> ✓ Simulated moving packed bed process ✓ Modular standard design ✓ High efficiency with low waste rates (typically <0.5% of treated flow)
MinX	35-800	Counter current down flow service	<ul style="list-style-type: none"> ✓ Counter-current regen for higher purity requirements ✓ Modular standard design ✓ High efficiency ✓ Low waste rates (typically <1% of treated flow)
MinFlex	5-200	Co-Flow or Counter Current	<ul style="list-style-type: none"> ✓ FRP Vessels With Multiport valve and Fleck controller ✓ Low cost ✓ Brine regeneration only (hardness, nitrates, or arsenic treatment)
MinFlex CS	35 – 1000+	Co-Flow or Counter Current	<ul style="list-style-type: none"> ✓ Carbon steel vessels for Softening or Deionization (acid, caustic)
Off-Site Regenerable or Disposable			
FlexSorb	5 - 200	Down Flow Service	<ul style="list-style-type: none"> ✓ No chemicals, minimal operator attention ✓ No backwashing, no liquid waste handling ✓ Vessels easily exchanged ✓ Modular, wide flow range, easily expandable ✓ Effluent water samples tested on a regular basis ✓ Cation, anion, mixed beds, chelating, and other specialty resins
HyperSorb	35 - 1350	Down Flow Service	<ul style="list-style-type: none"> ✓ Uniform flow distribution ✓ No chemicals, minimal operator attention ✓ No backwashing, no liquid waste handling ✓ Easy media exchange – Regen service offered ✓ Modular standard design, easily expanded ✓ Cation, anion, mixed beds, chelating, and other specialty resins

Applications

- Catalyst Recovery
- Closed Loop Cooling Systems
- DI High Purity Water
- Process Water
- Softening
- Oxyanion Treatment (Nitrates, Arsenate, Chromate)
- Wastewater
- Organics removal
- Boiler Make-up Water
- Desalination
- Ground Water Remediation
- Certain Metal Machining Operations e.g. EDM

Resin Selection

Resin Type	Function
<i>Strong Acid Cation (SAC)</i>	Full demineralization, softening - removes scale-forming calcium (Ca ²⁺) and magnesium (Mg ²⁺) ions, metals and other cations
<i>Weak Acid Cation (WAC)</i>	Dealkalization Brackish water softening Partially remove hardness and alkalinity simultaneously. Some total dissolved solids (TDS) removal, Heavy metals
<i>Strong Base Anion (SBA)</i>	Demineralization of industrial water in combination with WBA Weak acids TOC reduction Nitrate, perchlorate, arsenate, uranium, chromate
<i>Weak Base Anion (WBA)</i>	Partial demineralization Partially deionized water without removal of CO ₂ and SiO ₂ High molecular weight organics, weakly acidic compounds
<i>Mixed Bed</i>	Demineralization, deionization
<i>Chelating and Specialty Resins</i>	Selective ion removal such as mercury, zinc, copper, lead, chrome, nickel, precious metals, and other specific targets

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