

Water Technologies

Water Purification Through Service Deionization

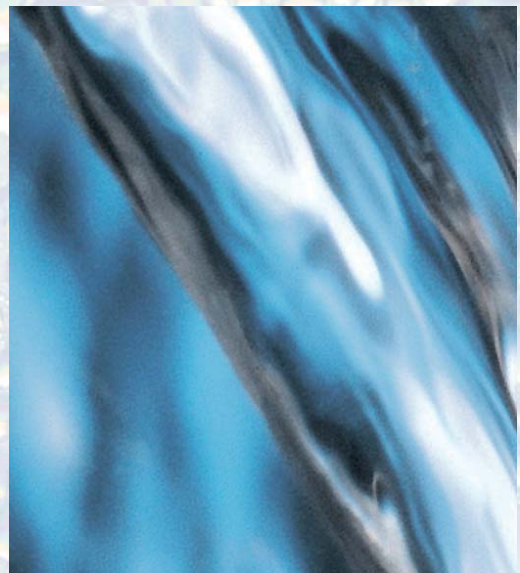
SIEMENS

**Service
Deionization**



Service Deionization (SDI) from Siemens is a safe and economical way for you to obtain consistent, high-purity water from potable feed water. Our reliable SDI systems consist of activated carbon and ion exchange resin contained in portable tanks connected directly to your tap water supply. With SDI systems, there is no major capital investment or handling of hazardous chemicals and since there is no on-site regeneration required, Siemens service deionization also conserves your water and energy resources.

Our large network of factory-trained local service representatives will deliver tanks, install and maintain the equipment. With Siemens you get the highest quality, most economical product, backed by the largest service network in the industry. We will custom-design and configure an SDI system to meet your water purity requirements, flow rates and budget.



Convenience is the SDI Difference



No matter what purity water you need, Siemens can provide the solution.

DEPENDABLE AND RELIABLE

Unlike permanent-bed deionizers, Service Deionization (SDI) requires no system installation, chemical handling, waste neutralization or maintenance by you. When the resins in the tanks exhaust, our local service representatives remove and replace the tanks with freshly regenerated tanks. You have a constant supply of high-purity water and no chemicals are brought into your facility.

WE PUT THE "SERVICE" IN SERVICE DEIONIZATION

We understand how critical it is to have a reliable and continuous supply of high-purity water. Siemens has been supplying companies like yours with high-quality SDI systems for years. With the largest local service network in the industry, we guarantee fast, first-rate service wherever and whenever you need it. And, with our 24/7, toll-free customer service hotline and team of technical support professionals, help is just a phone call away.

SDI is the answer if you...

- Want a consistent source of high-purity water
- Need a system designed just for you
- Use a small amount of water and don't want to purchase a permanent system
- Have limited maintenance resources
- Have a limited capital equipment or operating budget
- Want to eliminate handling regeneration chemicals and hazardous waste neutralization
- Want to increase or decrease the size of your system as water requirements change
- Have a temporary need for deionized water

MATERIALS OF CONSTRUCTION

Tank Size ft ³ /liters	Tank	Tank Lining	Top Adapter	Top adapter O-ring	Riser Tube	Bottom Diffuser Screen	Inlet Screen	Conn. Nipple	Filter Cap	Dust Cap	Interconn. Hoses
0.25/7.0	FRP	ABS	PVC	BUNA N	P.P.	NORYL S.S.	S.S.	ACETAL	PVC	N/A	PE
0.45/12.7	FRP	ABS	PVC	BUNA N	P.P.	NORYL S.S.	P.P.	NORYL	NORYL	P.E.	PE
0.79/22.4	FRP	ABS	NORYL	BUNA N	P.P.	NORYL S.S.	P.P.	NORYL	NORYL	P.E.	PVC
0.54/15.3	FRP	ABS	NORYL	BUNA N	P.P.	NORYL S.S.	P.P.	NORYL	NORYL	P.E.	PVC
1.2/34	FRP	ABS	NORYL	BUNA N	P.P.	NORYL S.S.	P.P.	NORYL	NORYL	P.E.	PVC
3.6/102	FRP	ABS	NORYL	BUNA N	PVC	PVC	PVC	NORYL	ABS	P.E.	PVC
12 & 30/ 340 & 850	Carbon Steel	PVC	N/A	N/A	N/A	PVC	PVC	PVC	N/A	N/A	PVC
42/1180	SS	SS	N/A	N/A	N/A	PVC/SS	PVC/SS	SS	N/D	N/D	PVC
60/1690	Carbon Steel	Rubber	N/A	N/A	N/A	PVC/SS	PVC/SS	SS	N/D	N/D	PVC

Solutions for Every Feedwater, Flow Rate and Application

We offer a wide range of systems and manufacturing and industrial rinsing, as well as critical applications such as dialysis, medical microelectronics.

ACTIVATED CARBON

These units remove chlorine, chloramines and dissolved organic contaminants. Each replacement carbon unit contains specially selected carbon to assure maximum water quality and service life.

MAXIMUM OPERATING PARAMETERS

Operating Conditions:

Pressure

0.25-3.6 ft³ (7.0-102 liters) 80 psig (5.5 bar)
 12-60 ft³ (340-1690 liters) 100 psig (7.0 bar)

Temperature

0.25-3.6 ft³ (7.0-102 liters) 95°F (35°C)
 12-60 ft³ (340-1690 liters) 100°F (38°C)

Turbidity

5 NTU

Color

5 units

Organics

3 mg/L

Manganese & Iron

0.3 mg/L

Free Chlorine

0.2 mg/L

cation resins used are very durable to provide stability against osmotic, thermal and impact shock.

ANION DEIONIZERS

Anion resins remove negatively charged dissolved ionic contaminants such as carbonate, bicarbonates, sulfates, chlorides, nitrates and silica. The anion resins used offer stability against osmotic, thermal and impact shock. A variety of anion resins are available suitable for any water application.

PREMIUM MIXED BED DEIONIZERS

For higher quality water with a more neutral pH than separate bed systems, as well as enhanced silica and CO₂ removal mixed bed

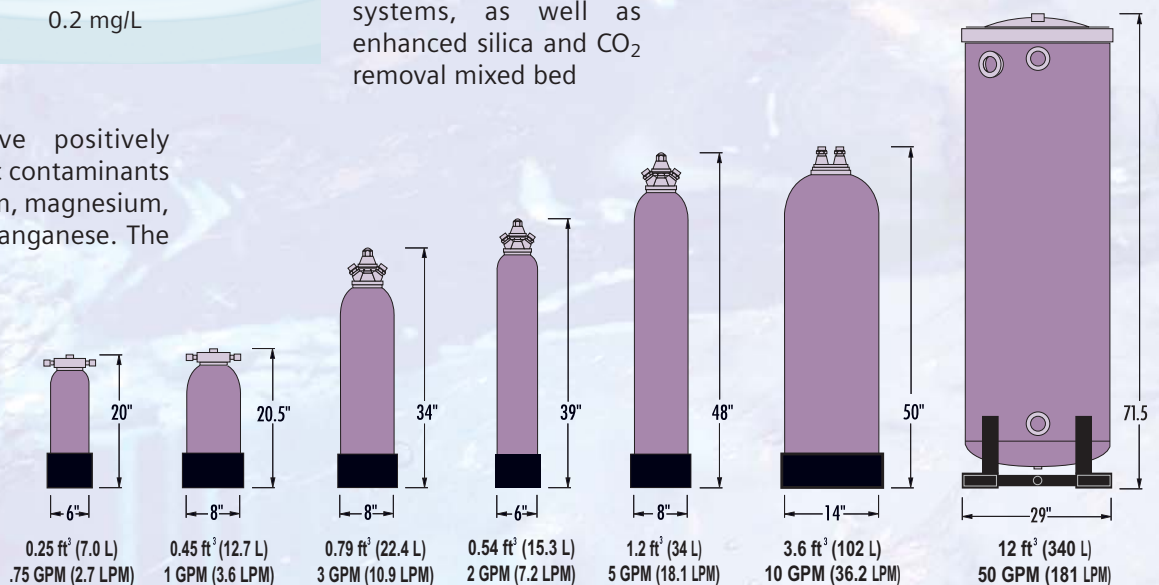
deionizers are recommended. Siemens' service deionization produces the quality of water required for any application, up to 18.2 megohm-cm resistivity at 25°C. In-line quality monitors immediately alert users when resin tanks need to be changed.

QUALITY SYSTEM REQUIREMENTS (QSR) MIXED BED DEIONIZERS

Mixed bed deionizers are specifically processed under QSR requirements in an FDA registered facility as a medical device for hemodialysis. These resins are controlled for not only ionic contaminate removal but also for reduced bacterial and endotoxin limitations.

CATION DEIONIZERS

Cation resins remove positively charged dissolved ionic contaminants such as calcium, sodium, magnesium, potassium, iron and manganese. The

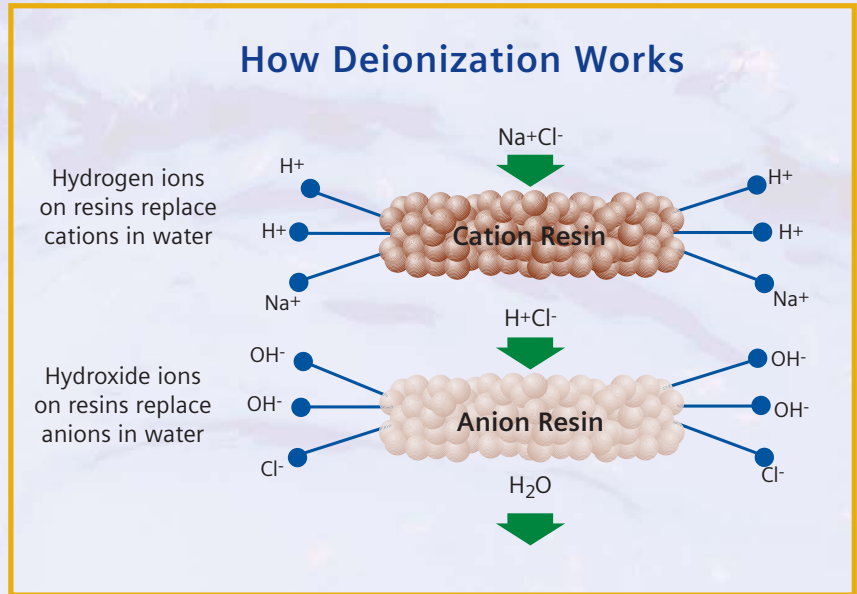


We offer activated carbon units and deionizers in flow rates from 0.1 GPM (0.4 LPM) to over 100 GPM (378 LPM)

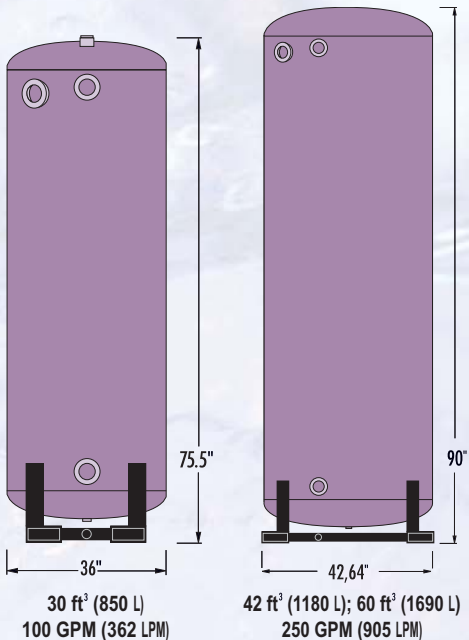
resin types for general
special grades of resin for
l, biopharmaceutical and

SCAVENGING RESINS

With extra large internal surface areas, the microporous scavenging resins provide high adsorption of dissolved and undissolved organic contaminants. The colloidal scavenging resins remove inorganic and organic anions. Both types of resins are extremely resistant to organic fouling.



Deionization (DI) is one of the most efficient processes for removing dissolved ionic minerals and salts, as well as some dissolved organics, from water.



250 GPM (900 LPM) or more.

Conductivity and Resistivity

(CaCO₃ solutions at 25°C)

Conductivity (microsiemens)	Resistivity (ohms-cm)	Dissolved Solids (parts per million) (as CaCO ₃)	Grains/Gallon (as CaCO ₃)
0.056	18,000,000	0.0277	0.00164
0.063	16,000,000	0.0313	0.00181
0.072	14,000,000	0.0357	0.00211
0.084	12,000,000	0.0417	0.00240
0.100	10,000,000	0.0500	0.00292
0.125	8,000,000	0.0625	0.00368
0.167	6,000,000	0.0833	0.00485
0.250	4,000,000	0.125	0.00731
0.500	2,000,000	0.250	0.0146
1.00	1,000,000	0.500	0.0292
1.25	800,000	0.625	0.0368
1.67	600,000	0.833	0.0485
2.00	500,000	1.00	0.0585
2.50	400,000	1.25	0.0731
5.00	200,000	2.50	0.146
10.0	100,000	5.00	0.292
20.0	50,000	10.0	0.585

CONVERSIONS

Resistivity/Conductivity	Total Dissolved Solids
ohm-cm = $\frac{1}{\text{mho/cm}}$ = $\frac{1}{\text{siemens/cm}}$	1 grain per gallon = 17.1 parts per million (ppm) 1 part per million 1 milligram per liter (mg/L)

A Total Commitment to Quality Control

At Siemens, there are no shortcuts on quality. Proper regeneration is critical for optimum performance, exchange capacity, total volume output and low operating cost. Our quality control specialists carefully pretest, then select only resin lots that meet our stringent requirements, assuring you the highest quality water and maximum performance from each regenerated deionizer. For critical hemodialysis applications our SDI systems are regenerated in FDA registered facilities in accordance with QSR/GMP (Quality System Regulations/Good Manufacturing Practices) requirements as well as meeting all Health Canada medical device regulations.

QUALITY CONTROL

Incoming QC: Raw materials must meet quality specifications.

In-Process QC: Each component has its own operating criteria, and the entire process is monitored.

Final Product QC: Materials are double-checked for quality with results recorded in the batch record.

SANITIZATION

Each service unit is chemically sanitized before refilling.

DOCUMENT CONTROL

We have a comprehensive document control system. No process changes are made without proper notification and approval.

TANK TRACEABILITY

The processed resin batch number is recorded on each service deionization tank, so traceability is ensured.

YOU CAN DEPEND ON OUR SERVICE PROFESSIONALS FOR:

- Emergency Service
- Preventive Maintenance
- Back-up Systems
- Field Engineering and Evaluation
- System Installations and Upgrades
- Water Sampling and Analysis
- Mobile Water Treatment
- Turn-key Projects
- Resin Regeneration
- Membrane Cleaning and Regeneration
- Membrane Replacement
- Loop Piping Sanitization
- Custom Resin Processing
- Troubleshooting

Designed Just For You

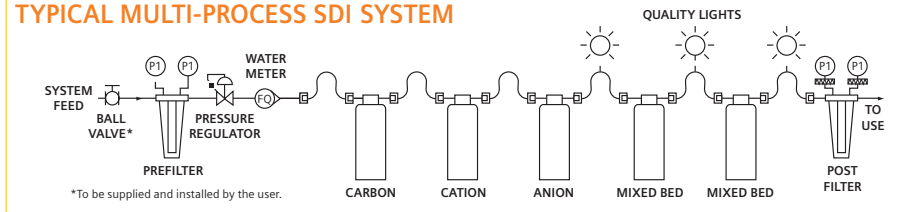
below:
Stainless steel sub micron filter housings.



QUALITY ACCESSORIES AND SPARE PARTS:

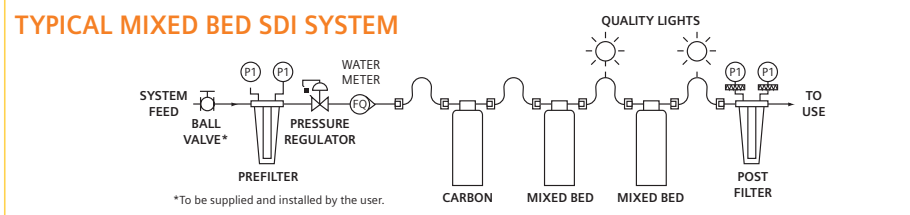
- Ion Exchange Resins
- Filter Media
- RO, NF and UF Membranes
- Disposable Cartridge Filters
- Filter Housings
- Carbon Filters
- Resistivity and Conductivity Monitors
- Multimedia Filters
- Storage Tanks
- Lab System Replacement Cartridges
- UV Lamps
- pH and Flow Meters
- Chemical Feed Systems
- Pumps
- Carbon
- and more...

TYPICAL MULTI-PROCESS SDI SYSTEM



For water quality greater than 1 megohm-cm, where large volumes of water are required, an SDI system typically includes a carbon tank followed by cation, anion and two mixed-bed tanks in series.

TYPICAL MIXED BED SDI SYSTEM



Where water quality greater than 1 megohm-cm is required but with low water volumes, a system commonly consists of a carbon tank followed by two mixed bed tanks.

CUSTOMIZED TO MEET YOUR WATER QUALITY AND QUANTITY REQUIREMENTS

We work with you to determine what system configuration best suits your current and future needs. Flexibility in design sets our service deionization (SDI) systems apart from other deionization options. The components for your SDI system will be selected based on your feedwater quality, flow rate and product water quality requirements. For water quality greater than 1 megohm-cm, where large volumes of water are required, an SDI system typically includes a carbon tank followed by cation, anion and two mixed-bed tanks in series.

ACCESSORIES AND SPARE PARTS WHEN AND WHERE YOU NEED THEM

We understand that keeping your water systems running at peak performance requires the highest quality replacement filter cartridges, membranes, parts and accessories. Siemens offers a wide variety of accessories for SDI systems and maintains the industry's largest inventories of spare parts for ours and competitor systems. We can maintain your system with a comprehensive service contract. Our products and services will keep you up and running.

For further information please contact:

Siemens
Water Technologies

North America Customer & Technical
Service Network
In the Continental United States
800.466.7873 24 hour Customer Service
800.875.7873 xt 5000 Technical Support

10 Technology Drive
Lowell, MA 01851

In Canada East (Toronto)
905.890.2803 24 hour Customer Service

In Canada West (Calgary)
403.250.2650 24 hour Customer Service

or contact your local Siemens branch
www.siemens.com/water



with over 80 service centers in North America, Siemens is ready to serve you quickly and efficiently

The information provided in this brochure contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.

©2007 Siemens Water Technologies Corp.

E10001-WTPW-A4-V1-4A00
DispoNo. 216 16 K.No.3936

SDI-Dldr-BR-0407
Subject to change without prior notice.