

# RATINGS

## Reverse-osmosis systems

Listed by types; within types, listed in order of estimated quality, based on removal of dissolved solids.

**1 Price.** The manufacturer's suggested retail price. A \* indicates price includes installation; + indicates shipping is extra.

**2 Dissolved solids.** We spiked water with sodium chloride to represent the dissolved solids that may be present in drinking water. The best systems filtered out at least 96 percent; the worst, less than 70 percent.

**3 Lead removal.** All did well at removing metal ions, including lead. All but one of the units reduced lead from the very high level we started with, 128 parts per billion, to less than 10 ppb. That one, the *Ametek RO 2000*, reduced lead to 23 ppb. The EPA cur-

rently permits a maximum lead level of 50 ppb; the agency may soon reduce the limit to 10 ppb.

**4 Hours per gallon.** The time it took each unit to process one gallon of water. These measurements were made with our average water pressure of 45 psi. Higher pressures would increase the flow proportionately, but would also waste more water in units that run constantly.

**5 Water waste.** Our calculation of how much water goes down the drain during a 24-hour period, assuming that the user draws two gallons of water from the device daily, at water pressure of 45 psi. Some models (see comment D) will waste water constantly, even if you're drawing no water from the system. Countertop models can be run no longer than needed.

**6 Components.** The configuration of each

unit, as received. (We bought units intended for chlorinated water supplies.) The **container size** refers either to the pressure tank that came with under-sink models, or the dispensing jug that came with countertop models. The **sediment prefilter**, virtually standard, helps screen out coarse solids that could clog the membrane. A **carbon prefilter** is necessary to remove chlorine on units with the more-efficient TFC filter membrane; chlorine degrades that type of membrane. Units with a CTA membrane are degraded by bacteria but don't need a carbon prefilter. The **carbon postfilter** removes organic contaminants. If your water is not chlorinated, choose a TFC membrane.

**7 Membrane cost.** The prices we paid. You'll probably need a new membrane every year or so. You'll also need to change the system's other filters annually. Cost: about \$25.



Brand and model	6 Components											
	1 Price	2 Dissolved solids	3 Lead removal	4 Hours per gallon	5 Water waste, gal./day	Container size, gal.	Sediment prefilter	Carbon prefilter	Membrane type	Carbon postfilter	7 Membrane cost	Comments
Under-sink models												
Culligan Aqua-Clear H-83	\$849*	●	●	3	28	2.2	✓	✓	TFC	✓	\$108	D,E
Everpure Ultimate 1	740	●	●	3	17	2.2	—	✓	TFC	✓	234	A,I,K,L
Kinetico Drinking Water System	850*	●	●	4	7	2.2	✓	—	CTA	✓	100	I
Space Saver STS-2000	595	●	●	5	24	1.9	—	—	CTA	✓	45	C,I
Ecowater ERO 200	400	○	●	6	12	2.2	✓	—	CTA	✓	55	G
Sears Undersink Cat. No. 3497	368+	○	●	6	14	2.2	✓	—	CTA	✓	70	G
Water Factory Systems 4000	600	○	●	5	22	2.0	✓	—	CTA	✓	81	B,D,G,I
Aqua Pure APRO3CTA	500	○	●	5	21	2.2	✓	—	CTA	✓	47	D,E,G,L
Filterite 9000	499	○	●	4	38	2.2	✓	—	CTA	✓	68	D
Kiss Aristocrat I TCR	450	●	●	5	19	2.2	✓	—	CTA	✓	85	H,L
Ametek RO-2000 CTA	498	●	●	9	9	2.2	✓	—	CTA	✓	74	D,E,H
Countertop models												
✓ Culligan Aqua-Clear Compact	499*	●	●	4	7	—	✓	✓	TFC	—	124	A,J
Ecowater Lindsay Countertop 7046502	85	○	●	16	16	0.7	—	—	CTA	—	55	F
Ametek FRO-1000	61	●	●	21	39	—	1	—	CTA	✓	—	J
Shaklee BestWater System 50800	375	●	●	6	2	1.8	✓	—	CTA	✓	130	A,F
Sears Countertop 3451	90	●	●	13	13	0.7	—	—	CTA	—	30	F,G

□ Has built-in prefilter disc.

### Specifications and Features

Except as noted, all: ● Recommend annual replacement of membrane and filter cartridges. ● Have 1-yr. limited warranty. ● Shut off when storage tank is full.

### Key to Comments

A—Manufacturer recommends replacement of reverse-osmosis membrane at 2-yr. intervals; longer than most.

B—3-yr. limited warranty.

C—2-yr. limited warranty.

D—Water runs to drain even after tank is full.

E—Storage system lacks check valve; tank empties if feed water turned off.

F—Collection vessel can overflow if left unattended.

G—Dissolved solids removal approximately 5 percent better when not flowing into storage tank.

H—Dissolved solids removal approximately 10 percent better when not flowing into storage tank.

I—Instructions provided for sanitizing tank and system.

J—Collection container not supplied.

K—Faucet supplied appears less durable and is more difficult to install than most.

L—Has two-stage carbon postfilter, a slight advantage.

# DISTILLERS: A DROP IN THE BUCKET

Distillation is the brute-force way to remove impurities from water. A distiller boils water, then cools the steam until it condenses; the resulting distillate drips into a jug. Salts, sediment, metals—anything that won't boil or evaporate—stays behind in the boiling pot.

We tested five home distillers, priced at \$150 to \$429, that are designed to work on a countertop.

We knew at the start of our tests that distillation doesn't remove certain classes of substances very well. Among them are a broad group of chemicals known as volatile organics, which contaminate some groundwater. (Volatile organics include chloroform and benzene.) They can pass through a distiller

and end up in the distilled water.

For our primary tests, we used water spiked with phenol, a chemical related to benzene and typical of a large class of volatile organics. We spiked the water with 0.5 part per million phenol, a dangerously high level of contamination for related organic compounds.

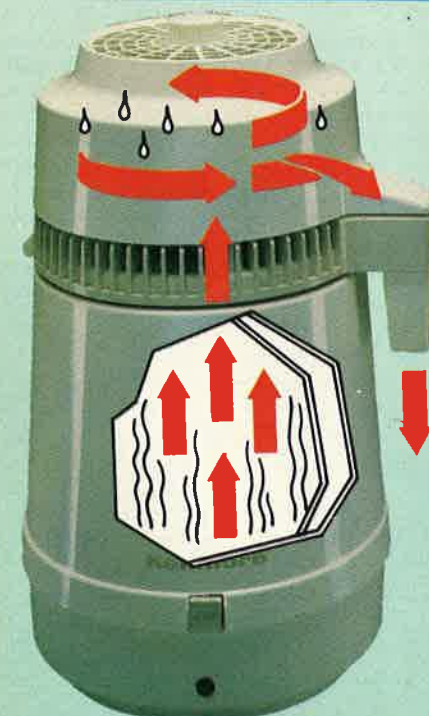
We also used each unit to distill 50 batches of mineral-laden water. That test showed, in effect, how well the distillers would work with hard water. It also functioned as an endurance test of sorts. We cleaned the units only occasionally, then let them sit uncleaned for a few weeks to see what would happen to their innards.

Boiling water long enough can

**Effective against:** Dissolved solids, heavy metals such as lead.

**Not effective against:** Volatile organic compounds.

**May help with:** Cloudy, turbid water; chlorine.



**Distiller mechanics** As water boils in the chamber at the bottom, the steam rises into the cooling coils. Contaminants that don't boil or evaporate stay in the chamber. The steam circulates through a metal coil and condenses. The distillate drips out a spout into a collection jug.

kill microorganisms, but as of now manufacturers aren't calling their distillers sterilizers. Some designs can splash unboiled water into the collecting jug—a problem we noted with the *Aquaspring*. The National Sanitation Foundation, a standard-setting group, has a new certification procedure that will soon allow other designs to be classified as sterilizers.

## How they performed

None of the stills removed the phenol effectively. In fact, their first batches of distilled water had higher levels of phenol than we started with. Phenol has a boiling point that's 148°F higher than that of water. But phenol tends to evaporate fairly readily when the water is boiled, so it travels with the steam. That's why the first batches of distilled water were more polluted than the last ones.

We suspect that the *Aquaspring*, which removed a little more phenol than the others, managed to vent some of the chemical into the air. Roughly one-fourth of the water the *Aquaspring* starts with is never recovered: It escapes into the room as vapor.

Four stills, the *Aqua Clean*, the *Sears*, the *Waterwise*, and the *Ecowater*, pass the distillate through a tiny activated-carbon filter on the way to the collection jug. The carbon helped remove most of the phenol from water distilled in the *Sears*, the *Ecowater*, and the *Waterwise*, but it didn't help much with the *Aqua Clean*. For any model, though, we'd estimate that you'd have to change the filter at least every 10 gallons or so. Our tests indicate you shouldn't depend on filters that small to remove organic chemicals.

Our endurance trials established that most stills did an excellent job removing high concentrations of minerals, harmful ones like lead as well as harmless ones like calcium.

## Fuss and muss

Some parts of the stills looked considerably the worse for wear at the end of our tests. Most of the boiling chambers were coated with scale, a powdery, whitish accretion that clings to the inside surfaces. The boiling chamber in the essentially similar *Ecowater* and *Waterwise* models was in the worst shape of all: After sitting uncleaned for a few weeks, the chambers had begun to rust and corrode.



The *Ecowater* and *Waterwise* distillers corroded the most in our test.



The *Aqua Clean* suffered the least from scaling. Its boiling chamber contains a float switch, similar to the one inside a toilet tank, which shuts off the unit before the chamber runs dry. The minerals that cause scale stay dissolved in the few inches of water that stay behind. You then empty the residue through a drain. The only drawback to the design: The boiling chamber and float-valve need cleaning periodically, and they are awkward to scrub.

### Time and money

Distillation is a slow process. It took each unit more than five hours to make a gallon of distilled water. They needed a couple of hours to produce the first quart, then they chugged along at about one quart per hour. The *Aquaspring* started up a little faster because it holds less water than the others: about a half-gallon rather than a gallon or more.

It takes considerable energy to convert a gallon of water into steam.

We calculate that at the current national average electricity rate of 7.75 cents per kilowatt-hour, these units would use about 24 cents worth of electricity to distill a gallon of water.

You might welcome the heat from a distiller in the wintertime. In the summer, though, the heat will make the air-conditioner work harder. We reckon that each gallon of water distilled would add 6 cents to the cost of running an air-conditioner, at average utility rates.

If you factor in the high operating cost of a distiller and the high maintenance cost of the reverse-osmosis systems we describe on page 36, both types of device cost about the same.

None of the stills did its work quietly. Their cooling fan hums like a blow drier on a low setting.

### Recommendations

A distiller makes the most sense if your water supply is brackish or polluted only with heavy metals. A

distiller removes salt very well, and it's better than a reverse-osmosis filtering system for removing heavy metals. A distiller won't eliminate organic contaminants such as pesticides; use a carbon filter or a reverse-osmosis system instead. You need a water softener, not a distiller, to remove high levels of calcium and magnesium.

Of the distillers we tested, we recommend the *Aqua Clean Model 4*, \$299, and the *Sears 34555*, \$150. The *Aqua Clean*, well-made of stainless steel, contains a clever float in the boiling chamber to minimize the build-up of scale. The *Sears*, at half the price, worked just as well. It's made of rugged plastic and is mechanically simpler than the *Aqua Clean*.

The other tested models don't compare. The *Waterwise* and the *Ecowater* corroded. The *Aquaspring* doesn't hold much water; it was the least effective at removing inorganic material; and it's a chore to refill because it's heavy.

## RATINGS

### Distillers

Listed in order of estimated quality. Models that performed similarly are bracketed and listed alphabetically.

**1 Price.** The manufacturer's suggested retail price.

**2 Inorganic removal.** Removing inorganic compounds—metals, minerals, sediments, dissolved solids—is the primary function of a water distiller. As expected, most models excelled. No distiller was reli-

able at removing volatile organic chemicals, such as the phenol we tested with.

**3 Scaling.** The propensity of hardness minerals to collect as scale (whitish residue) and adhere to interior surfaces. The *Aqua Clean* scored highest because it shuts off before boiling completely dry, so scale isn't deposited.

**4 Materials.** Three of these distillers are made of materials that withstand corrosion and rust very well. Residual water caused serious rust and pitting in the boiling chamber of two models.

**5 Convenience.** Our judgment of how easy the distiller was to fill and clean.

**6 Distillation time.** The hours needed to make the first quart, starting with room-temperature water. Once they'd built up a head of steam, all the models produced distilled water at about the same rate—29 ounces per hour, on average.

**7 Dimensions.** In order of height, width, and depth or height and diameter.

**8 Capacity.** The maximum quantity of water needed to refill the boiling chamber, to the nearest quarter-gallon.

Brand and model	1 Price	2 Inorganic removal	3 Scaling	4 Materials	5 Convenience	6 Distillation time	7 Dimensions, in.	8 Capacity, gal.	Comments
<b>Aqua Clean MD-4</b>	\$299	●	●	●	●	2:03	13 x 10 x 11	1 1/4	D
<b>Sears Cat. No. 34555</b>	150+	●	●	●	●	1:52	16 x 9	1	A
<b>Ecowater 7082045</b>	295	●	●	●	●	2:12	16 x 10	1 1/2	—
<b>Waterwise 3000</b>	429	●	●	●	●	2:03	16 x 10	1 1/2	—
<b>Aquaspring 4</b>	329	●	○	●	○	1:30	18 x 10 x 10	1/2	B,C,D,E

### Specifications and Features

All: ● Are air cooled by an electric fan. ● Switch off automatically at end of cycle. ● Are intended for countertop use. ● Come with plastic collection bottles or jugs. ● Take approx 1 hr. to distill 1 qt. of water. ● Have 1-yr. warranty covering materials and workmanship.

Except as noted, all: ● Are rated at about 700 watts. ● Are UL listed. ● Have tiny activated-carbon postfilter claimed to remove organic material. ● Are specified for use with potable water only.

### Key to Comments

A—Rated at 585 watts.  
B—No UL listing indicated.  
C—No carbon postfilter.  
D—Lacks written restriction to potable water use.  
E—Has fairly heavy (7 lb.) cover to remove for refill.

## WATER SOFTENERS: VENERABLE HARDWARE

The principle of water softening hasn't changed much in the 60-odd years softeners have been on the market. A softener is designed to remove calcium and magnesium—the minerals that lead to soap-curd deposits in the bathtub and sinks, dull-looking laundry, spots on dishes, scaly deposits on faucets and showerheads, scale inside the water heater and pipes. A softener isn't intended to make the water any safer.

The selling of softeners has changed considerably in recent years, however. Many sellers now describe them as "conditioners" or "treatment devices," labels that seem to imply a softener can do more than eliminate undesirable but harmless minerals. Dealers often consider a customer's inquiry an invitation to try to sell filters and other hardware along with a softener. Like as not, the sales pitch will include some sort of water test.

To avoid being oversold, have the water tested yourself (see page 32). If you decide a water softener is what you need, shop around. Contact two or three dealers to find out what equipment they recommend and what it will cost to have it installed. The average retail price of a water softener is about \$1000, excluding labor. But prices vary dramatically, depending on where you live and the complexity of your water problem.

Judging from our tests of 18 softeners, there's no reason to choose one brand or model over another on the basis of softening performance. Every softener removed essentially all the minerals from the very hard water we concocted for our tests. Further, the dealer can tailor the unit's softening capacity to the hardness of your water and your pattern of water consumption. Choosing a softener, then, is largely a matter of selecting a unit that's easy to maintain and handy to use.

### How smart a softener?

The brains of a water softener are the controls that regulate regeneration—flushing the material in the softening tank with brine, described in the caption at the right. There are two basic types of controls:

**Timer-only.** A softener controlled only by a timer regenerates at regular intervals. Timer-only models are generally the least expensive ones in a company's line, and are well suited for a household with a consistent level of water use—showing and laundering on a regular schedule, for example. But timer-only models can use more salt and water than necessary because they regenerate whether or not the resin needs it.

To set the regeneration cycle on a timer-only model, you or the dealer must first know the hardness of the water, the amount of resin in the tank, and your family's typical water use. Then you push certain pins or buttons on the timer—much the way you set a household timer to turn a lamp on and off.

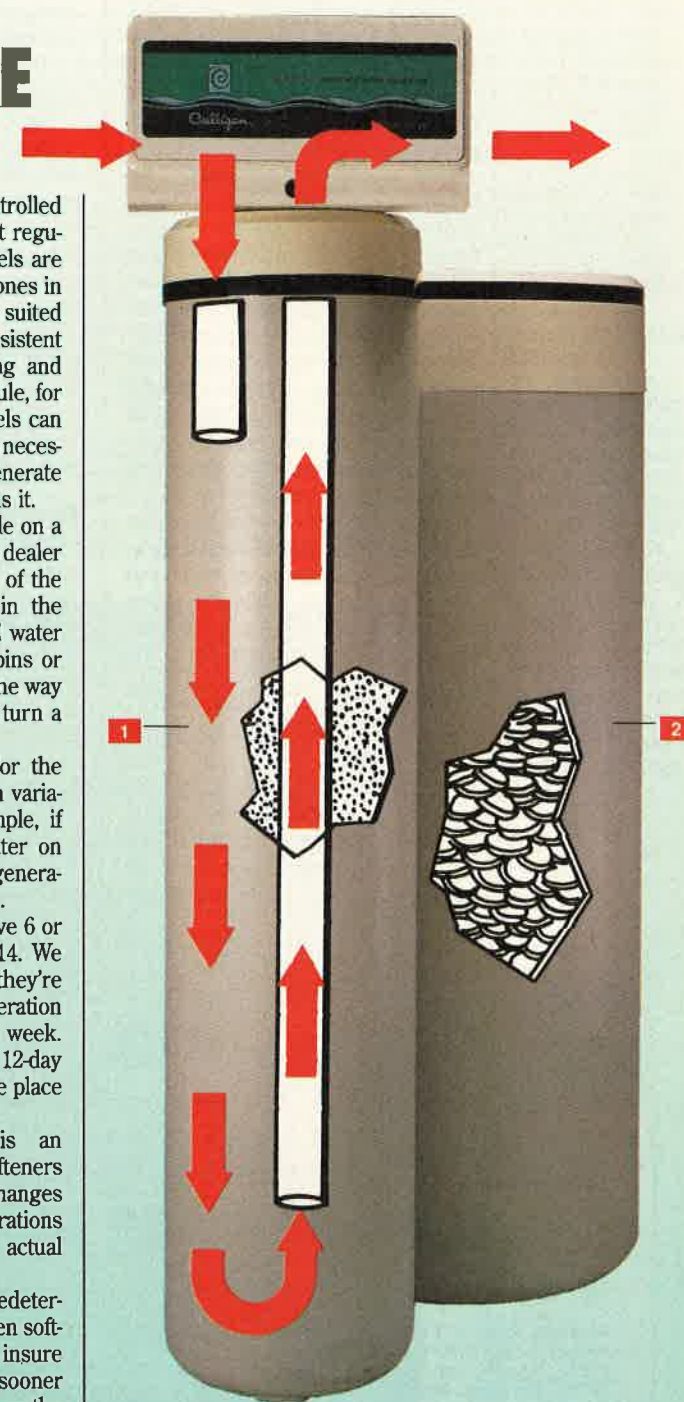
Within limits, you can tailor the timer's on/off cycles to match variations in water use. For example, if you generally use lots of water on weekends, you can set up regeneration for Fridays and Tuesdays.

Some timer-only models have 6 or 12 control pins; others have 14. We prefer 14-pin models because they're easiest to set so that regeneration occurs on the same day each week. The others run on a 6- or 12-day cycle, so regeneration will take place on a different day each week.

**Demand-control.** This is an industry catchphrase for softeners that monitor water flow or changes in hardness to tailor regenerations more precisely to your actual demand for water.

Some regenerate when a predetermined volume of water has been softened (allowing for a reserve to insure that they regenerate a little sooner than necessary). Others, such as the *WaterCare Elan* and the *Hague Hydro-Clean 232*, let you adjust the reserve capacity according to the number of people in your house.

Still other softeners, which have electronic controls, can calculate the average number of gallons of water used in the previous seven days or track abnormal variations in average water use, and call for regeneration accordingly. The water-metering models share a disadvantage: A low water flow (as



**Softener mechanics** Hard water flows through a tank filled with synthetic resin beads **1**. Millions of sodium ions are loosely attached to each bead. The water exchanges its "hardness" ions, mostly calcium and magnesium, for the "soft" sodium ions and flows on to the faucets. When the resin is saturated with hardness ions, it must be regenerated in order to work again. Salt water from a brine tank **2** flows through the resin. The resin gives up its mineral ions in exchange for sodium ions. The brine goes down the drain.



Water's hardness is usually expressed as grains per gallon, equivalent to the amount of calcium carbonate in the water. According to industry benchmarks, soft or slightly hard water has up to 3½ grains per gallon; moderately hard water ranges from 3½ to 10½ grains, and very hard water has 10½ grains or more.

from a leaky toilet) may not be enough to turn the water meter, so the resin may become exhausted before the unit regenerates. The *Culligan Mark 59 Aqua Sensor* monitors the softened water and regenerates when the hardness rises to a predetermined level.

**Two nonelectric models.** The controls on a typical water softener depend on electric power. But we found two that operate on water flow alone. On the *Kinetico SK-120*, flowing water turns a timing gear that controls regeneration cycles. The *Marlo GLC-14S* has a very small resin tank (about twice the size of a football). When about 140 gallons of water have flowed through the tank, the unit regenerates for about two minutes. Both worked well.

Of the two, the *Kinetico* has what we consider the more useful design. It has two resin tanks, so water can flow through one while the other regenerates and the supply of softened water is uninterrupted.

#### Thrifty with salt and water?

A softener will consume about a pound of salt in order to remove 3600 to 5000 grains of hardness from the water. For the tested models, with a softening capacity of 20,000 to 30,000 grains, that means roughly five to six pounds of salt used for each regeneration.

You or the dealer can adjust the level of salt consumption on most softeners. A high setting will insure that the water stays soft, but will mean more frequent refills of the salt tank

and a higher outlay for salt (about 11 cents a pound in our area). A lower setting will save a bit of money—and time spent scooping or pouring salt—but the resin will regenerate less completely.

You can't do much to control the volume of water flushed down the drain during each regeneration, however. As the Ratings indicate, water consumption for the tested models ranged from 15 gallons for each 1000 gallons softened (for the *Bruner/Goulds BG*) to 120 gallons per 1000 (for the *Rayne RT2000*). Obviously, a unit that consumes as much water as the *Rayne* exacts a heavy toll on the water supply. It can also exact a heavy toll on your pocketbook if your water rates are high.

#### How bulky? How handy?

Water softeners come in two basic styles. The most utilitarian have separate salt and resin tanks connected with tubing. As the Ratings indicate, two- and three-tank units occupy the largest floor area—a consideration if the utility space in your house is cramped. In cabinet models, which are slightly more compact, the resin tank is enclosed in a larger tank that holds the salt. Cabinet models usually have less room for salt storage than two-tank units and so require more frequent refills.

A water softener shouldn't require much care and feeding beyond the periodic addition of salt. Be sure the softener you choose has an opening that's large enough and low enough to make refills easy. The Ratings give

our judgments of how easily the tested models could be refilled.

#### How safe?

Nearly all the softeners we tested are designed to minimize the risk of electric shock. Typically, the controls draw their power from a 24-volt transformer. Such low voltage won't cause a lethal shock. Units that have 120-volt connections usually hide them inside the control box or shield them. The *Culligan* units have commendably clear warnings to unplug the softener for safety's sake if you have to adjust the controls.

The *WaterCare Elan UE89* we tested is an unfortunate exception. You risk touching an electrically live component if you remove the control cover to adjust the timer or salt setting. Further, the unit has no suitable label to alert you to the shock hazard. We have judged the *WaterCare Elan UE 89* Conditionally Acceptable. It would be Acceptable if you plugged it into a ground fault circuit interrupter, which can reduce the risk of a shock.

#### Recommendations

You can safely assume that any water softener will do an acceptable job of removing minerals. Every model we tested worked well.

The simplest and generally the cheapest softeners run on a timer that regenerates the softening capability on a fixed schedule. That may be fine if your family's water use is reasonably predictable. Overall, however, timer-only units tend to use salt and water inefficiently.

We favor the demand-control softeners. Their controls can be set to regenerate in line with your pattern of water use. That means the softener will use less salt and waste less water. The fanciest controls, on top-of-the-line units, may be more than you need. Controls on less expensive units work just as well—and are less daunting to adjust or reset.

Except for the *Marlo GLC*, any of the tested softeners can be regenerated manually by pushing a button or a lever. The *Sears Salt Saver 70* has a "vacation" switch that lets you suspend regeneration if you're away.

The prices in the Ratings will help you find the lowest-priced hardware. Installation costs and a dealer's fee for routine servicing can substantially raise the price you pay.

Reprints of this special section will be available in bulk quantity. For information and prices, write: CU/reprints, P.O. Box CS 2010-A, Mount Vernon, N.Y. 10551.

## RATINGS

### Water softeners

Except as noted, listed in groups by type of controls; within groups, listed alphabetically. Our tests, using water with about 24 grains of hardness, showed no meaningful differences in softening performance.

**1 Brand and model.** For the most part, these models have a capacity of 20,000 to 30,000 grains. That means they can treat about 2000 gallons of very hard water between regenerations. Most makers offer larger or smaller units with the same controls as those on the tested models.

**2 Price.** The price we paid for the hardware only. Since water softeners are sold and installed by individual dealers and installation costs vary, the price you pay may be substantially different.

**3 Controls.** Timer-controlled (TC) models can use salt inefficiently. You set the timer to control the frequency of regeneration, based on water use and hardness. Regeneration occurs on a fixed schedule. Water-metering models (WM) combine a timer and

a water meter to regulate regeneration with the actual demand for softened water. If set properly, they can use salt more efficiently than a timer-only model. Electronic controls in the sensor-demand system (SD) call for regeneration when the softened water becomes slightly hard.

**4 Style.** The 2-tank and 3-tank models have separate resin and salt tanks, connected by a hose to draw salt during regeneration. These designs allow the greatest room for salt storage, but also generally take up the most floor space. Cabinet softeners have the resin tank enclosed within a larger tank that holds the salt. They are compact, but don't hold as much salt as two-tank units.

**5 Height, floor area.** Measurements that tell you how bulky these softeners are. Our floor-area measurements (to the nearest square foot) are for the softener itself; allow additional space to store extra bags of salt.

**6 Regeneration.** Our measurement of the time needed to flush brine through the resin to restore the unit's softening capability. A protracted regeneration time isn't neces-

sarily a drawback; you can set the softener's controls to regenerate at a time of low water demand—overnight, for example. Regeneration doesn't shut off the water supply, but it does mean you'll have no softened water for an hour or so.

**7 Water use.** Our measurement of the amount of water used in regeneration for each 1000 gallons of water softened. Our lab equipment supplied water at relatively high pressure, about 80 pounds per square inch; lower pressure would affect water use, but the relative ranking among softeners should remain constant.

**8 Ease of adding salt.** We favored units with a wide opening set at a convenient height.

**9 Salt capacity.** The more salt the tank holds, the less often it needs to be refilled. One of these softeners, used to full capacity, needs about six pounds of salt per regeneration.

**10 Owner's manual.** Our judgment of how well the manual covers installation, operation, and maintenance.

1 Brand and model	2 Price	3 Controls	4 Style	5 Height, in.	5 Floor area, sq. ft.	6 Regeneration, min.	7 Water use	8 Ease of adding salt	9 Salt capacity, lb.	10 Owner's manual	Comments
<b>Timer-controlled models</b>											
<b>Bruner/Goulds Softy 300T</b>	\$590	TC	2-tank	47	3	110	80 gal. ●	●	320 lb.	○	—
<b>Culligan N8 Custom</b>	990	TC	2-tank	51	3	90	35 ●	●	360	●	K
<b>Miracle Water/Servisoft Series One 1220</b>	965	TC	2-tank	48½	3	55	50 ●	●	320	●	J
<b>Rainsoft Amazon AM24-D</b>	1290	TC	2-tank	51	1	100	45 ●	●	200	○	G,K,N
<b>Sears Kenmore 34270N "Salt Saver" 70</b>	560	TC	Cabinet	47½	2	115	50 ●	●	260	●	L
<b>Demand-control models</b>											
<b>Bruner/Goulds Aquanique BG</b>	940	WM	Cabinet	43	2	105	15 ●	●	160	●	D,E,H
<b>Culligan Mark 59 Aqua Sensor</b>	1200	SD	2-tank	50	2	140	45 ●	●	260	●	K
<b>Culligan Mark 89 Soft-Minder</b>	1390	WM	2-tank	51	2	90	45 ●	●	360	●	K
<b>Hague Hydro-Clean HCII-232S</b>	1000	WM	2-tank	49	3	60	40 ●	●	260	○	H,J,K
<b>Kinetico SK-120</b>	2195	WM	3-tank	41	3	55	35 ●	●	240	●	C
<b>Lindsay Sense-A-Tronic 2650</b>	1295	WM	Cabinet	42¼	2	90	30 ●	●	240	●	A,E,J
<b>Marlo MP25S</b>	645	WM	Cabinet	44	2	100	50 ●	●	160	●	B,K
<b>Marlo GLC-14S</b>	735	WM	Cabinet	38	2	2	60 ●	●	60	●	C,F,I,J,L,M
<b>Miracle Water/Servisoft Comput-A-Save 1230</b>	1335	WM	2-tank	56	3	45	35 ●	●	320	●	A,J
<b>Rayne RT2000</b>	900	WM	2-tank	60	3	115	120 ●	●	200	●	B
<b>Sears Lady Kenmore 34280N "Cycle Miser"</b>	700	WM	Cabinet	47½	2	90	50 ●	●	260	●	A,L
<b>Conditionally Acceptable</b>											
■ The following model was judged Conditionally Acceptable because readily accessible wiring presents a shock hazard. It would be judged Acceptable if plugged into a ground fault circuit interrupter.											
<b>WaterCare Elan UE89</b>	1134	WM	2-tank	53	3	60	35 ●	●	240	○	H,K

#### Specifications and Features

Except as noted, all: ● Are powered by a plug-in, 24-volt transformer or transformer in control head. ● Have maximum capacity of 20,000 to 30,000 grains of hardness per regeneration. ● Can treat water of hardness up to 50 grains per gallon. ● Operate at water pressures of 20 to 120 psi and temperatures of 35° to 120°F. ● Have adjustable settings to match salt use to water hardness.

#### Key to Comments

A—Has electronic controls and battery backup;

preserves settings in case of a power outage. B—Electronic controls but lacks battery backup. C—No electrical connections required; water flow controls regeneration. On the *Kinetico*, a gear coded with the water's hardness signals for regeneration; the *Marlo* uses gears to regenerate every 70 or 140 gal.

D—Lacks clock; may regenerate at an inconvenient time of day.

E—Cabinet-style model can also be set up with resin tank outside salt tank.

F—Lacks switch to start regeneration manually, a slight disadvantage.

G—Poorly designed brine line can kink, blocking flow.

H—Upper limit of inlet line pressure is 100 psi.

I—Upper limit of inlet line pressure is 75 psi.

J—Upper temperature limit is 100°F.

K—Has 120-volt connection inside control box.

L—Disconnected but may be available in some Sears stores.

M—Current designation is GLC-S.

N—Discontinued.

## FOR MORE INFORMATION

## COMPANY NAMES, ADDRESSES

The following is a list of the companies whose products are rated in this special section:

**Ametek:** Ametek, Plymouth Products Div., 502 Indiana Ave., Sheboygan, Wis. 53081. **Amway:** Amway Corp., 7575 E. Fulton Rd., Ada, Mich. 49355-0001. **Aqua Clean:** Pure Water Inc., P.O. Box 83226, Lincoln, Neb. 68501. **Aquaspring:** Hammacher Schlemmer, 147 E. 57th St., New York, N.Y. 10022. **Bionaire:** Bionaire Corp., P.O. Box 582, 565A Commerce St., Franklin Lakes, N.J. 07417. **Brita:** Brita USA Inc., 1221 Broadway, Oakland, Calif. 94612. **Culligan:** Culligan International Co., One Culligan Pkwy., Northbrook, Ill. 60062. **Cuno:** Cuno Inc., 400 Research Pkwy., Meriden, Ct. 06450. **Ecowater:** Ecowater, P.O. Box 64420, St. Paul, Minn. 55164. **Everpure:** Everpure Inc., 660 N. Blackhawk Dr., Westmont, Ill. 60559. **Filterite:** Filterite, 2033 Greenspring Dr., Timonium, Md. 21093. **Glacier Pure:** Glacier Pure Water Systems Inc., 550 Business Center Dr., Mt. Prospect, Ill. 60056. **Hurley:** Chicago Co. Inc., Hurley Water Systems, 12621 S. Laramie Ave., Alsip, Ill. 60658-3225. **Innova:** Innova Pure Water, 5170 126 Ave. N., Clearwater, Fla. 33520. **Kinetico:** Kinetico Inc., 9975 Kinsman Rd., Newberry, Ohio 44065. **Kiss:** Kiss International, 520 Andreason Dr., Escondido, Calif. 92025. **Matt-Son:** Matt-Son, 28 W 005 Industrial Ave., Barrington, Ill. 60010. **NSA:** National Safety Associates, 4260 E. Raines Rd., Memphis, Tenn. 38118. **Omni:** Omni Corp., 2500 165th St., Hammond, Ind. 46320. **Pollenex:** Pollenex, Associated Mills Inc., 165 N. Canal St., Chicago, Ill. 60606. **Sears:** Sears Roebuck & Co., Sears Tower, 233 S. Wacker Dr., Chicago, Ill. 60606. **Selecto:** Selecto, 2258 Northwest Pkwy., Suite A, Marietta, Ga. 30067. **Shaklee:** Shaklee, 444 Market St., San Francisco, Calif. 94111. **Spacesaver:** STS, P.O. Box 126, Torrance, Calif. 90507. **Teledyne Instapure:** Teledyne Water Plk, 1730 E. Prospect St., Fort Collins, Colo. 80525. **Water Factory Systems:** Water Factory Systems, 345 McCormack Ave., Irving, Calif. 92626. **Waterwise:** Waterwise Inc., 26200 U.S. Hwy. 27, Leesburg, Fla. 32748.