

Water Distillers

WHAT ARE WATER DISTILLERS USED FOR?

Water distillers produce highly treated and disinfected water for drinking, cooking and other household uses. The distillation process removes minerals and microbiological contaminants and can reduce levels of chemical contaminants.

Water distillers are neither intended to treat water that is visually contaminated nor intended to convert waste water to safe, microbiologically potable water.

DO I NEED A WATER DISTILLER?

If your drinking water is municipally supplied, it is likely that you do not need a water distiller for health purposes.

If your personal preference is to improve the taste of your water, remove hardness or ensure high purity, use of a water distiller may provide the enhanced treatment you seek.

IS DISTILLED WATER SAFE TO DRINK?

It is presumed in this document that the water you are using meets all health regulations and is known to be safe. Municipally supplied water is treated to

meet health and aesthetic requirements and is subject to routine testing for microbiological contamination. If your drinking water source is a private well, be sure to have your water tested periodically to ensure it is safe to drink.

Distilled water is safe to drink. Distillers remove minerals like calcium and magnesium from drinking water. In Canada, a temperate climate, water is a minor source of such minerals when compared to foods. If you consume a reasonably balanced diet, you do not need to take a mineral supplement when drinking distilled water.

HOW DOES A WATER DISTILLER WORK?

A water distiller works by boiling water into water vapour, condensing it and then returning it to its liquid state. It is collected in a storage container. The process occurs in several steps:

1. Municipal or well water is manually or automatically fed into the distiller unit's boiling chamber.
2. A heating element in the boiling chamber heats the water until it boils.
3. The steam rises from the boiling chamber. Volatile contaminants (gases) are discharged through a

built-in vent. Minerals and salts are retained in the boiling chamber as hard deposits or scale.

4. The steam enters a coiled tube (condenser), which is cooled by a fan or cool water.
5. Water droplets form as condensation occurs. Some distillers have an activated carbon filter to remove any gases that remain with the water droplets.
6. The distilled water is collected in a storage tank. If the unit is an automatic model, it is set to operate to fill the storage tank. Typical tanks have a capacity of 16 litres or more.
7. Water is then directed to a faucet or kept in the tank. Water used for consumption is taken as needed, or is placed in a glass pitcher and stored in the refrigerator.

WHAT KIND OF DISTILLER DO I NEED?

The most common distiller used in the home is a countertop model. It is plugged into a standard electrical outlet, and is either connected to the water supply or water is poured in

manually. Depending on your preference you may want a manual, a semi-automatic or automatic model. Larger distillers—mostly commercial or institutional models—are connected to the water supply and are usually stored in a utility room. They rely on a normal household 120V electric line to operate. Your retailer should be able to help you choose the model best suited to your water demands and operational preferences.

WHAT SIZE DO I NEED?

Distillers are sized according to estimated water use. Some small manual units produce three or four litres at a time, while automatic units can produce over a litre per hour. The operating time can be pre-set to the capacity of the storage tank. The automatic countertop units are typically adequate for the drinking and cooking needs of a family of four.

WHAT DOES A DISTILLER LOOK LIKE?

Distillers vary in size and shape. Some are small and portable, similar in size to a kettle and sit on the counter. Larger machines are non-portable and stand alone.

WHAT KIND OF ADDITIONAL DISTILLER OPTIONS ARE THERE?

There are numerous optional water distiller add-ons. These increase the efficiency and ease of use for the distillation unit.

Auto-feeding sends the tap water into the unit's boiling chamber automatically, using a float valve to regulate the flow of water.

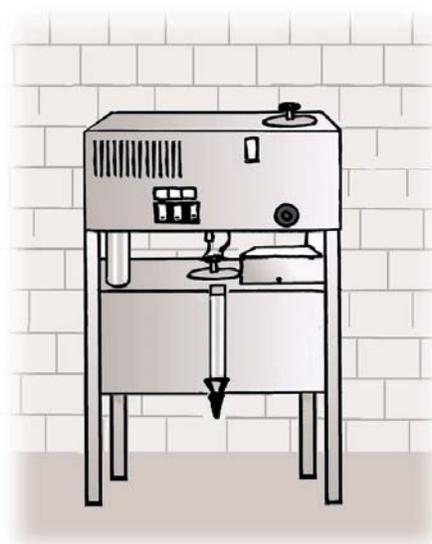
Storage tank—tank sizes vary.

Automatic shutoff occurs when the boiling chamber is empty or the storage tank is full.

The Pump and Pressure system delivers distilled water to fridges, humidifiers, faucets and icemakers.

The Auto-Drain feature connects the distiller to a household drain. This option allows the unit to monitor the build-up of mineral deposits in the boiling chamber, automatically flushing impurities into a drain. It can flush contaminants every 3, 6, 12 or 24 hours, depending on the quality of the water.

Castors are an option that allows for easy movement of the larger units.



Energy-saving systems activate the unit only when a significant amount of water has been withdrawn from the storage tank.

A *Pre-treatment* device may be recommended if you live in an area with hard water (minerals such as calcium and magnesium). A water softener, for example, will prolong the life of your distiller; however, this treatment will result in your drinking water containing a slight salt content. Refer to *Water Softeners* in the *About Your House Series* and speak with your dealer if this configuration is right for you.

HOW MUCH DO WATER DISTILLERS COST TO BUY AND OPERATE?

Typical household distillers cost from \$400 to \$1,500. Adding options such as pumps, pressure tanks, castors, stands, auto-drain and/or a water softener will increase the cost.

Operating costs, which include the cost of water and electricity, will vary. Generally, water costs will be low when using distillers, as they waste very little water. As for electricity, if the system uses 1,500 watts, then depending on your utility's rates, it could cost approximately 6 to 10 cents/hour. The number of hours that the unit operates will depend on how much water you use. Replacement filters are another expense.

WHAT KIND OF MAINTENANCE IS NEEDED?

The level of maintenance will depend on the mineral content of the water. Filters, if used, should be cleaned and replaced regularly. The boiling chamber generally has to be cleaned twice a year. With harder water, more frequent cleaning may be needed.

Excessive mineral deposits on the heating element or inside the boiling chamber can result in a “burnt” taste. Drain and replace the water in the boiling chamber from time to time to reduce mineral build up.

To clean the heating tank, use vinegar — warmed to make the mineral deposits dissolve faster. Rinse well. Follow the manufacturer’s maintenance recommendations.

WHO INSTALLS MY WATER DISTILLER?

Most home distillers are simply plugged into a standard electrical outlet. Water can be poured into some of the units while other units are connected to a direct water line.

If you select a unit that requires direct wiring or a direct water line, contact a mechanical contractor, electrician and/or plumber for proper installation.

DO WATER DISTILLERS MAKE NOISE?

Water distillers will make a noise similar to that of a kettle while in operation. Models that use a fan to cool the heated water will make a whirring noise.

CONSIDERATIONS:

Location

Steam, gases and heat are released while the unit is in use. These units are not recommended for under-the-counter or closet use, unless a good mechanical venting system is provided. A lack of ventilation will contribute to mold growth inside the cabinet or closet.

Water distillers generate heat. You may not want to have your unit running in the kitchen, particularly in warmer months.

Consumption and additional storage

Distilled water as it comes from the distiller is warm to hot. Refrigeration in glass jugs (as opposed to plastic) is suggested for cooling and further storage.

Taste

Distilled water tastes flat because of the absence of minerals. Depending on your preference, cooling the distilled water may improve the taste.

Indoor air quality

Indoor air quality can deteriorate from the gases, such as chlorine, released during the distillation process. Good ventilation is required.

Too much power usage

Water distillers draw 1,000 to 1,500 watts when operating. This is about the same as an electric kettle. It is important the distiller be plugged into an outlet that is not used by any other appliance. Otherwise, the resulting power draw could trip a breaker.

Safety

When the unit is operating, keep out of reach of children.

Ease of Cleaning

Select a unit with a boiling chamber that is easy to clean. The cooling fan and coils should be accessible for removal of dust that deposits on the surfaces.

Distillation Unit Composition

It is recommended that units be made of stainless steel versus aluminum or plastic.

CERTIFICATION

Health Canada recommends that all products that come into contact with drinking water be certified to the appropriate health-based performance standard developed by NSF International. In the case of distillation units, it is recommended that they be certified as meeting standard NSF/ANSI 62. Components employed in conjunction with the distillation system (such as filters) should also be certified to meet other applicable NSF/ANSI Standards.

These standards have been designed to safeguard drinking water by helping to ensure material safety and performance of distillation units that come into contact with drinking water. In Canada, CSA International, NSF International, QAI, IAPMO and Underwriters Laboratories have been accredited by the Standards Council of Canada to certify drinking water materials as meeting the above mentioned standards. These standards are widely accepted in North America, as they ensure the removal of specific contaminants, as well as the performance and mechanical integrity of the materials that come into contact with drinking water. Ask your dealer or retailer for a list of the substances that the unit is certified to remove.

About Your House

Water Distillers

WHERE DO I BUY A DISTILLATION UNIT?

Distillers are sold by water equipment dealers and are listed under "Water" or "Water Companies" in the Yellow Pages.

WHERE CAN I GET MORE INFORMATION?

You can consult Health Canada's Web site at www.hc-sc.gc.ca/ewh-semt/water-eau/index_e.html which describes activities related to Canadian

drinking water quality. You can check the Web site of NSF International at www.nsf.org for information about health-based performance standard related to drinking water treatment units. NSF also lists certified systems. The Canadian Water Quality Association is an industry source of information for drinking water treatment units, and can be found at www.cwqa.com.

You can talk to various retailers and dealers to discuss your specific water treatment needs. Your local municipal water department may also be of assistance to you.

Canada Mortgage and Housing Corporation acknowledges the contribution of Health Canada to the development of this document. For further questions regarding water treatment and water quality, contact Health Canada at water_eau@hc-sc.gc.ca or call (613) 957-2991 or 1-866-225-0709.

To find more About Your House fact sheets plus a wide variety of information products, visit our Web site at www.cmhc.ca. You can also reach us by telephone at 1 800 668-2642 or by fax at 1 800 245-9274.

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