

1, EcoHome21®, Innovative Solutions for Residential Water

	Water Facts in USA and Canada, 2019
Hot Water	<p>It takes 30-45 seconds waiting for hot water at the kitchen faucet. About 4L tap water is wasted each time while waiting. Hot water accounts 10-15 times every day in the kitchen.</p> <p>----- Every year for a family of three:</p> <p>--1, 46hours' waiting time is wasted.</p> <p>--2, 14,600L tap water goes to the drains.</p> <p>--3, 548kwh heating energy is wasted in hot water line.</p>
Legionella	<p>About 10,000 to 18,000 people are infected with the Legionella bacteria in the United States and Canada each year.</p> <p>--Legionella can be killed when water is heated up to 70 Celsius. But water temperature over 49 C poses more risks in scald burns.</p> <p>--A water tank with 60 Celsius or higher storage temperature and combined with a thermostatic mixing valve is the best solution.</p>
Water Scald Burns	<p>Over 500,000 scald burns occur annually in Canada and USA. Most of them are children under the age of 5 and adults over 65.</p> <p>The safety temperature at the point of use is 49 Celsius and below. But water storage under 60 C may pose risks in Legionella bacteria.</p> <p>----In Canada, the latest building codes mandate a thermostatic mixing valve installed with any new water heater in to prevent water scald burns.</p>
Drinking Water Safety	<p>Over 30 millions of Americans are drinking contaminated water. Public water supply safety is the most concerned.</p> <p>Bottled water or additional drinking water treatment are solutions. Distilled water is the most reliable drinking water.</p> <p>---- Important factors in choosing drinking water: 1, water quality. 2, installation cost. 3, operation / maintenance cost.</p>

EcoHome21®, Innovative Solutions for Water:

Hot water and drinking water

DHG series is the best choice for everyday water

from Instant Hot Water to Water Distillation and Combined Solutions

DHG510	Instant hot water with mini tank, can be installed anywhere
DHG520	Anti-scalding valve + Instant hot water tank
DHG530	Instant + continuous hot water + anti-scalding, + optimized water switch + energy saving.
DHG540	All in One Combined system: full function system Instant hot water + continuous hot water + water distillation + energy recovery + water saving

Comparison in Functions: DHG500 series

	<u>Instant hot water</u>	<u>Legionella prevention</u>	<u>Anti-scalding</u>	<u>Unlimited hot water</u>	<u>Distilled water</u>
DHG510	YES	YES	NO	NO	NO
DHG520	YES	YES	YES	NO	NO
DHG530	YES	YES	YES	YES	NO
DHG540	YES	YES	YES	YES	YES

Comparison 1: Costs, DHG500 VS Competitors'

Model: hot water	<u>Equipment</u> Cost	<u>Installation</u> Cost	<u>Operation</u> Cost
DHG510	low	very low	low
DHG520	low	very low	low
DHG530	moderate	very low	very low
competitors' Mini Water Tank	moderate	moderate	moderate
competitors' Instant Water Heater	moderate	very high	moderate
Model: drinking water	<u>Equipment</u> Cost	<u>Installation</u> Cost	<u>Operation</u> Cost
DHG540	moderate	very low	very low
Competitors' Table Top Distiller	low	N/A	high
Competitors' Water Treatment	high	very high	very high


Comparison 2: Cost recovery time, DHG500 VS Competitors'

(Cost recovery from direct water saving and energy saving)

Model	Total Cost Recovery Period (in Year)
DHG510	4 years
DHG520	6 years
DHG530	4 years
DHG540	3 years
Competitors' Mini water tank	8 years
Competitors' Instant water heater	6-8 years
Competitors' Table top distiller	N/A in life span
Competitors' Water treatment	N/A in life span

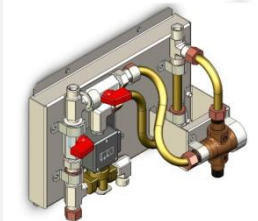
2, DHG540, Brief Descriptions

DHG540, Hot Water and FREE Drinking Water

<p style="text-align: center;">DHG540,</p> <p style="text-align: center;">A Combination of</p> <p style="text-align: center;"><u>Distilled water / Hot</u></p> <p style="text-align: center;"><u>water</u></p> <p style="text-align: center;">Fully automatic</p> <div style="text-align: center;">  </div>	<p>Instant hot water and Free Distilled Drinking Water, 24/7/365</p> <p>DHG 540 recovers 95% energy from water distillation, and supplies purified drinking water and hot water. Patents Pending in Canada and USA,</p> <p>Hot water + free distilled water.</p> <ol style="list-style-type: none"> 1, Produce up to 12L of cooled distilled water in 24 hrs. 2, Instant and non-interrupted hot water ready. with anti-scalding hot water regulating mixing. 3, Fully automatic operation. Standby power 40w. 4, Save up to \$4,206 drinking water in 6 years**. 5, High Energy Efficiency design by innovative Patent Energy Recovery System. 6, Save additional \$557 in water and hydro/gas bills. <p style="text-align: center;">Total save: \$557 in bills + \$4206 in drinking water</p> <ol style="list-style-type: none"> 7, Hot water supply capacity: unlimited (when with a primary heater). 24L@ 49 Celsius when in stand-alone. 8, Certified for US and Canada. 9, Made of lead-free SS 314 material. <p>* Distilled water produced is in proportion to hot water consumption in average. ----- about 1L distilled water for every 10L hot water consumed. Max. 12L /24 hours distilled water.</p> <p>** Drinking water cost based on a family of three, \$ 1.2 per gallon, 2L per person per day, in 6 years.</p>
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3, DHG530,520,510, Instant Hot Water, Brief Descriptions

DHG530,
Full function
Instant
Continuous
Hot Water On-
demand



Instant Hot Water

- + Anti-scalding
- + Water Saving
- + Heating Energy Saving

Patents Pending in Canada and USA.

- 1, Instant and non-interrupted hot water, 24/7/365.
- 2, Save in waiting time, tap water and heating energy.
- 3, Anti-scalding, kids and seniors safe. Never burns.
- 4, Best for frequent hot water demands.
- 5, 100% Legionella free @70 degrees Celsius.
- 6, Plug and play, no additional wiring work needed.
- 7, Stand-by power less than 20w, high efficiency.
- 8, Capacity: unlimited (when with a primary heater).
14L@49 Celsius when in stand-alone use.
- 9, Certified for US and Canada.
- 10, Made of lead-free SS 314 material.

DHG530 is more than a simple water heater.....

Save more than \$662 in 6 years* (water+ hydro)

---@1, save up to 87,600L of water bills. (\$438)

---@2, save up to 3,285kWh of Hydro or gas. (\$329)

---@3, standby 20W. (cost \$105/ 6 years)

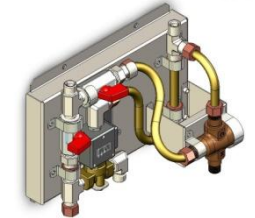
$$\$438 + \$329 - \$105 = \$662$$

* Estimations are based on a family of three,

** 30 feet from kitchen to the primary water heater with 3/4" PEX hot water line.

DHG530,520,510

DHG 520,
Hot Water
with Anti-scalding



Instant Hot Water with Anti-scalding

- 1, Instant hot water with regulated temperature.
- 2, Anti-scalding mixing valve equipped.
- 3, Plug and play, no additional wiring work needed.
- 4, Save hundreds \$ in installation.
- 5, 100% Legionella free.
- 6, Stand-by power 20w, high efficiency.
- 7, Save over 14,600L of water per year*.
- 8, Supply capacity: 4 gallons (15L) @45Celsius
- 9, Certified for US and Canada.
- 10, Lead-free SS 314 material.

* Estimation based on an average family of three.
 ** Installed under sink with hot-cold water lines.
 *** DHG520 package complies with the latest building codes, a ASSE1070 mixing valve is included.
 ****Package includes stainless flex connection pipes.
 Ready to connection with water lines.

DHG 510

Instant hot water
booster




Instant Hot Water Booster


- 1, Instant hot water. 1 second waiting time.
- 2, 100% Legionella bacteria free.
- 3, Save over 14,600L of water each year*.
- 4, Stand-by power 15w.
- 5, Small in size, best for tight spaces **.
- 6, Plug in any 120V, no wiring work needed.
- 7, Supply capacity :
 2 gallons(7.6L) in static storage @70 Celsius.
 4 gallons(15L) @45Celsius with a mixing valve).
- 8, Certified for US and Canada.
- 9, Lead-free SS 316L material .

* Estimation based on an average family of three.
 ** Installed under sink in hot water line.
 *** Building codes mandate a thermostatic mixing valve installed with any new water heater in Canada.


3, EcoHome21®, DHG500, Specifications

		<p>DHG540 free Distilled Water Unlimited Instant Hot Water Anti-scalding, kids and seniors safe Distilled drinking water ready 24/7</p>
Anti-Scalding	Built-in temperature regulating mixing valve	
Static Capacity	12L/3.2 gallon hot water + 6L distilled water	
Hot Water Capacity	Automatic controlled, un-limited, un-interrupted	
Inner tank	Stainless Steel 314	
Recovery time	N/A. Continuous, non-interrupted	
Legionella Prevention	Yes	
Distilled Water	Proportion to hot water consumed, max 12L per day. **1L distilled water for every 10L hot water consumed.	
Distilled Water Reservoir	6L, automatically re-circulated to keep fresh.	
USA, Canada certifications	ANSI/UL 174, CAN/CSA c22.2, ASSE1070/CSA, B125.	
Lead-Free	Yes, NSF/ANSI 372	
Voltage	120V + /- 20%, 50/60HZ	
Max. heating power	750w at 20 Celsius (boiler)	
Heating element	Long life PTC, (thermistor ceramics).	
Dimensions	W50cm xD31cm xH50cm	
Weight	31.5kg	
In Package	All-in-one package, one SS touch-sensor drinking water faucet. two stainless flex pipes with 3/8 OD connectors.	
Installation	Under sink, vertical installation only	
Notes	Fully functional solutions for hot water and distilled water. Complies with building codes and drinking water standards	


EcoHome21®, DHG500, Specifications

	<p>DHG530 Instant water, Anti-scalding water mixing, Automatic Water Saving and Energy Saving Control,</p>
Anti-scalding	Max. 49 degrees Celsius hot water temperature pre-set
Static Capacity	7.6L (2gallon) @ 70 degrees Celsius
Hot water supply capacity	Un-limited capacity, Automatic Controlled,
Inner tank	Stainless Steel 314
Recovery time	N/A, Designed for Automatic Operation.
Legionella prevention	Yes. >70 degrees Celsius in storage tank
USA, Canada certifications	ANSI/UL 174, CAN/CSA c22.2 No110, ASSE1070/CSA, B125
Lead-Free	Yes, NSF/ANSI 372
Voltage	120V + /- 20%, 50/60HZ
Max. heating power	500w at 20 degrees Celsius, 20w @ 70 degrees Celsius
Heating element	Long life PTC, (thermistor ceramics)
Dimensions	W31cm xD31cm xH50cm
Weight	12.7kg
In Package	1 hot water heater, 1 pre-assembled automatic kit, 2 stainless flex pipes with 3/8 OD connectors
Installation	Under sink, Vertical only
Notes	DHG530 Complies Codes: building codes mandate a thermostatic mixing valve installed with a new water heater in Canada .

EcoHome21®, DHG500, Specifications

	<p>DHG520 Instant hot water, Anti-scalding water mixing</p>
Main Functions	Instant water, Anti-scalding
Anti-scalding	Max. 49 degrees Celsius hot water temperature pre-set
Static Capacity	7.6L/2 gallon @70 degrees Celsius
Hot water supply capacity	15L/4 gallon @45 degrees Celsius
Inner tank	Stainless Steel 314
Recovery time	N/A, Designed for use in hot water line, not recommend in cold water line,
Legionella prevention	Yes. >70 degrees Celsius in storage tank
USA, Canada certifications	ANSI/UL 174, CAN/CSA c22.2 No110, ASSE1070/CSA, B125
Lead-Free	Yes, NSF/ANSI 372
Voltage	120V + /- 20%, 50/60HZ
Max. heating power	500w at 20 degrees Celsius, 20w @ 70 degrees Celsius
Heating element	Long life PTC, (thermistor ceramics).
Dimensions	W31cm xD31cm xH50cm
Weight	11.6kg
In Package	1 hot water heater, 1 pre-assembled mixing valve kit, 2 stainless flex pipes with 3/8 OD connectors
Installation	Under sink, vertical only
Notes	DHG520 Complies Codes: building codes mandate a thermostatic mixing valve installed with a new water heater in Canada.

EcoHome21®, DHG500, Specifications

	<p>DHG510 Hot water booster</p>
Main Functions	Instant hot water, hot water booster
Static Capacity	7.6L/2 gallon
Inner tank	Stainless Steel 314
Recovery time	N/A, Designed for use in hot water line, not recommend in cold water line.
Legionella prevention	Yes. >70 degrees Celsius in storage tank
USA, Canada certifications	ANSI/UL 174, CAN/CSA c22.2 No110,
Lead-Free	Yes. NSF/ANSI 372
Voltage	120V + /- 20%, 50/60HZ
Max. heating power	500w at 20 degrees Celsius, 15w @ 70 degrees Celsius
Heating element	Long life PTC (thermistor ceramics)
Dimensions	W31cm xD31cm xH50cm
Weight	9.6kg
In Package	1 hot water heater, 2 stainless flex pipes with 3/8 OD connectors
Installation	Under sink, vertical only
Notes	Important: building codes mandate a thermostatic mixing valve installed with a new water heater in Canada.

4, Water consumption and energy cost: calculation

1	<p>Tap Water Wasted while waiting without instant water supply</p>	<p>4 L tap water wasted while waiting for hot water each time. 10 hot water usage accounts daily in kitchen faucet.</p> <p>Water wasted: @ Per day = 4x10L @ Per year..... = 4Lx10x365=14,600L @ 6 Years..... = 87,600L</p> <p>Water bills costs: \$2 water charge/1000L+ \$3 sewer charge/1000L @ Per day..... = \$0.2 @ Per year..... = \$73 @ 6 Years..... = \$438</p> <p><u>* based on average usage, family of three, year around</u></p>
2	<p>Heating Energy Wasted without instant water supply</p>	<p>Every time after use, hot water in the water lines between primary water heater to point of use cools down. Heating energy in hot water is dissipated.</p> <p>Wasted heating energy: Based on 34kwh@ for every 1000L water heat up 30'C @ Per day = 4x10L----->1.5kwh @ Per year.... = 4Lx10x365=14,600L----->548kwh @ 6 Years..... = 87,600L----->3285kwh</p> <p><u>* based on average usage, family of three, year around</u></p>
3	<p>Drinking Water Costs from commercial suppliers</p>	<p>2L drinking water is recommended for per person per day. That is 730L per year, 4,380L in 6 years.</p> <p>Water consumption for a family of three : @ per year..... =2,190L @ per 6 years..... =13,140L</p> <p>Bottled distilled / bottled drinking water, \$1.2 per gallon or \$0.32 per liter. @ per year..... =2,190L----->\$701 @ per 6 years..... =13,140L----->\$4206</p> <p>Distilled water is most reliable drinking water.</p>
4	<p>DHG Standby power consumption</p>	<p>Standby power consumption: DHG 510, 15w, 131kwh/year, (788kwh/6 year) DHG 520, 20w, 175kwh/year, (1051kwh/6 year) DHG 530, 20w, 175kwh/year, (1051kwh/6 year) DHG 540, 40w, 350kwh/year, (2102kwh/6 year)</p>

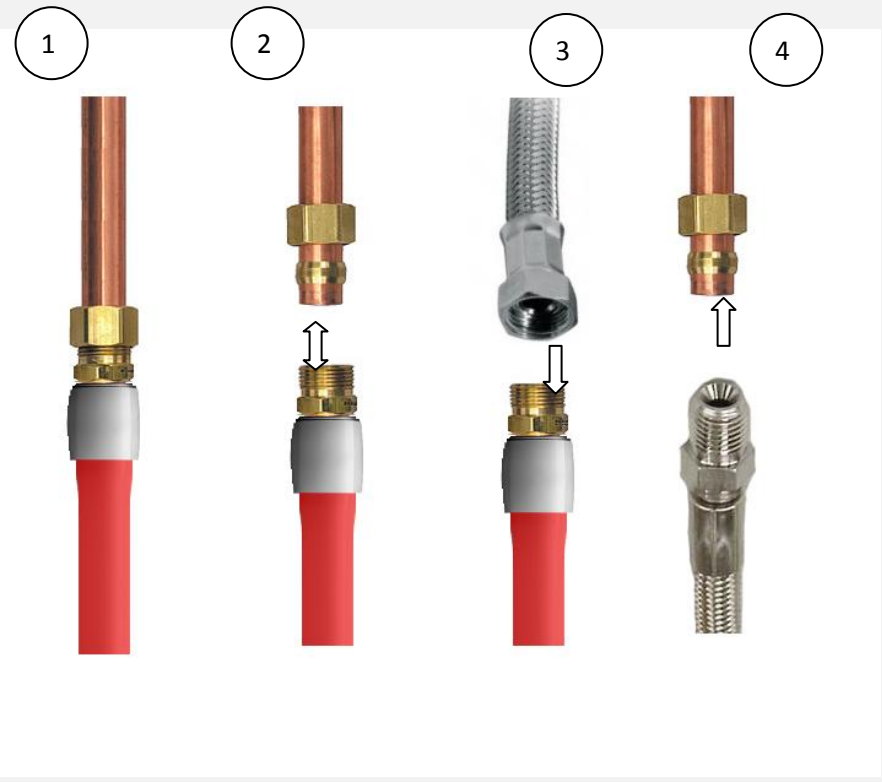
5, Water Heater: cost comparison.

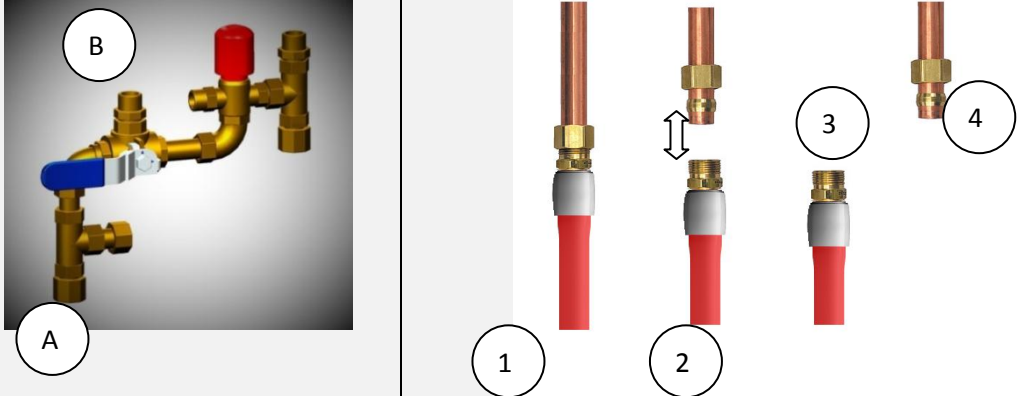
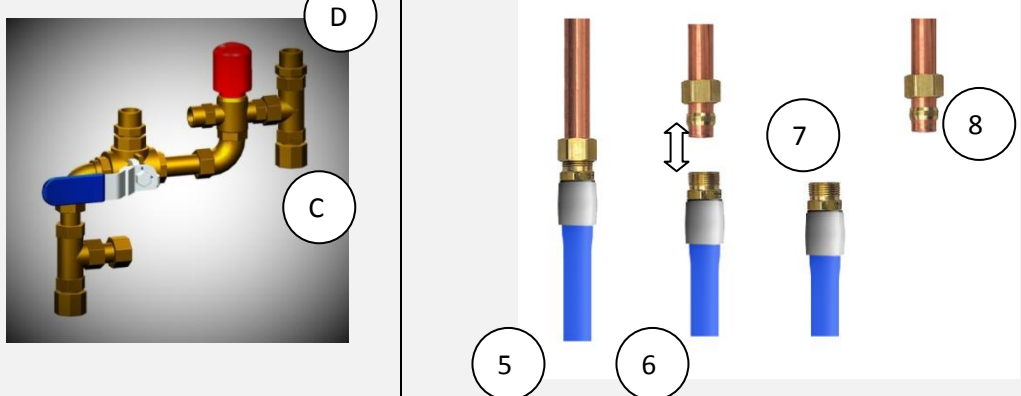
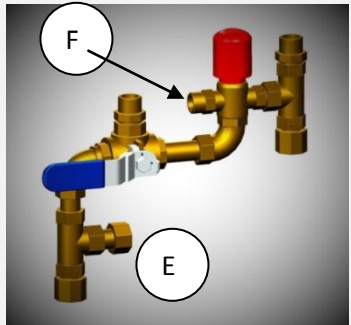
5	competitors water heater	Equipment Cost	2-6 Gallon Small tank	<u>\$250-400</u> Electric only
			40-60 Gallon tank	<u>\$500-800</u> Standard primary water heater
			Tankless Water Heater	<u>\$200-1000</u> Both Electric and Gas models. Electric tankless heater costs less.
		Installation Cost	2-6 Gallon Small tank	<u>\$300-500</u> plumbing fits, hard wiring needed.
			40-60 Gallon tank	<u>\$900</u> Standard service
			Tankless Water Heater	<u>\$2000-3000</u> Hard Wiring (240V) work or Gas Piping work needed
		Operation cost	2-10Gallon Small tank	<u>150-300%</u> Small size tanks cost much more energy in stand-by.
			\$/Gallon	40-60 Gallon tank
				Tankless Water Heater
			Mixing Valve Equipment and Installation cost	
6	Cost DHG	Equipment cost	DHG510, low DHG520, low DHG530, moderate DHG540, moderate	
		Installation cost	DHG <u>saves at least 50%</u> installation cost. 1, Pre-engineered kits, easy to install. 2, NO hard wiring work, plug at any receptacle.	
		Operation cost	1, Saving water bills and energy bills. 2, DHG530, 540 recovers the total cost in <u>3-4 years</u> .	

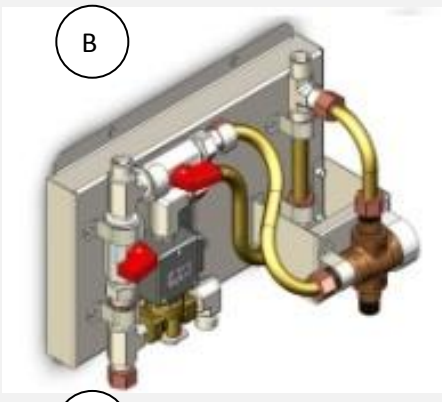
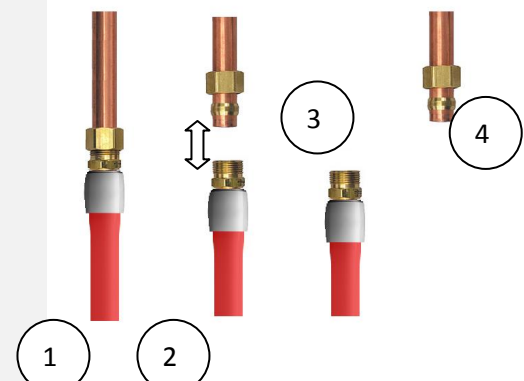
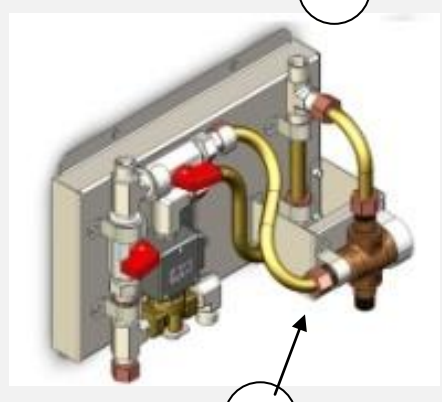
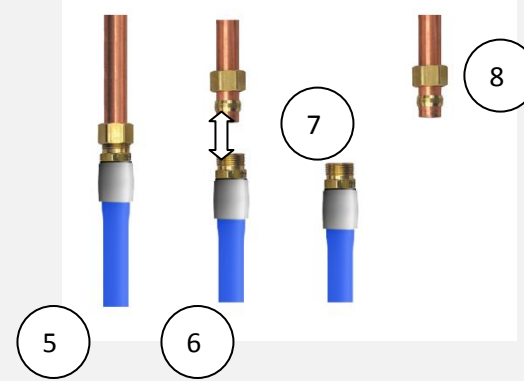
6, Distilled Water: cost comparison.

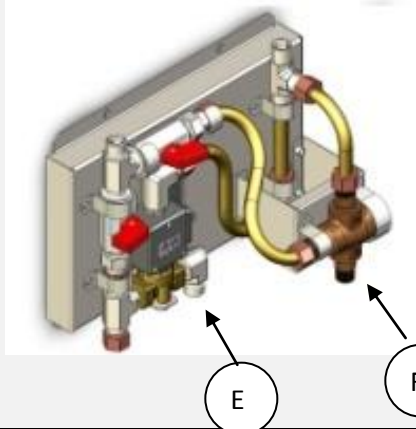
1	Competitors' Distillers	Equipment	\$150-300 (small size table top distiller)
		Operation cost	1, Theoretically 0.62kWh /per litre. Actually 0.8--1.1kWh / per litre. 2, Heat dissipated from distiller will cost more cooling energy in summer. For a family of three, 2L per person each day. <u>13,140L</u> in 6 years. <u>14,454kWh</u> hydro bill in 6 years. (\$1445)
		Maintenance	Regular de-scaling.
2	DHG 540	Equipment	Moderate Under sink installation. 6 years warranty.
		Operation cost	DHG 540 produces distilled water at NO extra cost. **distilled water is the by-product of water heater. 1, Distilled water 24/7/365. 2, <u>Plus</u> instant hot water supply. 3, <u>Save</u> more water bills and energy bills: Distilled water \$42,06 + tap water and energy bills saving \$556 <u>** save up to \$4,762 in 6 years.</u> Based on \$1.2 per gallon commercial distilled water
		Maintenance	Regular de-scaling. one service every 1000L distilled water produced

7, Installation Instructions

7.1 DHG510	<ol style="list-style-type: none">1, Shut off the supply water, open the faucet until no water comes out.2, Locate the hot water line under the sink. As shown in 1.3, Un-lock the pipe connection with two wrenches. As shown in 2.4, Connect the Hot Water Line to the tank inlet flex. As shown in 3. Then tighten with two wrenches. Apply sealing compound on the male threads if necessary.5, Connect the tank outlet flex to the faucet hot inlet. As shown in 4. Tighten with two wrenches. Apply sealing compound on the O ring if necessary. If leaks, cut the copper pipe and replace with a new <u>O ring</u>.6, Open the supply valve, test leakage.7, Plug the power to any nearby 120V receptacle.8, Ready to use.
	

<p>7.2 DHG520</p>	<ol style="list-style-type: none"> 1, Shut off the supply water. Open the faucet until no water comes out. 2, Locate the hot water line under the sink. As shown in 1. 3, Un-lock the pipe connection with two wrenches. As shown in 2. 4, Connect the Hot Water Supply Line 3 to water kit inlet port A. 5, Connect water kit outlet port B to the faucet hot inlet 4. 	
	<ol style="list-style-type: none"> 7, Locate the cold water line under the sink. As shown in 5. 8, Un-lock the pipe connection with two wrenches. As shown in 6. 9, Connect the cold water supply Line 7 to water kit inlet port C. 10, Connect water kit outlet port D to the faucet cold inlet 8. 	
		<ol style="list-style-type: none"> 11, Connect kit port E to tank inlet flex, 12, Connect kit port F to tank outlet flex, 14, Open the supply valve, test leakage. 15, Plug the power to a 120V source. <p>***Apply sealing compound on the male threads 7 or <u>O ring</u> if necessary. If leaks, cut the copper pipe and replace with a new <u>O ring</u>.</p>

<p>7.3 DHG530</p>	<ol style="list-style-type: none"> 1, Shut off the supply water. Open the faucet until no water comes out. 2, Locate the hot water line under the sink. As shown in 1. 3, Un-lock the pipe connection with two wrenches. As shown in 2. 4, Connect the Hot Water Supply Line 3 to water kit inlet port A. 5, Connect water kit outlet port B to the faucet hot inlet 4. 	
		
	<ol style="list-style-type: none"> 7, Locate the cold water line under the sink. As shown in 5. 8, Un-lock the pipe connection with two wrenches. As shown in 6. 9, Connect the cold water supply Line 7 to water kit inlet port C. 10, Connect water kit outlet port D to the faucet cold inlet 8. 	
		

	 A technical diagram showing the installation of the EcoHome21 water heater. The unit is mounted on a wall. Two yellow flexible hoses are connected to the unit. Port E is the inlet for the tank inlet flex, and port F is the outlet for the tank outlet flex. Arrows point from circles labeled 'E' and 'F' to their respective ports on the unit.	<p>11, connect kit port E to tank inlet flex, 12, connect kit port F to tank outlet flex, 14, open the supply valve, test leakage. 15, plug the power to a 120V source.</p> <p>***Apply sealing compound on the male threads 7 or the <u>O ring</u> if necessary. If leaks, cut the copper pipe and replace with a new <u>O ring</u> and connect again.</p>
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