



Polar Bear High-Capacity Commercial Water Distillation systems

For the Sparkling Taste of Fresh, Clean Water

Polar Bear Water Group (1978) Ltd.



PBD - VC3000, PBD - VC1500, PBD - VC800

**Manufacturer of World's Most Respected
Water Distiller**

Polar Bear VC Systems Make Fresh, Clean Water Up to 3000 Gallons a Day!

Water purification by the distillation method is a natural process that occurs daily in nature. The challenge is in designing and manufacturing an effective, efficient system that can duplicate nature's distillation process and provide high quality, distilled water at the lowest possible cost. Polar Bear vapor compression (VC) water distillation systems provide this, and much more!

Polar Bear VC systems feature:

- Easy installation
- Solid-state operational controls
- Minimal preventive maintenance
- Dependability
- Up to 3000 gallons (11,340 liters) of distilled water per day
- Low operational costs

Easy installation and Solid-state operational controls:

Polar Bear VC systems require a minimum number of plumbing and electrical connections, making initial installation quick and simple. So simple, in fact, that they can be owner-installed. Once installed, Polar Bear systems operate automatically and efficiently, using solid-state controls specifically designed to constantly monitor system operations. Automatic safety shutoffs ensure that water purity levels are properly maintained at all times. With Polar Bear, there is no need for regular operator attention.

Minimal preventive maintenance:

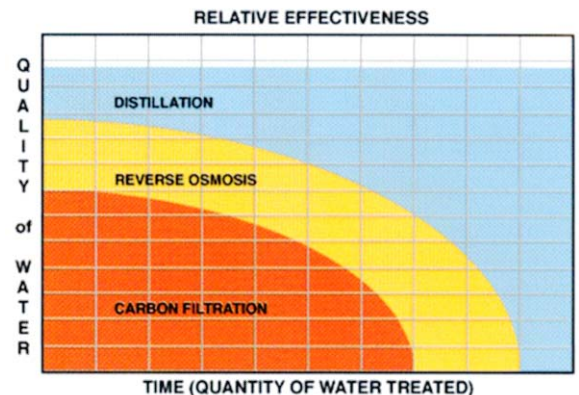
Polar Bear VC systems are low maintenance units. Doors and exterior panels can be removed easily for routine cleaning, and their "tube-in-shell" design permits nondestructive inspection and cleaning. For added convenience, Polar Bear units are wheel-mounted for easy moving and are sized to pass through standard 36-inch doorways.

Dependability

Polar Bear VC systems are designed for maximum operating dependability, using the highest grade of materials and components available. Stainless steel and other heavy-duty components are designed to ensure long operational lives for all Polar Bear VC systems. Throughout production, each unit passes through our rigid quality control process, and then undergoes complete operational testing before it is approved for shipment.

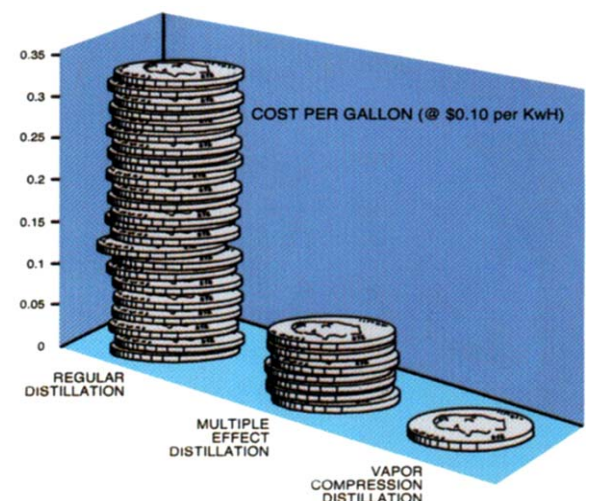
Up to 3000 gallons per day:

You can't beat the quality of Polar Bear produced distilled water. Output will typically contain less than one ppm. of total dissolved solids after distillation. Our process removes up to 99% of all possible contaminants.



Low operational costs:

Polar Bear VC systems are designed specifically for maximum operating efficiency and overall energy consciousness. Normal operation of the VC3000 and VC1500 requires only 0.12 KW/H of electrical power to produce one gallon (3.78 liters) of distilled water, which translates into a cost of less than U.S. \$ 0.01 (cents) for one gallon (3.78 liters) of distilled water. Additionally, while most distillation methods can use up to eight gallons (30.24 liters) of water they distill, Polar Bear VC systems distill nearly six gallons (22.7 liters) of water for every one gallon (3.78 liters) of reject water produced. This provides additional operational savings, and also allows you to be water-conscious at the same time.





Key Features of Polar Bear Vapor Compression Distillers:

1. **Electronic control panel** is easily accessed for servicing. One solid-state circuit board controls operation of the complete system.
2. **Submerged tube-in-shell heat exchanger** provides efficient and uniform heat transfer. The end plates are removable for one-step access to the heat transfer bundles, if necessary. The end plates include Pyrex® sight glasses for easy monitoring of heat exchanger cleanliness.
3. **Removable exterior panels** allow full access to internal components for quick, easy servicing.
4. **Continuous flow evaporator** produces very high quality distilled water at maximum efficiency.
5. **Feed water /distillate heat exchanger** preheats the feed water, and cools the distilled water at maximum efficiency.
6. **Sturdy one-piece aluminum rotor** provides the strength required for a long, durable, trouble-free life, while being extremely lightweight.
7. **Compressor bearings** are the self-aligning pillow type, for long life easy maintenance and replacement.

Polar Bear Vapor Compression Technology:

Basic Principles of Operation

1. In a vapor compression system, the distillation process begins in the boiling chamber, just as it does in virtually any other distiller. What separates this method from other distillation methods is what comes after the boiling chamber.

2. In the Polar Bear PBD-VC3000, PBD-VC1500 and PBD-VC800 system, the boiling process begins with both heating elements turned on. As the water in the boiling chamber reaches near-boiling temperatures, the compressor turns on, which engages the unique non-contacted liquid ring seal. When the operating boiling temperature is reached, the # 2 heating element turns off and the #1 heating element cycles on and off, maintaining the boiling at just the right temperature for maximum efficiency. The steam from the boiling water flows through a baffling system and then into the compressor.

3. In the compressor, the steam is pressurized which raises the steam's temperature before it is routed through a special heat exchanger located inside the boiling chamber. The steam (under pressure) is at a higher temperature than the feed water inside the boiling chamber.

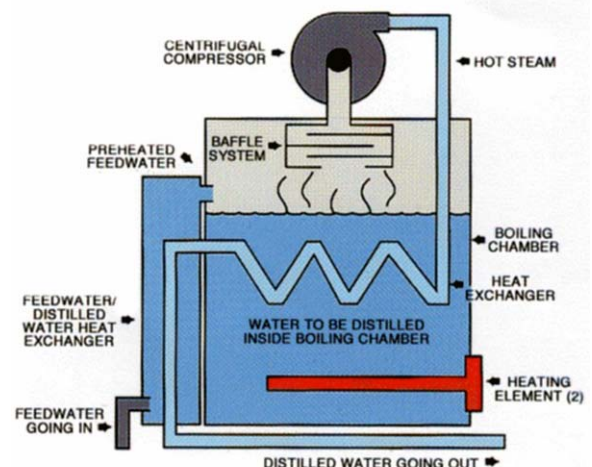
4. The pressurized steam gives off its heat to the feed water inside the boiling chamber, causing this water to boil, which creates more steam. In technical terms, the steam "gives up its latent heat of vaporization" to the water inside the boiling chamber.

5. While the pressurized steam is giving off its latent heat, the steam will condense. One of the heating elements will cycle on and off periodically as needed to provide any "make-up" heat that is required to keep the system operating at optimum temperature for maximum efficiency.

6. At this stage the condensed steam is considered distilled water but it still very hot - only slightly cooler than boiling temperature. To get maximum efficiency from the Polar Bear VC systems, the hot distilled water preheats the incoming feed water that will be distilled.

7. As the incoming water is preheated, the outgoing distilled water is cooled. The Polar Bear VC3000, VC1500 and VC800 systems are designed to cool the distilled water to within approximately 20F (11 C) of the incoming feed water temperature. This allows the feed water to be preheated to within a few degrees of the boiling temperature, saving further energy. In fact, the VC3000, VC1500 and VC800 recycle nearly 98% of energy required.

8. The Polar Bear VC systems offer heat exchangers that can be cleaned in the event manual cleaning is ever required. Since feed water is boiled on the inside of the heat exchanger surfaces, access to the portions of the heat exchanger that may require cleaning is much easier.





Specifications

Model	Height	Width	Depth	Weight (Empty)
VC800	62" (158 cm)	32" (81 cm)	38" (97 cm)	827 lb (375 kg)
VC1500	78" (198 cm)	34.5 (88 cm)	50" (127 cm)	1700 lb (771 kg)
VC 3000	78" (198 cm)	34.5 (88 cm)	80" (203 cm)	3408 lb (1546 kg)

Shipping Specifications

Model	Height	Width	Depth	Weight (Shipping)
VC800	72" (183 cm)	32" (96 cm)	38" (96 cm)	1200 lb (544 kg)
VC1500	82" (208 cm)	45" (114 cm)	62" (158 cm)	2300 lb (1044 kg)
VC3000	82" (208 cm)	45" (114 cm)	92" (234 cm)	3600 lb (1633 kg)

Shipping Specifications

Model	Reject Water(Per Day)	KW/H of Electricity	Electrical Service Required (Min.)	Phase
VC800	288 gal (1088 L)	0.18 per gal (0.05 per L)	60 amps	1 or 3
VC1500	250 gal (950 L)	0.12 per gal (0.03 per L)	80 amps	1 or 3
VC3000	500 gal (1900 L)	0.12 per gal (0.03 per L)	100 amps	1 or 3

Note: Polar Bear reserves the right to change specifications without prior notification. All specifications are approximate (10%)



Polar Bear Water Group (1978) Ltd.



Web Site: www.4superiorwater.com
 Email: mhall@4superiorwater.com
 Ph: (303) 499-9769 Fax: (720) 304-3814
 P.O. Box 18883, Boulder, CO 80308