Military Use and Disaster Relief Worldwide









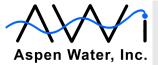
The Most Versatile Water Systems on Earth



Aspen Water, Inc.

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Aspen Water Remote Water Solution



Aspen Water, Inc. is an industry-leading, technological innovator in the design, manufacture and distribution of versatile, compact and remarkably effective portable water treatment systems.

Our systems are favored by all branches of the U.S. Military, the Federal Emergency Management Agency (FEMA) and the US State Department. They are used by friendly foreign militaries and both governmental and civilian disaster/humanitarian relief agencies worldwide.

Aspen compact purification systems were originally designed for use by rapid deployable units and in special operations forces base camps. Aspen systems were deployed and used in both Afghanistan and Iraq by the US Military and coalition troops and are currently in use in the Ukraine.

Aspen systems have minimal electrical requirements and can be powered by a very small generator and with solar power options. Multi-power options: 110 -260 AC 50/60 hertz, 12 volt to 24 DC.



The Aspen 5500M water purification system will supply 4,000-5,500 gallons (approx. 15,000-20,000 liters) per day of highly purified water from virtually any non-saline water source. Water can be drawn from ditches, rivers, lakes or standing water that may contain chemical and/or biological contamination. The purifier has its own built-in solar charging controller and storage battery to run 6 to 8 hours a day off of solar.

The RDLS IV+ (Remote Light & Power System) is a light-weight LED unit that replaces bulky towaround generator light sets (shown with 2kW generator). Illuminates area over 10,000 sq ft.

to Seawater Systems



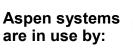




High Output Clarifying Chlorinator



Aspen 30,000 (HOCC)































Aspen Reverse Osmosis Fresh

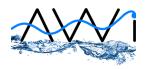


Aspen Fresh Water Systems

Aspen 1800BC (NSN)



Aspen 3300M (NSN)



ASPEN 800DM DESIGN CRITERIA



The ASPEN 800DM reverse osmosis water purification system supplies up to 800 gallons per day of highly purified water from virtually any water source, including seawater. It can be powered by any form of single-phase AC 50/60 hertz or from 24V DC power directly from the battery of a military vehicle, or even a small solar array.

Dimensions: Purifier is 24"x22"x27.5" (61cm x 56cm x 70cm). The unit weighs 110 lbs (50 kg) when dry and is designed for a two-person carry.

THE ASPEN PURIFICATION PROCESS AND GENERAL INFORMATION

The ASPEN 800DM is a lightweight, highly-mobile, completely self-contained water purification system, making it the easiest to deploy, maintain, and monitor of any military RO system. The Aspen 800DM is not only energy efficient, but utilizes reverse osmosis, providing the safest possible drinking water in all conditions.

THE ASPEN 800DM is five times more energy efficient than a conventional AC system and provides wire to water at 15 watts per gallon. Utilizing the Aspen energy recovery system, the 800DM operates on less than half of the energy requirement for a hair dryer, or less than 750 watts. The unit operates from single-phase in 90V to 240V AC in either 50/60 hertz or from a 24/28V DC source (US/NATO vehicles) and will automatically recognize the varying power sources.

THE ASPEN 800DM IS OPERATED BY a sophisticated automatic controller and electronic monitoring module, providing trouble-free service no matter how demanding the environment. A quick scroll through the Aspen digital display provides the operator with the exact status of the system at all times.

THE ASPEN 800DM IS SIMPLE TO OPERATE.

The combination of its high tech controller and Aspen's unique energy recovery system eliminates the need for high-pressure adjustment in the field when using water at different levels of salinity. The Aspen 800DM constantly monitors product salinity and filter condition when in use and will audibly and visually indicate if service is needed. Automatic monitoring and safety shut down protocols allow for unsupervised operation.

THE ASPEN 800DM is whisper quiet, as much as five times quieter than conventional reverse osmosis systems. The Aspen energy recovery system eliminates the need for noisy, high pressure pumps.

THE ASPEN 800DM IS RUGGIDIZED. The electronic controls are housed in a completely sealed, thermally-controlled frame made from the highest grade stainless steel and high tech noncorrosive lightweight aircraft alloys. These materials are used throughout the system. Strict design requirements and assembly procedures allow it to withstand the rigors of military use and harsh environmental exposure. The membranes are wound to meet higher than industry standards and provide extended use with less degradation and failure.

DIMENSIONS: The lightweight self-contained unit is 24"x22"x27.5" with a dry weight of less than 110 pounds. The Aspen 800DM comes with a Support Case containing hoses, consumables, and spares. Both the Aspen 800DM and the Support Case can easily fit into a small vehicle.



Aspen Water 1800BC Water Purification System

with Chlorinator, Solar Panel, Water Baldder and Transfer Pump



ASPEN 2000DM (ROWPU) DESIGN CRITERIA



FEATURES

Quick Setup and Breakdown
Easy to Operate
Low Maintenance
Low Energy Consumption
Compact, Space Saving Design
Automatic Controls with Auto-Flush
Patented Energy Recovery Device
Variable Recovery Rate
High Flow, Low-Energy Membranes
1-Year Limited Warranty
Made in the U.S.A.

SYSTEM SPECIFICATIONS

Gallons Per Day (Fresh/Brackish) *2000+@77°F Gallons Per Day (Sea Water) 1500+@77°

Weight (approx.) 420 lbs

Input Voltage: AC 100 to 260, 50/60 Hz

Input Voltage: DC 24-28

Inlet Water Connection 34" Cam-Lock Reject Water Connection 34" Cam-Lock Outlet Water (1/2" hose) 34" Cam-Lock Dimensions (in.) 48.5 x 36 x 26

Elements (Qty)

Element Size (in.) 2.5 x 40 (2540)

Boost Pump 1/3 HP
Feed Pump 1/2 HP
Injection Pump 3/4 HP
Recovery Up to 39%

SYSTEM OPERATING SPECIFICATIONS

Maximum TDS Feed Water 50,000 ppm Nominal NaCl % Rejection 99.4% pH Range 2–11 Maximum Operating Pressure 1,000 psi

Maximum Pressure Differential

across pre-filters 25 psi
Pressure Regulation Automatic
Maximum Boost Pressure 50 psi

Temperature Range 113°F/45°C Max

33°F/5°C Min <0.1 PPM Max

Chlorine Tolerance <0

Maximum Feed (GPM) 4.0 Max Power Consumption 1200

Max Power Consumption 1200 Watts Average Power Consumption 900 Watts

STANDARD FEATURES

- Aspen Electronic Control System with Digital Display, Motor Speed Controllers, Pre-filter Status, and High/Low Voltage Indicator/Alarm, Permeate Flow Sensor, Automatic Salinity Sensor Diversion Valve, Feed Pressure Sensing, Strainer Clog Auto-Shutdown, Automatic Flush Cycle
- Membrane: Three-2.5"x40" TFC sea water reverse osmosis membranes
- Pumps: (1) Self-priming 0-50 psi variable speed boost pump, (2) 150 psi max rotary vane feed pump, (3) 1200 psi triplex injection pump, Pressure intensifier/energy retention device
- Frame: Light weight, corrosion-resistant aluminum
- Pre-Filtration: One sea strainer on inlet float, One 540 micron external case mounted mesh strainer, One 50 micron 4.5"x20" pleated filter, Two parallel 3 micron 4.5"x20" pleated filters. Activated carbon cartridge for chlorine removal.
- High Voltage Electronic Pretreatment
- Post Treatment: One UV sterilizing system, One 10" Carbon Block Activated Carbon Permeate Treatment Device
- Internal Flush Tank holds 15 gallons
- Cases: Military grade roto-molded polyethylene

^{*} Permeate (product water) flow rate is affected by feed water salinity and temperature

2000DM SUPPORT CASE CONTENTS

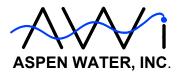
Each Aspen 2000DM (ROWPU) Water Purification System comes with a second case that is the same size as the main unit and nests for easy transportation.

The Support Case for the Aspen 2000DM contains parts and supplies necessary to operate the water purification system. The parts contained in the Support Case are listed below.

Aspen 2000DM Support Case Contents			
Support Case AWI-1DM-001AC			
Qty	Title	Part Number	
1	Accessory Kit, 2000DM Contents listed below	AWI-SC-1DM-A22	
1	Bucket 1 for 2000DM, 1000DM & 1500RO Support Case Contents listed below	AWI-SC-1DM-A03	
1	Bucket 2 for 2000DM, 1000DM & 1500RO Support Case Contents listed on next page	AWI-SC-1DM-A04	
1	Case, Custom, Storage, 2000DM	AWI-SC-1DM-A01	
1	Chemical, Membrane Storage, Powder, pkg of 4	AWI-SC-1DM-A40	
1	Cleaner, Membrane Acid, Powder, pkg of 4	AWI-SC-1DM-A42	
1	Cleaner, Membrane Organic, Powder, pkg of 4	AWI-SC-1DM-A41	
1	Cord, Power, 24V DC with NATO connector (2000DM)	AWI-PC-1DM-HM-1	
1	Cord, Power, AC 2000DM	AWI-PC-1DM-AC1	
1	Float Assembly for 1000DM and 2000DM	AWI-SC-1DM-A10	
1	Glycerin, 1 Gallon	AWI-SC-1DM-107	
2	Hose, Inlet with Green Band, 1000DM, 1500RO and 2000DM	AWI-HO-1DM-A01	
2	Hose, Product, 1/2" with Blue Band, 1000DM, 1500RO, 2000DM, 1800BC & 3300M	AWI-HO-1DM-A02	
2	Hose, Reject with Red Band, 1000DM, 1500RO and 2000DM	AWI-HO-1DM-A03	
12	Pre-Filter, 3 Micron, 20x4.5 (packaged 12 per box but priced separately) (2000DM)	AWI-FL-1DM-006	
6	Pre-Filter, 50 Micron, 20x4.5, (packaged 6 per box but priced separately) (2000DM)	AWI-FL-1DM-050	
2	Pre-Filter, Chlorine Removal (packaged 2 per box but priced separately) (2000DM)	AWI-FL-1DM-003	
1	Pump, Boost, Assembly, 2000DM, 1000DM & 1500RO	AWI-FA-1DM-A18	
1	Stick, Stir	AWI-SC-1DM-064	
1	Strainer, Intake, SS Mesh Assembly, 2000DM, 1000DM & 1500RO	AWI-FA-1DM-A22	
1	Sump Wrench, Large	AWI-55-EX-017	
1	Tie-Down, Rubber Strap 24", Bungie Cord	AWI-SC-1DM-003	
1	Tool Kit, 2000DM Contents listed on next page	AWI-SC-1DM-A21	
4	Accessory Kit, 2000DM AWI-SC-1DM-A22	AVAULOO ADM 007	
1	Brush, cleaning	AWI-SC-1DM-067	
1	Cup, Measure	AWI-SC-1DM-065	
1	Gloves, Package	AWI-SC-1DM-059	
2	Goggles, Safety	AWI-SC-1DM-061	
4 1	Mask O Bing/Cooket Set Contents listed on next news	AWI-SC-1DM-060	
1	O-Ring/Gasket Set Contents listed on next page Solution, Calibration	AWI-SC-1DM-A20 AWI-SC-1DM-044	
1	Tester, TDS/Salinity	AWI-SC-1DM-044 AWI-SC-1DM-043	
1	Utility Bag, 2pc Combo Set	AWI-SC-1DM-031	
'	Bucket 1 AWI-SC-1DM-A03	AW1-00-1DW-031	
7	1/4" tube black	AWI-WF-1DM-013	
1	Bucket, 5 Gal/Service Pail	AWI-SC-1DM-056	
1	Bulb, UV	AWI-40-P067UV	
6	Carbon Block Post Filter	AWI-FL-1DM-021	
3	Hose, Spare 3/4"	AWI-SC-1DM-062	
1	Lid, 5 gallon Bucket	AWI-SC-1DM-069	
1	Oil, Repl, Pump	AWI-SC-1DM-055	
1	Sleeve, Quartz	AWI-FA-1DM-046	
6	Tubing, 3/8 OD, Black, LDPE	AWI-WF-1DM-012	
1	Sump Wrench, Small	AWI-SC-1DM-SSW-1	

2000DM SUPPORT CASE CONTENTS

	Bucket 2 AWI-SC-1DM-A04	
2	Adapter, 2" x 3/4" for Water Bladder	AWI-WBA-PP-01
1	Anchor, Assembly	AWI-SC-1DM-A31
1	Anchor, Line Assembly	AWI-SC-1DM-A30
3	Bag, Sand, Small	AWI-SC-1DM-068
1	Bucket, 5 Gal/ Service Pail	AWI-SC-1DM-056
1	Container, Water, 5 gal, Collapsible	AWI-SC-1DM-057
1	Lid, 5 gallon Bucket	AWI-SC-1DM-069
1	Reject Diffuser	AWI-SC-1DM-A09
1	Stake for Anchor with Wire Ties	AWI-SC-1DM-066
1	Strainer, Inlet	AWI-SC-1DM-A08
Tool Kit AWI-SC-1DM-A21		
1	Allen Wrench Set	AWI-SC-1DM-034
1	Camlock, Male	AWI-55-FA-204B
2	Cap, Dust 3/4" Cap with Lanyard	AWI-40-1078B
2	Fitting, Hose End, Camlock	AWI-55-FA-205B
1	Funnel	AWI-SC-1DM-040
1	Nozzle, Cleaning	AWI-SC-1DM-A02
1	Screwdriver Set	AWI-SC-1DM-121
1	Tape, Teflon	AWI-SC-1DM-041
1	Utility Bag, 2pc Combo Set	AWI-SC-1DM-031
2	Worm Clamp, 16 to 27 mm, SS 304	AWI-HW-1DM-064
1	Wrench, 9/16"x5-1/2", Black, Open-End	AWI-SC-1DM-045
1	Wrench, Adjustable 10"	AWI-SC-1DM-033
1	Wrench, Adjustable 8"	AWI-SC-1DM-032
1	Wrench, Strap for 1000DM, 2000DM & 1500RO	AWI-SC-1DM-051
O-Ring Kit AWI-SC-1DM-A20		
2	O-Ring, 2.5" Filter Housing	AWI-55-EX-026
1	Gasket, UV	AWI-40-P033B
1	O-Ring Lubricant (Food Grade)	AWI-SC-1DM-039
3	O-Ring, Membrane, End Cap Product Seal	AWI-1DM-FA-351
3	O-Ring, Membrane, End Cap Seal	AWI-1DM-FA-350
2	O-Ring, Post-Filter, UV, Mesh Filter	AWI-40-P092
3	O-Ring, Quartz Sleeve	AWI-40-1029
1	O-Ring, UV Mount, Square	AWI-55-FA-045
1	O-Ring, UV Stabilizer	AWI-40-1073
1	Zip Top Bag	AWI-40-1048
	Pull Around Attachment AWI-PA-1DM-A01	
6	Button, Large Wheel Plate	AWI-MA-1DM-048
2	Caster Assembly, Flat Free Tire, Rigid	AWI-SC-1DM-A38
2	Caster Bar, Long Lower	AWI-MA-1DM-054
2	Caster Bar, Long Upper	AWI-MA-1DM-049.1
6	Caster Bracket, Quick Clip Large Wheel	AWI-MA-1DM-047
2	Caster, Swivel with PN 00018 Flat Free Tire	AWI-SC-1DM-109
1	Handle Assembly, Welded with Hardware	AWI-MA-1DM-051
8	Screw, 10-32 x 3/4, Flat, SS, BO	AWI-HW-1DM-109
24	Screw, 5/16-18 x 1, Socket Head, SS	AWI-HW-1DM-073
6	Spring, 7/8 x .42, SS	AWI-1DM-HW-001
24	Washer, Lock, 5/16 Screw, SS	AWI-HW-1DM-132



2000DM Remote Military Water Solution

Fresh, Brackish, Seawater Portable Purifier

Remote Site Package includes:

- Aspen 2000DM and Support Case Operates on 110/240 AC or 12/24 Volts DC
- 150-1.000 Gallon Water Bladder
- **Water Transfer Kit with Hoses**
- **Chlorine Pump Assembly with Tank**
- RDLS IV+ Remote Light & 2000 Watt Portable Generator with Custom Case, Spares and Fuel Tank



ASPEN 2000DM PURIFIER AND SUPPORT COMPONENTS

The ASPEN 2000DM reverse osmosis water purification system will supply 1,500 to 2,000 gallons per day of highly purified water from virtually any water source. Water can be drawn from the ocean, ditches, rivers, lakes or standing water that may contain chemical and/or biological contamination. The water transfer pump is powered by the DC connection on the purifier. The complete package can be powered by a military vehicle. RDLS IV is a lightweight/soldier portable lighting system replacing bulky generator light sets. Illuminates desired area over 10,000 square feet with directional heads using high intensity LED white light. Multi power from 110-240 AC 50/60 hertz, 12V to 24V DC.

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Aspen 5500M Deployed in Malaysian Jungle









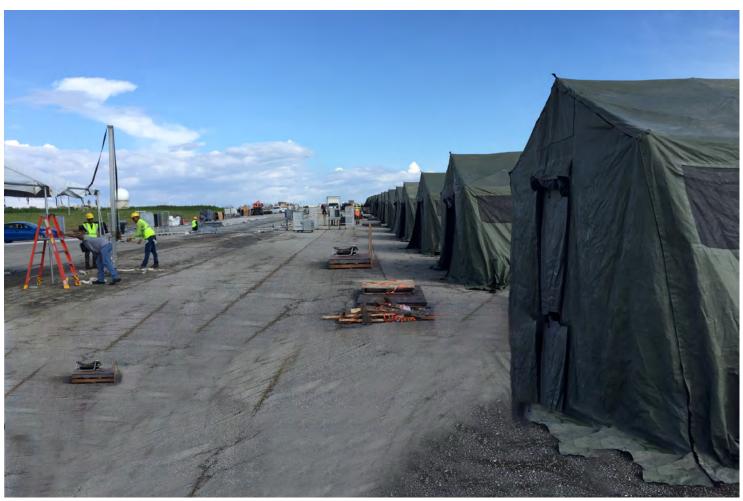


Aguadilla, Puerto Rico construction site with Aspen 5500M systems/bladders in use. Aspen systems were the only systems used in the two major camps funded by FEMA.









ASPEN WATER, INC.

880 N. Dorothy Dr. #800, Richardson, TX 75081 | +1 972.889.9500 | info@aspenwater.com | www.aspenwater.com

The Aspen (HO) 30,000 (LMTP) Fits in the Back of a Small Military Vehicle



Over 100,000 Liters a Day of Fresh Drinking Water The Aspen High Output 30,000 Lightweight/Mobile/Tactical/Purifier Offers:

- Reliable, efficient performance
- Rapid deployment
- Cost-effective operation
- A diesel motor drives an HO water pump, with hose connections
- The LMTP does not require an electrical connection



FREQUENTLY ASKED QUESTIONS:

What is the Aspen HO 30,000 LMTP?

The Aspen High Output 30,000 Lightweight/Mobile/Tactical/Purifier is a self-contained water purification system comprised of a very effective prefiltration module utilizing a spin-down filter and a multi-hydrocyclone. Following prefiltration, the water is treated through a diatomaceous earth (DE) chamber prior to the final stage of chlorination utilizing a water-driven chlorine injection pump. This system is capable of purifying over 5,000 liters per hour of water at the point of need.

The compact unit is only 52"x32"x40".

What contaminants does it remove?

DE filtration is proven to remove particulates in the one-micron range including turbidity, bacteria and chlorine-resistant pathogens such as Cryptosporidium and Giardia. Aspen only offers DE that is certified to NSF/ANSI Standard 61 for drinking water. Independent university labs confirmed that DE can remove >6 logs (99.9999%) of the above contaminants. The chlorine system is designed to kill any viruses present in the feed water. It is widely recognized that contamination from microbes and viruses pose a greater immediate threat to human health than most other contaminants.

How does such a small system deliver so much water?

Diatomaceous earth has unique physical and chemical properties, providing a highly effective filtering media in many filtration applications. DE's inertness in almost all liquids and its internal pore structure provides high permeability and low bulk density.

How long does a filtration cycle last?

That depends on the amount of impurities in the feed water, but the system can be adjusted to efficiently handle varying amounts of contaminants. Typical operation calls for backwashing of the system after 20 hours of operation. Only about five percent of the total amount of water processed is required for the backwashing operation.

Is this new technology?

No. Municipal water treatment plants have used DE filtration in conjunction with chlorine disinfection for over 80 years. The addition of our new prefilter system greatly enhances this technology.

Why do you use chlorine as a disinfectant?

In many environments the water distribution systems after purification are susceptible to microbial contamination, and chlorine offers residual disinfection.

What about harmful disinfection byproducts?

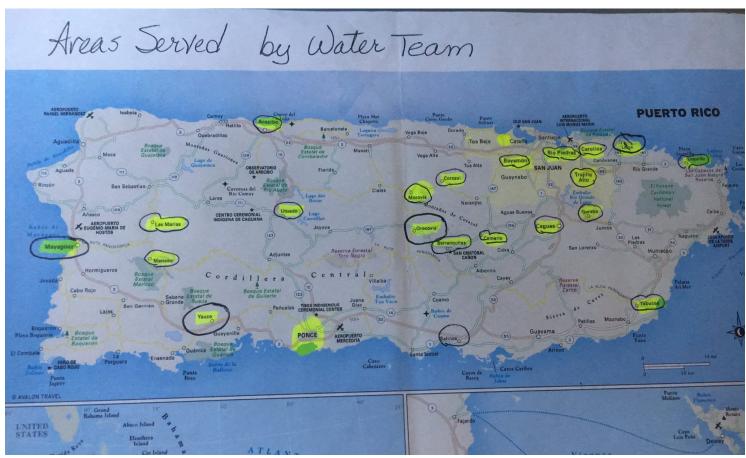
Disinfection byproducts (DBPs), such as trihalomethanes (THMs) are produced when chlorine reacts with biodegradable organic matter (BOM). Because of the efficient removal of this type of contaminant by the DE filter, there is little contact with chlorine and the BOM.

Can it desalinate seawater?

No. The salt in seawater is at the ionic level and represents one of the smallest sized particles that must be removed to produce drinking water. However, in a prefilter mode the system provides very good pretreatment at high volume for brackish water and seawater purification systems.

Aspen Water 3300M being used by NGO Water teams around Puerto Rico













ASPEN WATER, INC.

Email: edatchley@aspenwater.com 880 N.Dorothy Dr. #800 Richardson, TX 75081, Ph: 972-889-9500

Meeting with Senior Officers and Evaluation Team in Tabuk, KSA 11-20-12





Formal Presentation in Special Forces Headquarters



Test Site and Evaluation Team with the Aspen 2000DM





DC Power Demo running off of a Hummer



24 Volt NATO Vehicle Plug located under passenger seat / Cable Provided





Water Testing Facility



Challenge (1) 25 Gal Dirt/Sand



Challenge (2) Add 25 Gal Oil/Gas

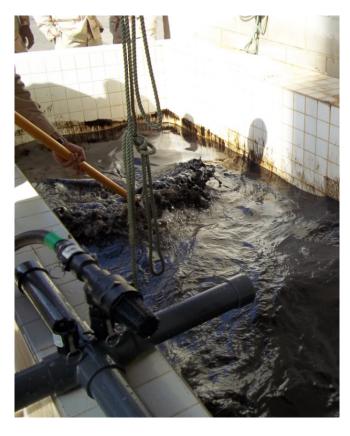


Stirring well prior to test



Continued Agitation

Color and Odor Dramatic





Strainer Filter/Float Explained

Water Ready for Test





Product Demonstration/Operation Very effective Arabic Assistant





Officers/Enlisted Soldiers Tasting Purified Water Equal to Bottled





Aspen Water and Saudi Arabian Team's Post Demo and Test



Mr. Atchley Congratulating and Thanking KSA Team Leaders



Photos from Ramstein, Germany Demo September 2014





Aspen 3300M (Fresh Water Purifier) in Tan with Chlorinator and Aspen 1000DM ROWPU, Fresh to Seawater system. All equipment including Lights ran on the 2000 Watt Generator located in the base of the light package. Solar array was also demonstrated on the Aspen 3300M













Real appetizing water source, water is drawn below floating Scum/Slim/Debris level and above the bottom of the pond.





Water taste equal to Bottle Water. Prefilters show algae and other matter removed from pond prior to water treatment. These filters can be cleaned and reused. The dark Grey post-filter color was unchanged.