

# Versi Heat II

Diesel Fired  
**Portable  
Water  
Heater**



 **ACSI**  
ADVANCED CONTAINMENT SYSTEMS INC.

# VersiHeat II

Reliability, value, and high capacity describe ACSI's new VersiHeat-II portable diesel fired water heater design. VersiHeat-II is a heavy duty blending type water heater. Its rugged tubular frame construction and heavy-duty large diameter wheels make the VersiHeat-II easy to load, unload and transport. A high efficiency heavy-duty ¾ inch schedule 40 heat exchanger enable VersiHeat-II to deliver high water flow with minimal pressure drop, at 30 to 50 degrees of temperature rise. The water-resistant ACSI DigiTemp II microprocessor controlled temperature controller is state of the art. The digital controller features a large multi-colored LED readout. The DigiTemp II controller precisely modulates outlet water temperature for unrivaled user comfort. Redundant flow and temperature safety valves teamed with an industrial quality ground fault circuit interrupter power supply cord are among the many safety features found on the VersiHeat-II, The diesel fired VersiHeat-II comes standard with a 5-gallon heavy-duty removable steel Jerry can fuel tank and quick coupled fuel supply lines for easy refueling. Units are available in 120 VAC and 12 VDC versions. Optional, unit mounted, hydraulic powered Decon chemical solution dosing pump allows for precisely metered solution injection into a dedicated solution outlet stream.

## Specifications

Length	55"
Width	33"
Height	52"
Min. Input Press.	80 psi
Max Input Press.	125 PSI
Max Output Press. (regulated)	40 psi
Max Output Flow Rate	14 gal/min
Voltage	120 vac / 12 vdc
Max. Fuel Consumption	3.84 Gal/hr
Btu/h(140,000 Btuh/gal)	538,363
Temp. Rise @14gal/min	50 degs F
Max Outlet Temp	92 degs F
Fuel Tank Capacity	5 gal
Outlets	2 male garden hose w/valves

## All New Large Diameter Wheels

ACSI's new 26" large diameter solid core wheels mount with a reinforced bolt-on axle. When the operator wants to wheel the machine, a simple tug on the handle will do since the heat exchanger coil now tips to balance the load directly over the axle making transport easier.

## New Larger Control Panel

A new large size enclosure houses VersiHeat's new "DigiTemp II" temperature controls. The unit control panel is a full-contour, gasket-sealed, electric enclosure. Sealed cable grips weatherproof all wiring into and out of the enclosure. Wet or rainy conditions have no impact on the fully sealed water-resistant temperature controller and main switch.



**DigiTemp II Control**  
Delivers unmatched high tech accuracy.



### New Wheel Set →

The new 26" large diameter wheels together with balanced frame placement make VH-II easy to move.



### Optional Dosing Pump ←

Optional Decon solution dosing pump precisely meters solution into outlet stream automatically.



## DigiTemp II Temperature Controller

VersiHeat-II boasts a new DigiTemp II temperature control. It consists of a microprocessor controlled advanced logic temperature controller with factory set “non-tamper” and non-volatile memory type settings, and a redundant high-limit controller. Unlike mechanical temperature mixing valves, it has no moving parts, and samples the water temperature 10 times each second. Also, the temperature controller directly controls the burner by cycling the firing, so the unit only fires when modulating temperature. This design contrasts with mechanical mixing valves that fire the burner continuously and then simply blend cold water to keep it from getting too hot. This means that VersiHeat delivers better fuel efficiency compared with water heaters using conventional mechanical valves. The DigiTemp II controller also displays both the target and the current temperature with instantaneous digital accuracy. DigiTemp II is many times more accurate and reliable than slowly reacting mechanical thermometers. The redundant high-limit control is an independent secondary controller that provides another tier of safety having its own power supply and temperature probe. Should the primary controller ever fail, the entire burner shuts down by design. Also, a problem requires manual reset, alerting the operator of the safety issue. Because of its inherent redundancy, the DigiTemp II control is Factory Mutual compliant.

Mechanical valves, sometimes called mechanical mixing valves, or blending valves, take too long to react to changes in temperature. They are slower and more sluggish. Mechanical valves have as many as 20 or 30 moving parts to fail; whereas our digital model has one, and even when compromised it continues to work. Hard water is common, and when you heat hard water you now have rapid scale buildup in mechanical valves and all those moving parts. ACSI’s DigiTemp II control remains unaffected long after other units need service.

## Standard Water Connections

VersiHeat-II uses any connectors you wish, you choose. Fire Hose connectors (NST) or Cam-Lock connectors are available. However, for simplicity the VersiHeat-II comes with common garden hose connections from the factory. While VersiHeat supports Cam-Lock connectors, garden

hose connectors are more common. Proprietary type connectors burden the owner with less common availability. Also, the VersiHeat uses standard off-the-shelf garden hoses, so replacements are easy to source and less costly too.

## A True Decon Water Heater

Incoming pressure dramatically affects portable heater’s performance. Since supply pressure is the only available energy to drive water through the unit it is important to keep parasitic losses - restrictions in the heater that reduce the pressure without giving anything in return - to a minimum. The largest parasitic load in a heater is the pressure drop through the heat exchanger coil. Delta P, is the technical term for the overall pressure drop (differential pressure). The most effective heaters deliver rated heat at a given rate of flow with the smallest Delta P. In simple terms, the unit heats the water with the smallest effect on the entire Decon water circuit (supply line to shower nozzles).

Blending-type water heaters, the type found in the marketplace, divide the incoming water steam into two individual streams within the heater. One stream flows through the water heater exchanger coil, and the other routes to a mechanical “mixing valve”. This valve then “blends” the two streams (hot and cold water) back together to deliver warm (92° F) water to the outlet ports. Here is where the delta P is of key importance. Most non-ACSI portable water heaters are adapted pressure washer heaters. The inherent problem with using a pressure washer heater is they do not to perform



### Heavy-duty T&P Valve →

Temp & Pressure Relief Valve (T&P valve) – ACSI’s industrial-duty T&P relief valve provides an additional layer of redundant mechanical safety to protect both operator and the unit.

### ← Garden Hose Fittings

Fittings for inlet and outlet connections are standard and are easily sourced.



well on city water pressure by design. They work by design at 1000 – 6000 psi! With pressures of this magnitude delta P is of little or no concern!

Pressure washer heat exchanger coils typically are 3/8" or 1/2" pipe. This size of pipe presents notable problems when it comes to Decon water heaters because the small internal diameter increases the delta P or pressure drop running at city water pressure. Therefore Decon heater manufacturers have had to settle for reduced volume of water going through the coils and raising the temperature of that reduced water stream to compensate for the delta P. This means the hot water circuit in the typical Decon heater may reach temperatures of 190° to 220° F! It is our view that such temperatures are a safety concern.

The only way to correct for this inherent drawback in a converted pressure washer type blending water heater is to increase the size of the heat exchanger pipe, to drastically reduce delta P. In turn water volume through the exchanger coil increases, and by extension this allows for lower heat exchanger temperatures. A 3/4" or larger heat exchanger coil is therefore almost a necessity to keep parasitic losses to a minimum when the supply water pressure is low at 40 psi.

In 2001, ACSI abandoned the pressure washer heat exchanger to build a "task specific" Decon water heater. All ACSI Water Heaters are built in-house using 3/4" diameter pipe. In our effort to produce a "true" Decon water heater ACSI set out first to produce a blending type water heater. The premise was dramatic reduction in delta P while providing at least 50° F of temperature rise or "delta T" at this

"maximum" flow. The result of this effort is VersiHeat, a 14 gallon per minute heater that delivers at least 50° F of temperature rise at 14 gallons per minute.

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### Portable Decon Showers

A perfect application for VersiHeat-II



### Diesel Fuel Supply

The VersiHeat-II fuel filter design allows cleaning rather than replacement. Many times replaceable filters are a liability since lack of a replacement disables the heater. The fuel filter housing is also metallic as opposed to many of the plastic bowled filters on the market.

### Fuel Connections

Our quick-connect fuel lines attach in foolproof fashion meaning each fuel hose end couples to either tank supply nipple. The operator cannot get it wrong.

### Fuel Tank

Our heavy-duty fuel tank, a military style steel Jerry can, is easy to transport and refill. The tank mounts at the most accessible point on the unit and has its own fitted carrying tray to hold it securely in place during transport.

### Ground Fault Interrupter

Industrial quality heavy-duty ground fault interrupter for maximum safety and reliability comes standard on the AC Powered VersiHeat-II units.

