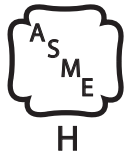


AMP

Commercial Condensing Water Heater
THERMAL SOLUTIONS



1000-4000 MBH



98%
EFFICIENT

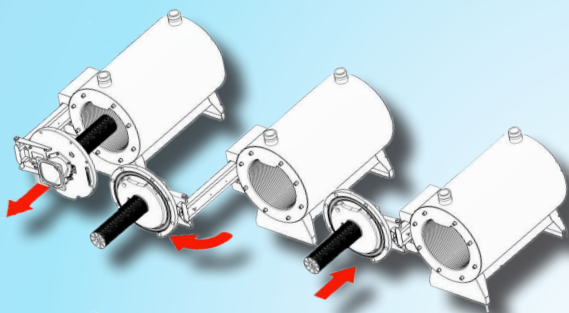
Thermal Solutions LLC | PO Box 3244, Lancaster, PA 17604-3244 | 717-239-7642

THE ERA OF BIG BOILERS IS OVER

The AMP Condensing Water Heater Series (AMPW) from Thermal Solutions delivers efficiency with unprecedented space saving innovation in a service friendly design. Available in 1000, 1250, 1500, 2000, 2500, 3000, 3500 and 4000 MBH input levels, all models are 98% Thermal Efficient. The 316L stainless steel heat exchanger features cavernous internal circuits with commercially sized tubes that minimize pressure drop and proactively reduce pump in sizing, saving on install and electrical operations.

WATER HEATER ADVANCEMENT

Commercial grade tubes, nearly twice the size of competitive models, promote self-cleaning and flushing of particulates. Expanded tube and header dimensions promote smaller pumps and more efficient operations.



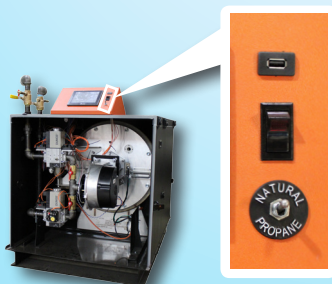
SPACE SAVING INNOVATION

We moved the burner from the traditional top to the side and reduced required install space by 46%, dramatically limiting the height of the heater. Models 1000-2000mbh fit through standard doorways and are compact for easy maneuvering. All models can be Field Knock Down, with dimensions and instructions for disassembling and assembly on site. Top water and gas connections reduce requirements commonly added to rear dimensions. Designed to fit...an optional racking system doubles the BTUs vs competitive install requirements.

DUAL FUEL

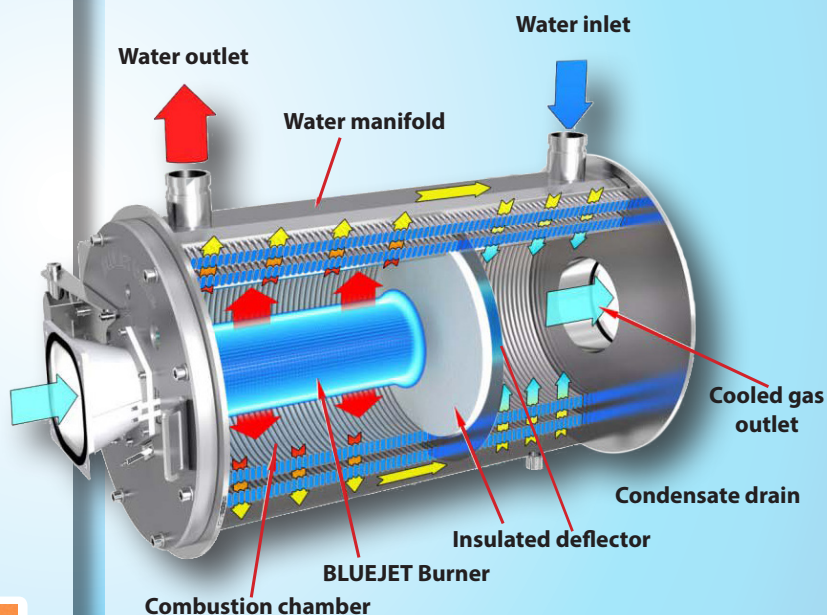
AMP Water Heaters are dual fuel (natural gas and LP gas) rated. Providing assurances if primary fuel is unavailable or planned change in the future.

Separate gas trains included and center-locking switch for manual transfer provide simple and safe change of fuels.



SERVICEABLE

Doesn't seem like much, but moving that burner "opened up" the industry. The AMP commercial water heater platform from 1000-4000mbh is focused on service, reliability, and longevity. All AMPW models come with supported swing-out door providing complete access to burner and combustion chamber. Service, inspections, and cleanings can be completed with ease, ensuring new, out of the box efficiency and performance for the life of the product.



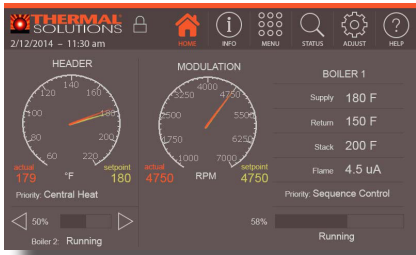
5:1 TURNDOWN

Why 5:1 turndown? Because it works and is proven time after time. No need for multiple set-ups in summer and winter or excess amounts of air, robbing your heater's condensing performance.

VENTING

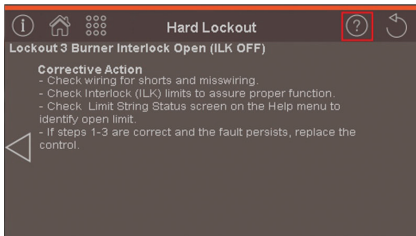
Cat II or IV venting for either individual or common (engineered) venting systems. Capable of up to 300 equivalent feet of vent in stainless steel, polypropylene or CPVC.

ADVANCED CONTROL PLATFORM – CONCERT™ BOILER CONTROL



Intuitive Icon Navigation

“Touch” and move through our control menus effortlessly. Whether it be commissioning the boiler with the “Quick Setup” menu, pinpointing fault codes with corrective actions in seconds or seamlessly connecting to an EMS. Extensive data archives with graphical displays are available to evaluate boiler performance and make value-added adjustments to maximize boiler & system efficiency.



Self-Guiding Diagnostics

Troubleshooting boiler issues has never been this easy! The industry-leading fault identification and correction feature allows the service technician to quickly drill down on the issue, with cause and corrective measures.



Unmatched Archives

With the largest collection of stored operational data (4 months), no stone is left unturned when it comes to evaluating a boiler's performance and pinpointing adjustment for improvement. The boiler's onboard energy management system is a true step above all others!

USB Data Sharing

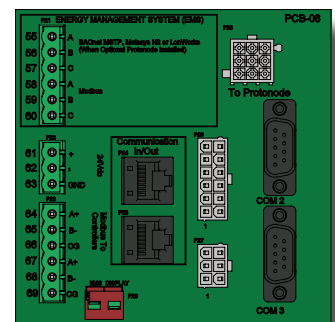
Make room on the tool belt for a flash drive as the USB data sharing port has become another important device to have in commissioning (upload/download settings from one boiler to the next), servicing (download data and email file to factory for assistance) and analyzing boiler operation (historical info can be downloaded & saved in .CRV formatted files).

Peer-To-Peer Boiler Sequencing

Unique control logic uses both temperature and firing rate of the connected boilers to sequence up to eight units in unison to optimize system efficiency. Included dual RJ45 connections make peer-to-peer and/or simultaneous EMS communications (ModBus Standard / Other Protocols Optional) a snap without the need of a separate splitter.

SIMPLIFIED WIRING AND SERVICEABILITY

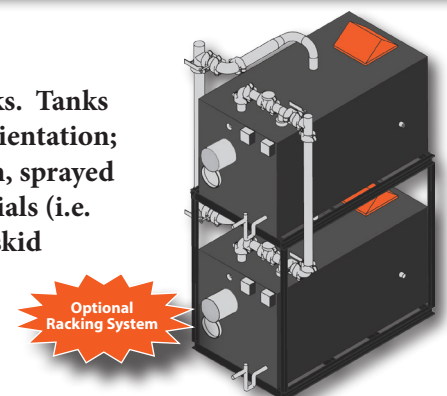
Low and high voltage fused printed circuit boards (PCB) simplifies wiring, enhances serviceability & troubleshooting with easy to read labeling, and provides electrical protection (spare fuses located on PCB for quick replacement). Other connections include: 120/1/60 voltage and pumps (boiler, system & domestic hot water); alarm; auto & manual reset external limits; enable/disable; DHW demand; 4-20mA remote; sensors (outdoor, remote and DHW); EnviraCOM thermostat; low water cutoff; and flow switch.



TANKS & PACKAGING

AMP Water Heaters are commonly paired with storage tanks. Tanks are available to suit all applications: vertical or horizontal orientation; glass, epoxy or cement-lined; metal jacketing and insulation, sprayed foam insulation or bare exterior; and in various shell materials (i.e. stainless steel). Shipped separately for field installation or skid mounted as a factory package.

Visit www.ThermalSolutions.com to find out more!





AMP STANDARD EQUIPMENT

PRESSURE VESSEL DESIGN

Watertube stainless steel heat exchanger
ASME Section IV-certified, "HLW" Stamp (1000-2000)
ASME Section IV-certified, "H" Stamp (2500+)
MAWP 160 PSIG & design temp 210°F
Five Year limited heat exchanger warranty
Ten year limited pressure vessel warranty
One year parts and burner warranty

COMBUSTION DESIGN

Stainless steel pre-mix burner
Low NOx emissions (<10 ppm);
Full modulation, 5:1 turndown
Natural gas, LP gas, or Dual Fuel
4" wc to 14" wc inlet gas pressure
8" wc LP min
Direct spark ignition system
High & low gas pressure switches w/ manual reset
Zero governor gas valve
Variable speed combustion blower
Air proving switch
Blocked vent switch

VENTING

CPVC, polypropylene or stainless steel materials acceptable
Air intake - sealed combustion or room air
Category II or IV venting
Individual or common (engineered) venting systems

EQUIPMENT

Concert Control™
High limit w/ manual reset safety temperature control
Low water cutoff w/ manual reset

Water flow switch

Supply, return & DHW water temperature sensors
Flue gas temperature sensor
Condensate trap
Blocked condensate switch
Pressure & temperature gauge
ASME safety temperature & pressure valve
Water circulation pump

ELECTRICAL DESIGN

High voltage printed circuit board (PCB)

AMPW1000-2500: 120, 208 or 240 VAC / 60 Hz / 1PH power supply

AMPW2500-4000: 208 or 240 VAC / 60 Hz / 1PH power supply

AMPW2500-4000: 208, 240 or 460 VAC / 60 Hz / 3PH power supply

120 VAC manual reset external limit contacts

Three sets of pump contacts

PCB fused connections

Printed Circuit Board (PCB)

24 VAC enable/disable sensor contacts

24 to 120 VAC proving switch or auto reset external limit contacts

24 to 120 VAC lockout alarm contacts

24 VAC EnviraCom thermostat contacts

DHW demand contacts

Remote header sensor contacts

DHW tank sensor contacts

Peer-to-peer communication contacts

EMS interface contacts

Remote 4-20mA contacts

AMP OPTIONAL EQUIPMENT

- External high limit w/ manual reset safety switch
- Extended Warranty
- Alarm buzzer w/ silencing switch
- Stackable Rack (1000-2000)



CONCERT CONTROL

Dashboard - color touch screen display, 4.3"

- Intuitive icon navigation
- "Quick" setup menus
- "Real time" BTU/H display*

Temperature demand input

- Time of day setback capability (EnviraCom thermostat must be installed)

Three (3) pump control

- DHW pump with On/Off or variable speed control
- System pump
- Alternative control to isolation valve, combustion air damper, or standby loss damper
- Pump overrun for heat dissipation
- Pump exercise
- Pump rotor seizing protection

Peer-to-peer boiler communications

- Multiple size unit sequencing; up to 8 units
- Lead unit automatic rotation

Energy management system (EMS) interface

- Firing rate and water temperature based algorithms for multiple units; loss of EMS signal defaults to local settings*
- 4-20mA dc input/output
- ModBus Input/Output
- Simultaneous interface with peer-to-peer

USB data port transfer*

- Upload settings between units
- Download parameters for troubleshooting
- Import data into .CSV formatted files for performance analysis

Energy efficiency enhancer

- Anti-cycling technology
- Multiple unit base load common rate
- Boost temperature & time
- Ramp delay
- Over-temperature safeguarding

Self-guiding diagnostics

- Identifies fault
- Describes possible problems
- Provides corrective actions

Time/Date stamp on alarms and lockouts*

Unmatched archives

- Historical trends - collects up to 4 months of data
- Event history - up to 3,000 alarms, lockouts, and cycle & run times
- Alarm - limit string faults, holds, lockouts & others
- Cycle & run time - water heaters & pumps
- Resettable

Domestic hot water priority

- DHW tank piped with priority in the boiler loop
- DHW tank piped as a zone in the system with the pumps controlled by the Concert Control

Other features

- Factory default settings*
- Three level password security
- Frost protection
- Contractor contacts (up to 3)
- Low water flow control & indication
- Proportion integral derivative (PID) parameters for DHW, sequencer and fan
- Built-in brown-out protection

* Unique to Concert Control

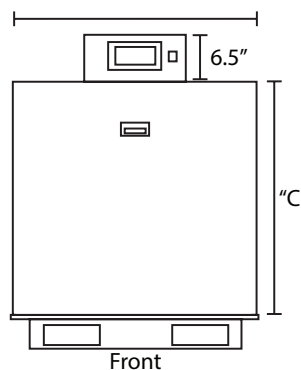
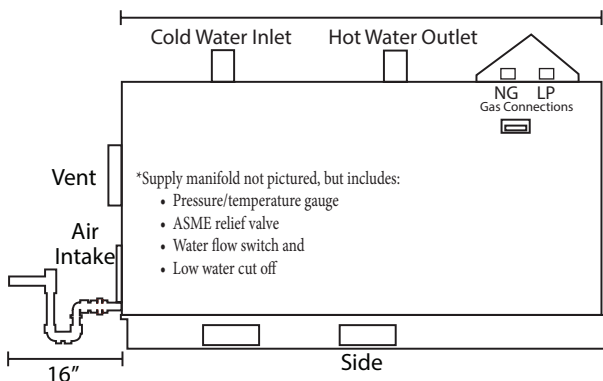
CONCERT CONTROL OPTIONS

- Communications gateway - BACnet, LonWorks, Metasys N2 or ModBus TCP/IP compatible
- Header sensor, direct immersion
- 0-10V signal converter
- Header sensor, well mounted (with well)

SPECIFICATIONS, DIMENSIONS, & RATINGS

Models	Input		Gross Output (MBH)	DHW Recovery (GPH)*	"A" Length (In)	"B" Width (In)	"C" Height (In)	Gas / LP Conn. (In)	Supply Grooved Conn (In)	Return Grooved Conn (In)	Vent/Air Intake Size (In)	Approx Shipping Weight (Lbs)
	Min (MBH)	Max (MBH)										
AMPW-1000	200	1000	980	1188	45	35	36.5	1 NPT	3	2.5	8	922
AMPW-1250	250	1250	1225	1485	45	35	36.5	1 NPT	3	2.5	8	922
AMPW-1500	300	1500	1470	1782	65	35	36.5	1.25 NPT*	3	2.5	8	1217
AMPW-2000	400	2000	1960	2376	65	35	36.5	1.25 NPT	3	2.5	8	1217
AMPW-2500	500	2500	2450	2970	76	46	49	1.5 NPT	4	4	10	2038
AMPW-3000	600	3000	2940	3564	76	46	49	1.5 NPT	4	4	10	2038
AMPW-3500	700	3500	3430	4158	98	46	49	2 NPT	4	4	12	2485
AMPW-4000	800	4000	3920	4752	98	46	49	2 NPT	4	4	12	2485

* AMPW-1500 LP connection (inches) 1 NPT



*Supply manifold not pictured, but includes:

- Pressure/temperature gauge
- Water flow switch and
- ASME relief valve
- Low water cut off



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