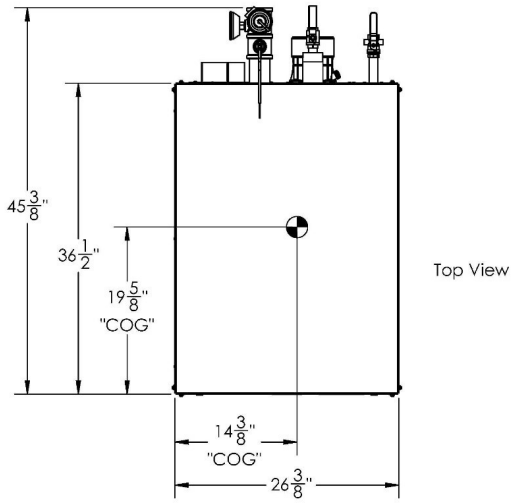
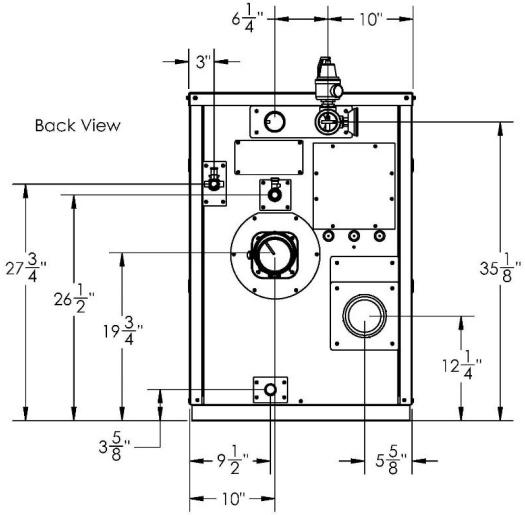
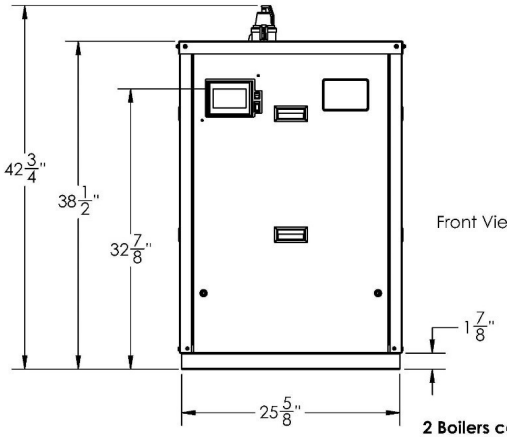
Water Heater (DHW) SUBMITTAL DATA SHEET



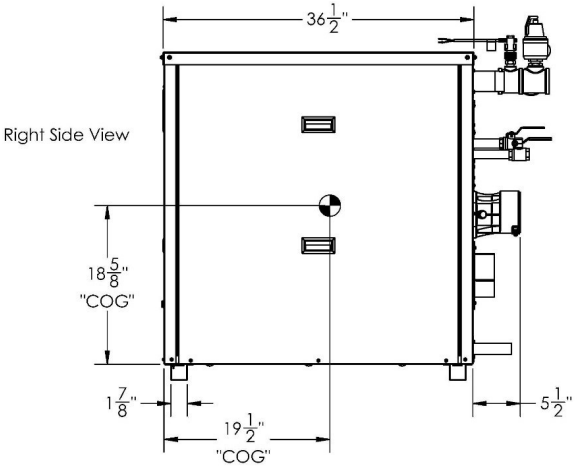
Top View



Back View



Front View



Right Side View

2 Boilers can be stacked vertically with included bracket kit.

THERMAL SOLUTIONS Innovative Equipment for Hot Water Systems PO BOX 3244 | LANCASTER, PA 17601	AMP-500 V	**INNOVATIVE EQUIPMENT FOR HOT WATER SYSTEMS** WWW.THERMALSOLUTIONS.COM	Updated 9/18/2025 ABCPV-20250901

Water Heater (DHW) SUBMITTAL DATA SHEET

RATINGS AND CAPACITIES		
Input - Low fIre:	**50,000**	BTU/HR
Input - High Fire:	**500,000**	BTU/HR
Output - High Fire:	**485,000**	BTU/HR
Boiler Horsepower:	**14.5**	BHP
Thermal Efficiency:	**97%**	
Heating Surface:	**39.1**	Sq.Ft.
Water Content:	**4.3**	Gallons
Fuel:	**Natural Gas or LP Gas**	
Firing Rate:	**Full Modulation**	
Burner Turndown:	**10:1**	
Low NOx Emissions:	**< 10 ppm**	
Inlet Gas Pressure (NG):	**4" wc**	Min.
Inlet Gas Pressure (LP):	**8" wc**	Min.
	14" wc	Max.
Shipping Weight, Approximate:	**470**	lbs

ASME Section IV (Max 160 PSIG / 210°F)

Setpoint range is 60-185°F

Adjustable, manual reset high limit setting of ≤ 200°F.

ASME HLW stamp MAWT is 210°F for the vessel. (For max setpoint, see Setpoint range.)

ETL Certified to ANSI Z21.13 / CSA 4.9

ETL Certified to UL 795 / CSA 3.1

FLOWS AND PRESSURE DROPS		
Delta T	**Flow (GPM)**	**Head Loss (ft)**
20°F △ T	**49**	**13.7**
30°F △ T	**32**	**6.7**
40°F △ T	**24**	**4.1**

Electrical Requirements: (Appliance Only)				
Model	**Voltage**	**Phase**	**Hz**	**Max. Amp Draw**
400	**120**	**1**	**60**	**7**
500				**7**
650				**8**
800				**8**
100				**8**

Water Heater T&P Relief Valve Kits	
☐	**125 PSI (STANDARD)**
☐	**150 PSI (OPTIONAL)**

DIMENSIONS / CONNECTIONS		
Height:	**38-1/2"**	(Note 1)
Width:	**26-3/8"**	(Note 2)
Length:	**36-1/2"**	(Note 3)
Supply Connection:	**2" NPT**	
Return Connection:	**2" NPT**	
Vent / Air Intake Connections:	**4"**	
Condensate / Boiler Drain Connection:	**1"**	
Gas Connection:	**3/4" NPT**	

NOTES:
1. Height dimension is from floor to top of jacket.
2. Length is from jacket front to jacket rear.
3. Dimensions shown are for reference only
4. Refer to manual for gas supply piping charts

Water Heater (DHW) SUBMITTAL DATA SHEET

STANDARD EQUIPMENT

PRESSURE VESSEL DESIGN

Stainless Steel Heat Exchanger

ASME Section IV Certified, "HLW" Stamp

MAWP 160 PSIG & Max Temp 210°F

Setpoint range is 60-185°F

Adjustable, manual reset high limit setting of ≤ 200°F.

ASME HLW stamp MAWT is 210°F for the vessel. (For max, see Setpoint range.)

Ten Year Limited Pressure Vessel Warranty

COMBUSTION DESIGN

Stainless Steel Pre-Mix Burner

Low NOx Emissions (< 10 ppm)

Full Modulation, 10:1 Turndown

Natural Gas or Propane

4" wc (8" wc Propane) to 14" wc inlet gas pressure

Direct Spark Ignition System

High/Low gas pressure switches, manual reset

Variable Speed Combustion Blower

Blocked Vent Switch

VENTING

Category II or IV Venting

Indivdual or Common (Engineered) Vent System

Vertical or Horizontal

3-in-1 Vent Connector:Accepts CPVC, PP or Stainless Steel

NOTE: PVC venting requires CPVC Vent kit; Consult I&O Manual.

Includes built-in vent gas sensor test port

Direct Vent & Sealed or Room Air or Outdoor Ready

Outdoor installations require the optional outdoor exhaust vent kit

APPLIANCE EQUIPMENT

Indoor / Outdoor Construction (Field Convertible)

Stainless steel water piping suitable for boiler or domestic (potable) water applications

Concert ™ Control (24 Vac)

High Limit Temp Control, Manual Reset

Low water cutoff, manual reset

Water Flow Switch

Supply & Return Water Temperature Sensors

Flue Gas Temperature Sensor

Condensate trap

Blocked Condensate Switch

Pressure & Temperature Gauge

ASME 125 PSI Relief Valve Standard (150 PSI Relief Valve Optional)

NOTE: Stacking Brace Kit (PN# 111405-00 included with all 400-1000 models. Kit includes 2 braces & 8 self-drilling screws.

NOTE: For stacking outdoor boilers, consult factory

ELECTRICAL DESIGN

Models 400-500:

- 120 VAC Only Amp Draw: 7.0 Amps

Models 650-1000:

- 120 VAC Only Amp Draw: 8.0 Amps

24VAC/5VDC - Low Voltage PCB

- EMS Communications
  (Dual RJ45 Jacks for Peer-To-Peer or ModBus)
- Boiler Options (Sensors)
- Pumps (Boiler, DHW, System) & Auxiliary Devices

* Flue system material shall be capable of continuous operation at 210°F or higher and shall be certified to UL 1738 – venting system for gas-burning appliances cat II, III and IV.

Water Heater (DHW) SUBMITTAL DATA SHEET

OPTIONAL EQUIPMENT

- ☐ Hydronic Kit (Boiler Circulation Pump, Pump Flange Kit and Condensate Neutralizer)
- ☐ Water Heater Pump (Circulation Pump & Pump Flange Kit) ☐ 4-12 GPG Water Hardness ☐ 12-15 GPG Water Hardness
- ☐ External High Limit Temperature Control, Manual Reset
- ☐ Condensate Neutralizer
- ☐ Supply Header Temperature Sensor: ☐ Direct Immersion ☐ Well Immersion (with Well)
- ☐ Outdoor Air Temperature Sensor (Wired)
- ☐ Domestic Hot Water Sensor with Well Kit
- ☐ EMS Signal Converter Kit (Converts Energy or Building Management System 0-10v signal to 4-20mA)
- ☐ Alarm Buzzer with Silencing Switch
- ☐ PVC /CPVC Vent Kit ☐ PN# 111569-01, Sizes 400-500 ☐ PN# 111569-02, Sizes 650-1000
- ☐ Outdoor Vent Kit ☐ PN# 110644-01, Sizes 400-500 ☐ PN# 110645-01, Sizes 650-1000
- ☐ Universal Communications Gateway ☐ BACnet, Metasys N2,Modbus ☐ LonWorks
- ☐ Conductor Sequencing Panel ☐ Optional Isolation Relay Board

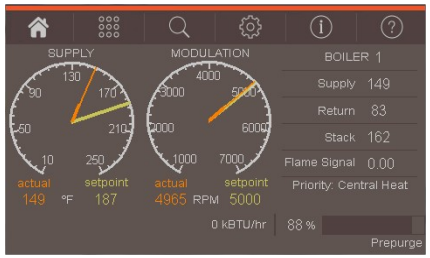
The Conductor manages multiple condensing & non-condensing, small & large heat output, new and/or existing boilers (full modulation or on-off), and steam or hot water applications. It helps improve system efficiency by selecting and modulating the right boiler to match operating conditions. The Conductor offers a single point boiler plant Energy Management System (EMS) interface including Modbus TCP/IP, Modbus RTU RS485, BACnet/IP and BACnet MSTP standard. If Lonworks needed, add for the separate Lonworks gateway.

EXTENDED WARRANTY

☐ 3-Year Parts ☐ 5-Year Parts ☐ 10-Year Parts ☐ 5-Year Parts/Labor ☐ 10-Year Parts/Labor

Water Heater (DHW) SUBMITTAL DATA SHEET

CONCERT CONTROL FEATURES



Dashboard - Color Touchscreen Display, 4"

Intuitive Icon Navigation
"Quick" Setup Menus
*Real Time BTU/H Display

Two (2) Temperature Demand Inputs

Outdoor Air Reset Curve for Each Input
Time of Day Setback Capability
(Enviracom Thermastat must be installed)

Three (3) Pump Control

Boiler Pump With On/Off or Variable Speed Control
Domestic Hot Water (DHW) Pump
System Pump
Alternative Control to Combustion
Air Damper or Standby Loss Damper
Pump Overun for Heat Dissipation
Pump Exercise
Pump Rotor Seizing Protection

Peer-to-Peer Boiler Communications

Multiple Size Boiler Sequencing Up to 8 Units
*Two (2) Boiler Start/Stop Trigger
Lead Boiler Automatic Rotation

Energy Management System (EMS) Interface

*Firing Rate and Water Temperature Based
Algorithms for Multiple Boilers; loss of EMS
signal defaults to local boiler settings
420mAdc Input/Output (010Vdc Optional Converter)
ModBus Input/Output (BACnet or LonWorks
Optional Gateway)
Simultaneous Interface with Peer-to-Peer

USB Data Port Transfer

Upload Settings Between Boilers
Download Parameters for Troubleshooting
Import Data into .CRV Formatted Files for Performance Analysis

*** Unique to Concert**

Energy Efficiency Enhancer

AntiCycling Technology
Multipler boiler base load common rate
Outdoor Air Temperature Reset Curve
Warm Weather Shutdown
Boost Temperature & Time
Ramp Delay
OverTemperature 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 Data
Event History Up to 3000 Alarms, Lockouts and Cycle & Run Times
Alarm Limit String Faults, Holds, Lockouts and Others
Cycle & Run Time Boilers & Pumps
Resettable (Lockouts/Alarms/Cycles & Run Time)

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
DHW Modulation Limiting
Status Screens
Sensor Monitoring and Control

Other Features

Factory Default Settings
Three Level Password Security
Frost Protection
Contractor Contacts (Up to 3)
Low Water Flow Safety Control & Indication
Proportion Integral Derivative (PID) Parameters for
Central Heat, DWH, Sequencer and Fan