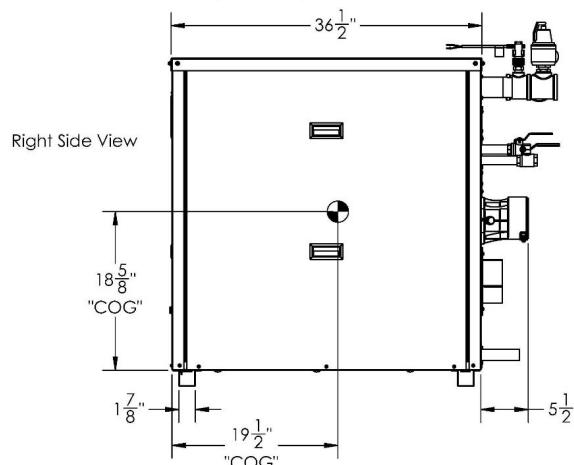
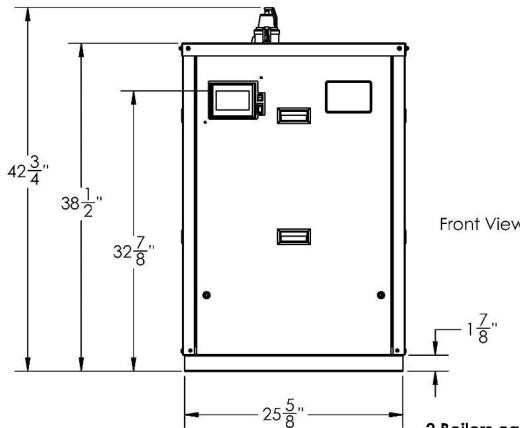
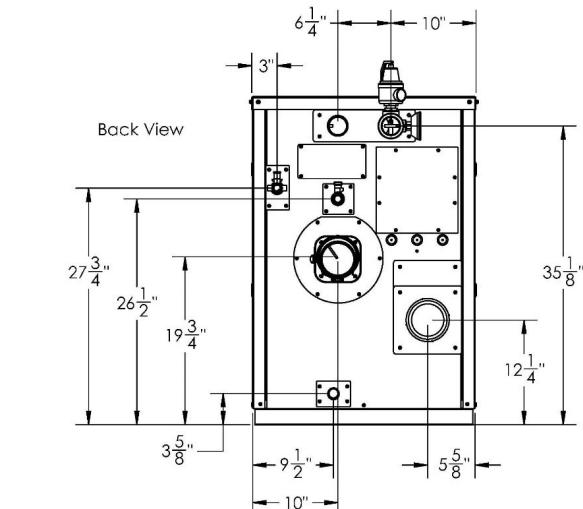
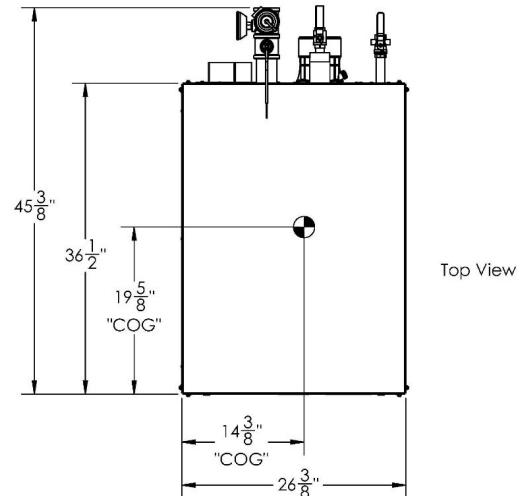




Water Heater (DHW) SUBMITTAL DATA SHEET



2 Boilers can be stacked vertically with included bracket kit.

THERMAL SOLUTIONS <small>Innovative Equipment for Hot Water Systems</small>
PO BOX 3244 LANCASTER, PA 17601

AMP-500 V

**INNOVATIVE EQUIPMENT FOR
HOT WATER SYSTEMS**
WWW.THERMALSOLUTIONS.COM

Updated 12/10/2025

ABCV-251202



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:	490,000	BTU/HR
Recovery Rate:	594	GPH
Thermal Efficiency %:	98	
Heating Surface:	39	Sq.Ft.
Water Vol. (gal)	4	Gallons
Fuel	Natural Gas or LP	
Firing Rate:	Full Modulation	
Burner Turndown:	10:1	
Low NOx Emissions:	<10 ppm	
Inlet Gas Pressure (NG):	4" (Min.) / 14" (Max.)	
Inlet Gas Pressure (LP):	8" (Min.) / 14" (Max.)	
Approx. Shipping Weight (lb)	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 & ANSI Z21.10.3 / CSA/4.3

ETL Certified to UL 795 / CSA 3.1 & NSF / ANSI Standard 372



FLOWS AND PRESSURE DROPS			
Delta T	Flow (GPM)	Head Loss (ft)	Water Hardness (GPG)*
20°	49	6.7	12-15
30°	32	6.7	4-12

Electrical Requirements: (Appliance Only)				
Model	Voltage	Phase	Hz	Max. Amp Draw
400	120	1	60	7
500				7
650				8
800				8
1000				8
1250-1500				10

Water Heater T&P Relief Valve Kits	
<input type="checkbox"/>	125 PSI (STANDARD)
<input type="checkbox"/>	150 PSI (OPTIONAL)

DIMENSIONS / CONNECTIONS		
Height:	38 1/2	(Note 1)
Width:	25 5/8	(Note 2)
Length:	36 1/2	(Note 3)
Water Outlet Pipe (FNPT):	2	
Water Inlet Pipe (MNPT):	2	
Vent Connection:	4	
Air Intake Connection:	4	
Condensate Drain (PVC):	1	
Drain Line Connection:	3/4	
Gas Inlet Connection (FPT):	3/4	

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
Individual 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 & DHW 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 400-1500 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
Models 1250-1500:	-120 VAC Only	AMP Draw: 10.0 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

<input type="checkbox"/> Water Heater Pump (Circulation Pump & Pump Flange Kit)	<input type="checkbox"/> 4-12 GPG Water Hardness	<input type="checkbox"/> 12-15 GPG Water Hardness
<input type="checkbox"/> External High Limit Temperature Control, Manual Reset		
<input type="checkbox"/> Condensate Neutralizer		
<input type="checkbox"/> Supply Header Temperature Sensor:	<input type="checkbox"/> Direct Immersion	<input type="checkbox"/> Well Immersion (with Well)
<input type="checkbox"/> EMS Signal Converter Kit (Converts Energy or Building Management System 0-10v signal to 4-20mA)		
<input type="checkbox"/> Alarm Buzzer with Silencing Switch		
<input type="checkbox"/> PVC /CPVC Vent Kit	<input type="checkbox"/> PN# 111569-01, Sizes 400-500	<input type="checkbox"/> PN# 111569-02, Sizes 650-1000
<input type="checkbox"/> Outdoor Vent Kit	<input type="checkbox"/> PN# 110644-01, Sizes 400-500	<input type="checkbox"/> PN# 110645-01, Sizes 650-1000
<input type="checkbox"/> Universal Communications Gateway		<input type="checkbox"/> BACnet, Metasys N2,Modbus
<input type="checkbox"/> Conductor Sequencing Panel		<input type="checkbox"/> 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.

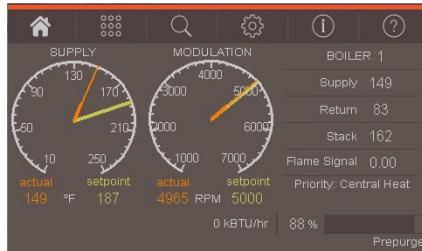
EXTENDED WARRANTY

<input type="checkbox"/> 3-Year Parts	<input type="checkbox"/> 5-Year Parts	<input type="checkbox"/> 10-Year Parts	<input type="checkbox"/> 5-Year Parts/Labor	<input type="checkbox"/> 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 Thermostat 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 Overrun 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



Energy Efficiency Enhancer

AntiCycling Technology

Multiplier 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

Proportional Integral Derivative (PID) Parameters for Central Heat, DHS, Sequencer and Fan

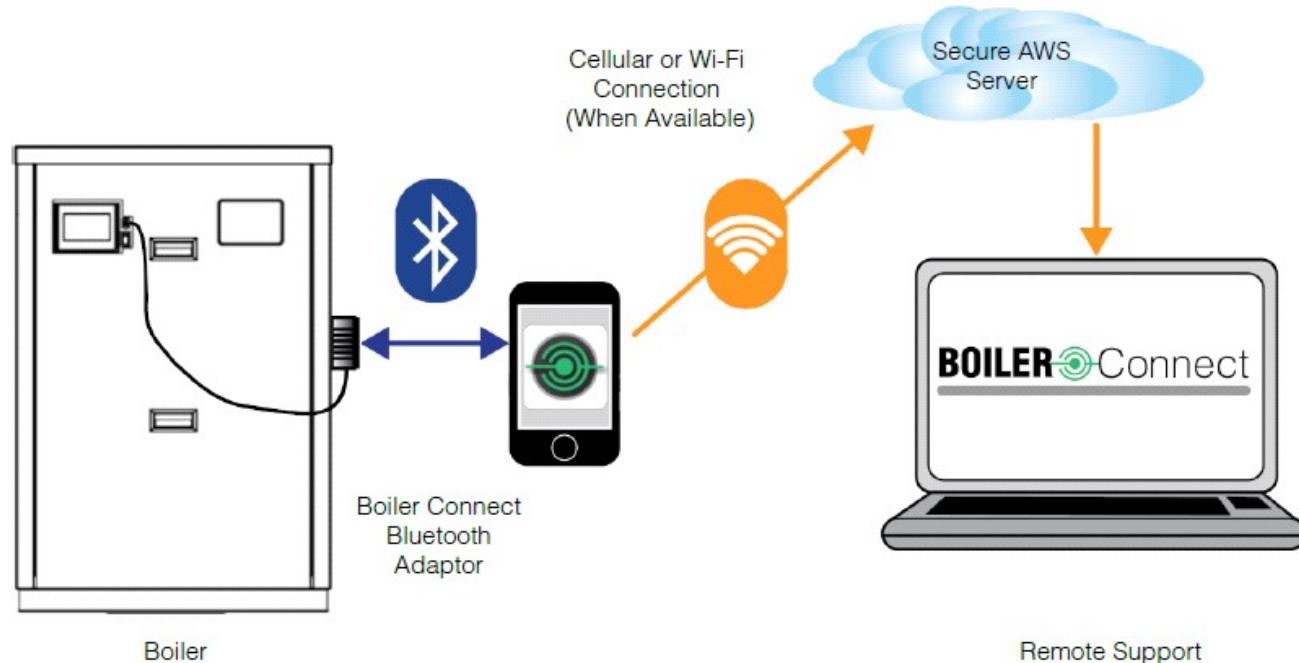
Boiler Connect Compatible

Requires one (1) Boiler Connect Bluetooth
Adapter Kit (PN# 113329-01) per install or
cascade)

* Unique to Concert



Water Heater (DHW) SUBMITTAL DATA SHEET



BOILER Connect

BOILER CONNECT FEATURES

Bluetooth adapter connects to the Boiler Connect App

English or Spanish language

Start-up, Troubleshooting Tips and Service Wizards

Data logs, Service and Status Reports sent to the cloud

Live Data Sharing (Cellular Service Required) with Technical Service Representative