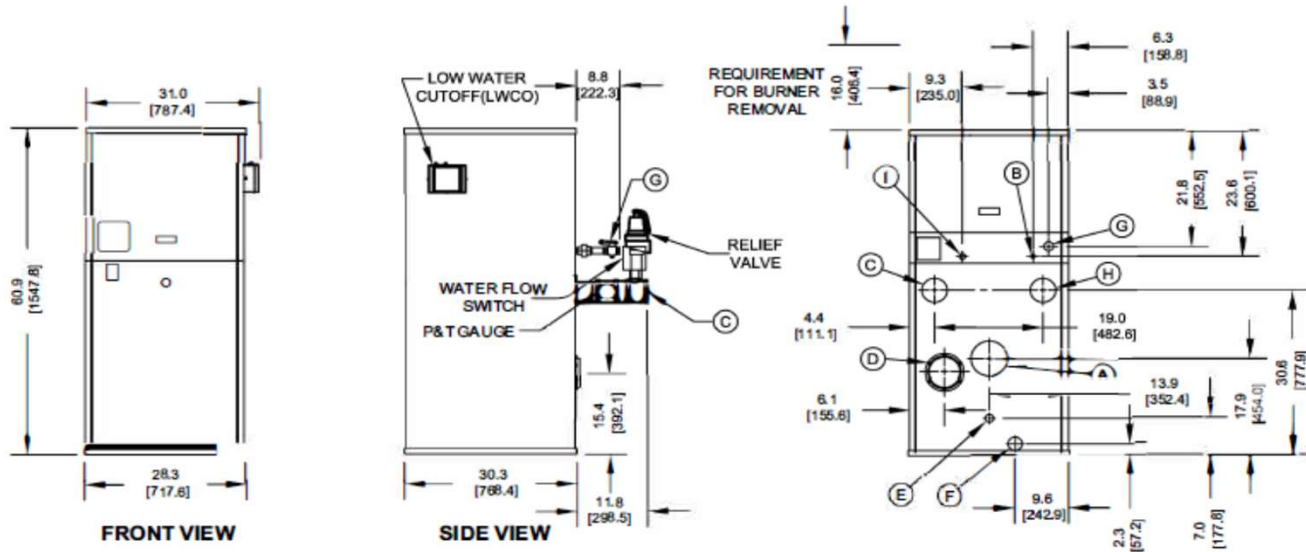


EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

NOTES:

1. SEE O&M FOR REQUIRED INSTALLATION CLEARANCES.
2. DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.
3. DIMENSIONS ENCLOSED IN [] ARE IN MM.



CONNECTION	DESCRIPTION
(A)	FLUE OUTLET, 4" [101.6] DIAMETER (AL29-4C SS)
(B)	GAS PILOT, 1/4" [6.4] O.D. TUBE
(C)	WATER SUPPLY TO SYSTEM, 3" NPT
(D)	INLET AIR, 6" [152.4] DIAMETER
(E)	DRAIN, CONDENSATE, 5/8" [15.9] O.D. TUBE
(F)	DRAIN, BOILER, 1" NPT
(G)	GAS SUPPLY, 1" NPT
(H)	WATER RETURN FROM SYSTEM, 3" NPT
(I)	GAS VENT, 3/4" NPT (D.B.&B. & D.B.&B. w/POC ONLY)



THERMAL SOLUTIONS
 Innovative Equipment for Hot Water Systems
 PO BOX 3244 | LANCASTER, PA 17601

EVS-750

INNOVATIVE EQUIPMENT FOR
 HOT WATER SYSTEMS
 WWW.THERMALSOLUTIONS.COM

Updated 11/14/2024
 EVS750-241101

EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

RATINGS AND CAPACITIES		
Input (MBH):	750,000	BTU/HR
Output (MBH):	638,000	BTU/HR
Boiler Horsepower:	19.1	BTU/HR
Thermal Efficiency:	85.1%	BHP
Heating Surface:	131	Sq.Ft.
Water Content:	15.9	Gallons
Fuel:	Natural Gas or LP Gas	
Firing Rate:	Reliable Modulation	
Burner Turndown:	3:1	
Low NOx Emissions:	<10 ppm	
Inlet Gas Pressure (NG):	4" wc - 14" wc*	
Inlet Gas Pressure (LP):	4" wc - 14" wc*	
* This data supercedes data found on Table 3 of I&O Manual, per PRODUCT UPDATE issued June 6, 2024.		
Shipping Weight, Approximate:	1,097	lbs
ASME Section IV (Max 160 PSIG / 250°F) 		
Setpoint range is 145-230°F Adjustable, manual reset high limit setting of ≤ 240°F. ASME H stamp MAWT is 250°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		
DIMENSIONS / CONNECTIONS		
Height:	60 15/16"	(Note 1)
Width:	28 3/8"	(Note 2)
Length:	30 3/8"	(Note 3)
Supply Connection:	3"	
Return Connection:	3"	
Vent / Air Intake Connections:	4" Vent	6" Intake
Condensate / Boiler Drain Connection:	5/8" Condensate Tube	1" NPT Pipe, Boiler
Gas Connection:	1"	

FLOWS AND PRESSURE DROPS		
Delta T	Flow (GPM)	Δ P (Ft. Hd)
20°F Δ T	62 (Max)	1.81
40°F Δ T	31 (Min)	0.46

Electrical Supply Options		
<input type="checkbox"/>	120v/60hz/1ph (Standard)	7.5 Amps
<input type="checkbox"/>	208v/60hz/1ph	6.6 Amps
<input type="checkbox"/>	230v/60hz/1ph	6.4 Amps
<input type="checkbox"/>	208v/60hz/3ph	6.0 Amps
<input type="checkbox"/>	230v/60hz/3ph	6.0 Amps
<input type="checkbox"/>	460v/60hz/3ph	3.0 Amps

Blower Motor (hp)
1-1/2 hp

Relief Valve Options		
<input type="checkbox"/>	30 psi	<input type="checkbox"/>
<input type="checkbox"/>	50 psi	<input type="checkbox"/>
<input type="checkbox"/>	60 psi	<input type="checkbox"/>
<input type="checkbox"/>	75 psk	<input type="checkbox"/>
<input type="checkbox"/>	100 psi	<input type="checkbox"/>
<input type="checkbox"/>	125 psi	<input type="checkbox"/>
<input type="checkbox"/>	150 psi	<input type="checkbox"/>

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

EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

STANDARD EQUIPMENT

PRESSURE VESSEL DESIGN

Copper Fin-tube construction
 Carbon steel or cast iron header design
 Gasketless heat exchanger
 ASME Section IV certified "H" stamp
 MAWP 160 PSI & max design temp 250°F
 5-year heat exchanger warranty
 20-year thermal shock warranty

COMBUSTION DESIGN

Maintenance-free ceramic burner
 Ultra-low NOx emissions (<10ppm)
 Whisper quiet operation (<50 dBA)
 Industrial-grade combustion air filter, 99% efficient
 Industrial cast aluminum blower assembly
 Variable frequency drive
 Electric spark-to-pilot ignition system
 10-year burner warranty
 Robust UV-Scanner

VENTING

Sealed or room air combustion
 Direct vent (sidewall or vertical) (Cat IV)
 Conventional ventinting (Cat II)
 NOTE: This is NOT a Cat 1 Vent appliance.

BOILER EQUIPMENT

Siemens RWF55 operating control
 High limit w/ manual reset safety temperature control
 Water flow switch
 Low water cut-off with manual reset safety controller
 Outlet temperature sensor
 Combustion air switch
 Pressure and temperature gauge
 Safety relief valve (Optional pressures 30 - 150 PSI; See details above.)

Single point electrical supply: (Available in: 1 and 3 phase options. See details above.)

BURNER EQUIPMENT

UL/FM/CSD-1 gas train
 Reliable Turndown
 Natural or LP gas
 Pilot gas valve / Pilot gas regulator
 Siemens SKP-75 gas valve
 Low and high gas pressure switches with manual reset

SIEMENS RWF55 OPERATING CONTROL FEATURES

Adjustable set point
 Remote set point (0-10v or 4-20 mA)
 Outdoor air temperature reset
 Remote system temperature monitoring

OPTIONAL EQUIPMENT

Low gas pressure venturi, 4" wc (Available on Models 750-2000 C)
 Double block & bleed (DB&B) Gas Train - (1) motorized & (1) solenoid valve & N.O. vent valve

IRI with Proof of Closure Gas Train - (2) motorized valves w/ POC & N.O. vent valve

Honeywell 7800 Series display with ModBus Module

Line Reactor Adds voltage / spike protection for the blower's VFD. (*Highly recommended.*)

Outdoor Air Sensor

Condensate neutralizer:

- 850 MBH 1,200 MBH
 2,000 MBH 5,000 MBH

Hydronic Kit (Boiler Circulation Pump, Pump Flange Kit and Condensate Neutralizer) Sized based on a 20°F ΔT

Annual Maintenance Kit

Supply System temperature sensor

ModBus communication for Siemens RWF55 and Honeywell Flame Safeguard Control (Boiler to BMS)

Universal communications gateway (BacNet MS/TP,

Local / remote switch

Alarm bell with silencing switch

Relays: General Alarm Boiler Status

Conductor Sequencing Panel: (Required for multiple EVA boiler applications without BMS); Contact Regional Manager with The Conductor manages multiple condensing & non-condensing, small & large heat output, new and/or existing boilers (full modulation), 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 Options Available:

	<u>3-Year</u>	<u>5-Year</u>	<u>10 Year</u>
<u>Parts Only</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Parts and Labor</u>	N/A	<input type="checkbox"/>	<input type="checkbox"/>

EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

TCBC CONTROL FEATURES



Flexible, Field Selectable Control

- Remote Setpoint Control
- Factory defaults simplify field programming
- Eleven settings to help control oversizing

Temperature Demand Inputs

- Time of Day Setback Capability
(Envirocom Thermostat must be installed)

Boiler Monitoring and Diagnostic Displays

- Boiler inlet and outlet sensors
- (OPTIONAL) System header sensor
- (OPTIONAL) Outdoor air sensor
- Modulation rate setpoint & modulating percent
- Mixing valve demand percent
- Boiler sequencing messages, alarms, hold & lockout messages
- Event history - Up to 10 alarm messages & data

Modulation Rate

- Various boiler modulation control options
- Choice of six different control modes
- Adjustable PID for local or remote control

Advanced Availability

- If an optional header sensor fails, TSBC automatically changes to a control mode to allow continued boiler operation

Outdoor Air Reset

- Fine tune the water temp based on outdoor air temp for maximized comfort and fuel savings. Requires optional outdoor air temp sensor.
- Frost protection enabled with optional outdoor air sensor

Pump Control

- Domestic Hot Water (DHW) Pump
- System Pump
- Alternative Control to Combustion Air Damper or Standby Loss Da
- Pump Overrun for Heat Dissipation
- Pump Exercise
- Pump Rotor Seizing Protection

Peer-to-Peer Network

- Lead-lag sequencing for up to eight (8) boilers.
- Selectable Lead boiler rotation, 8-720 hours
- RJ45 plug in connections between units (Requires splitter)
- Rotation off feature for complex installations

Warm Weather Shutdown (WWSD)

- Boilers used primarily for building heat automatically shutdown when outdoor air temperature is warm.
- Saves energy by preventing boiler, pump and / or system pump from starting
- Requires the optional outdoor air sensor

Other Features

- Domestic Hot Water Priority (DHWP)
- Combustion Air damper Outputs
- Factory configured RS485 Modbus interface for EMS or SCADA available
- Rotation enable and disable
- Low fire only w/external contact closure
- Setpoint adjustable up to 230F for boilers and 200F for water heaters
- Defineable min setpoint to reduce chance of condensing
- 3 pump control capable, Boiler, DHW, System