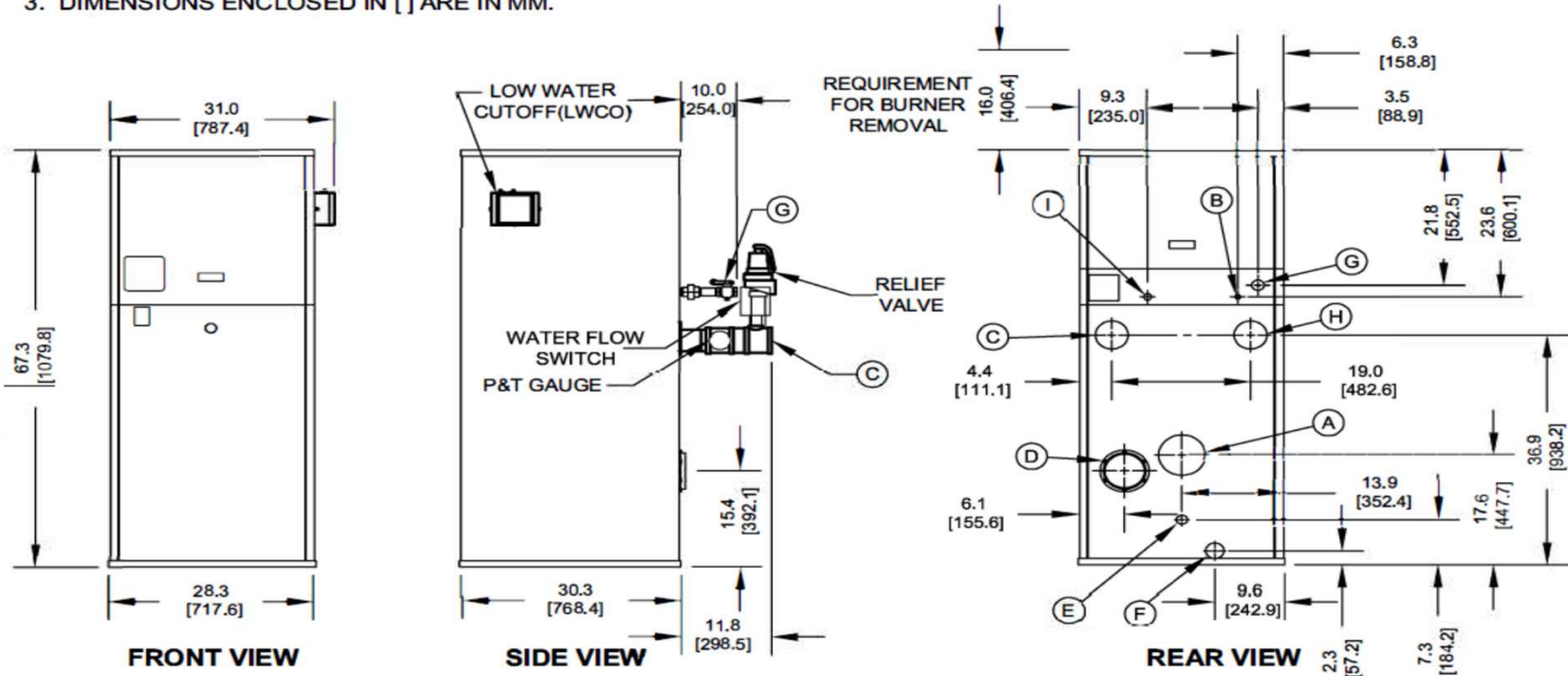


# EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

**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, 6" [152.4] 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 1/2" NPT
(H)	WATER RETURN FROM SYSTEM, 3" NPT
(I)	GAS VENT, 3/4" NPT (D.B.&B. & D.B.&B. w/POC ONLY)

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RATINGS AND CAPACITIES		
Input (MBH):	<b>1,000,000</b>	BTU/HR
Output (MBH):	<b>850,000</b>	BTU/HR
Boiler Horsepower:	<b>25.4</b>	BTU/HR
Thermal Efficiency:	<b>85.0%</b>	BHP
Heating Surface:	<b>175</b>	Sq.Ft.
Water Content:	<b>16.4</b>	Gallons
Fuel:	<b>Natural Gas or LP Gas</b>	
Firing Rate:	<b>Reliable Modulation</b>	
Burner Turndown:	<b>3:1</b>	
Low NOx Emissions:	<b>&lt;10 ppm</b>	
Inlet Gas Pressure (NG):	<b>4" wc - 14" wc*</b>	
Inlet Gas Pressure (LP):	<b>4" wc - 14" wc*</b>	
* This data supercedes data found on Table 3 of I&O Manual, per PRODUCT UPDATE issued June 6, 2024.		
Shipping Weight, Approximate:	<b>1,185</b>	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:	<b>67 3/8"</b>	(Note 1)
Width:	<b>28 3/8"</b>	(Note 2)
Length:	<b>30 3/8"</b>	(Note 3)
Supply Connection:	<b>3"</b>	
Return Connection:	<b>3"</b>	
Vent / Air Intake Connections:	<b>6" Vent</b>	<b>6" Intake</b>
Condensate / Boiler Drain Connection:	<b>5/8" Condensate Tube</b>	<b>1" NPT Pipe, Boiler</b>
Gas Connection:	<b>1 1/2"</b>	

FLOWS AND PRESSURE DROPS		
Delta T	Flow (GPM)	Δ P (Ft. Hd)
20°F Δ T	<b>82 (Max)</b>	<b>3.24</b>
40°F Δ T	<b>41 (Min)</b>	<b>0.81</b>

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

**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 venting (Cat II)  
*NOTE: This is NOT a Cat I 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:

- |                                    |                                    |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> 850 MBH   | <input type="checkbox"/> 1,200 MBH |
| <input type="checkbox"/> 2,000 MBH | <input type="checkbox"/> 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>
<i>Parts Only</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Parts and Labor</i>	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 Damper
- 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