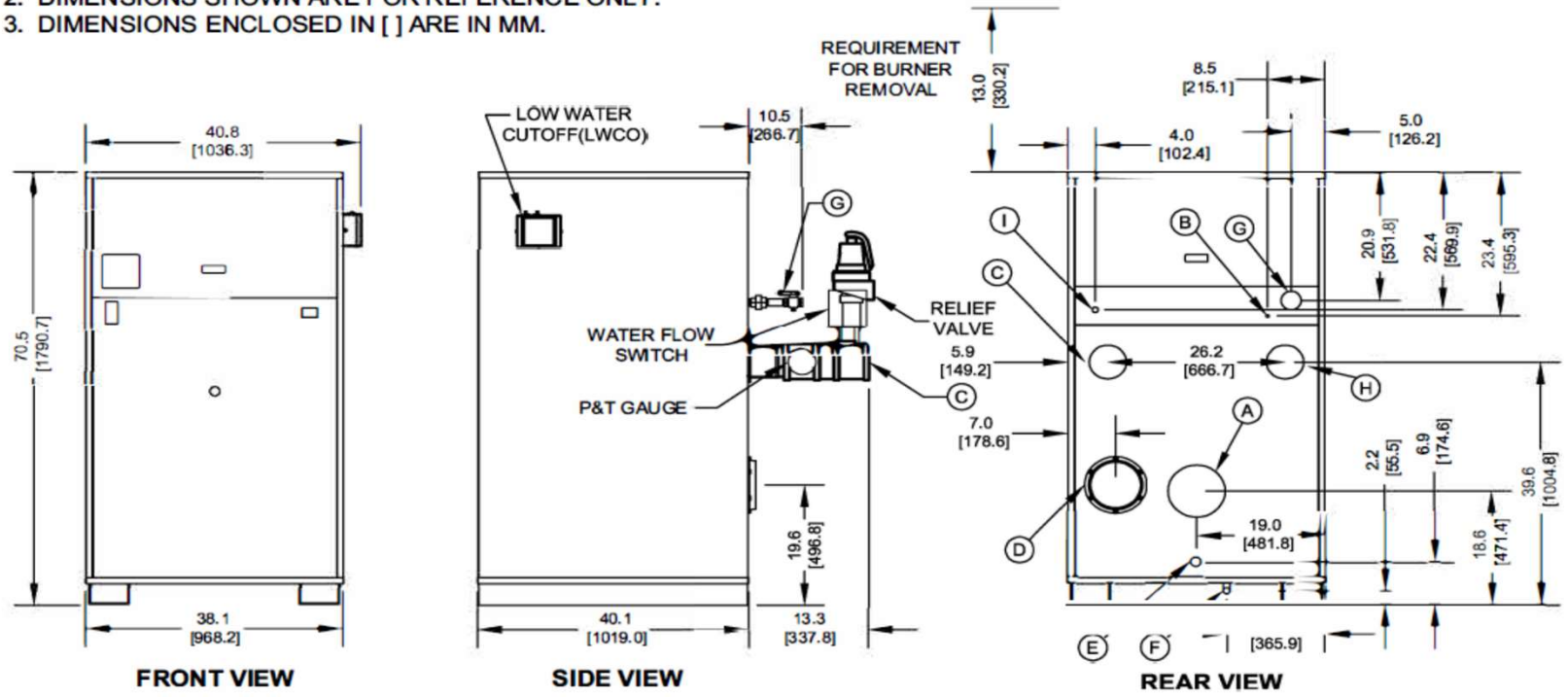
EVOLUTION EVA NON-CONDENSING BOILERS - SUBMITTAL DATA SHEET

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, 4" NPT
D	INLET AIR, 8" [203.2] 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, 4" 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):	**2,000,000**	BTU/HR
Output (MBH):	**1,732,000**	BTU/HR
Boiler Horsepower:	**51.7**	BTU/HR
Thermal Efficiency:	**86.6%**	BHP
Heating Surface:	**411**	Sq.Ft.
Water Content:	**40.1**	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:	**1,835**	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:	**70 1/2"**	(Note 1)
Width:	**38 1/8"**	(Note 2)
Length:	**40 1/8"**	(Note 3)
Supply Connection:	**4"**	
Return Connection:	**4"**	
Vent / Air Intake Connections:	**6" Vent**	**8" Intake**
Condensate / Boiler Drain Connection:	**5/8" Condensate Tube**	**1" NPT Pipe, Boiler**
Gas Connection:	**1 1/2"**	

FLOWS AND PRESSURE DROPS

Delta T	Flow (GPM)	△ P (Ft. Hd)
20°F △ T	**173** *(Max)*	**4.27**
40°F △ T	**87** *(Min)*	**1.36**

Electrical Supply Options

☐	120v/60hz/1ph *(Standard)*	7.5 Amps
☐	208v/60hz/1ph	6.6 Amps
☐	230v/60hz/1ph	6.4 Amps
☐	208v/60hz/3ph	6.0 Amps
☐	230v/60hz/3ph	6.0 Amps
☐	460v/60hz/3ph	3.0 Amps

Blower Motor (hp)

1-1/2 hp

Relief Valve Options

☐	30 psi	☐	50 psi	☐	60 psi
☐	75 psk	☐	100 psi	☐	125 psi
☐	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

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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 ceremic burner
Ultr-low NOx emissions (<10ppm)
Whisper quet operation (<50 dBA)
Industustrial-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 swtich
Low water cut-off with manual reset safety controller
Outlet temperature sensor
Combustion air switch
Pressure and temperature gauge
Safety relief valve (Optional pressuress 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 △T
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:

	3-Year	5-Year	10 Year
Parts Only	☐	☐	☐
Parts and Labor	N/A	☐	☐

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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
  (Enviracom 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 10 alarm messages & data

Modulation Rate

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