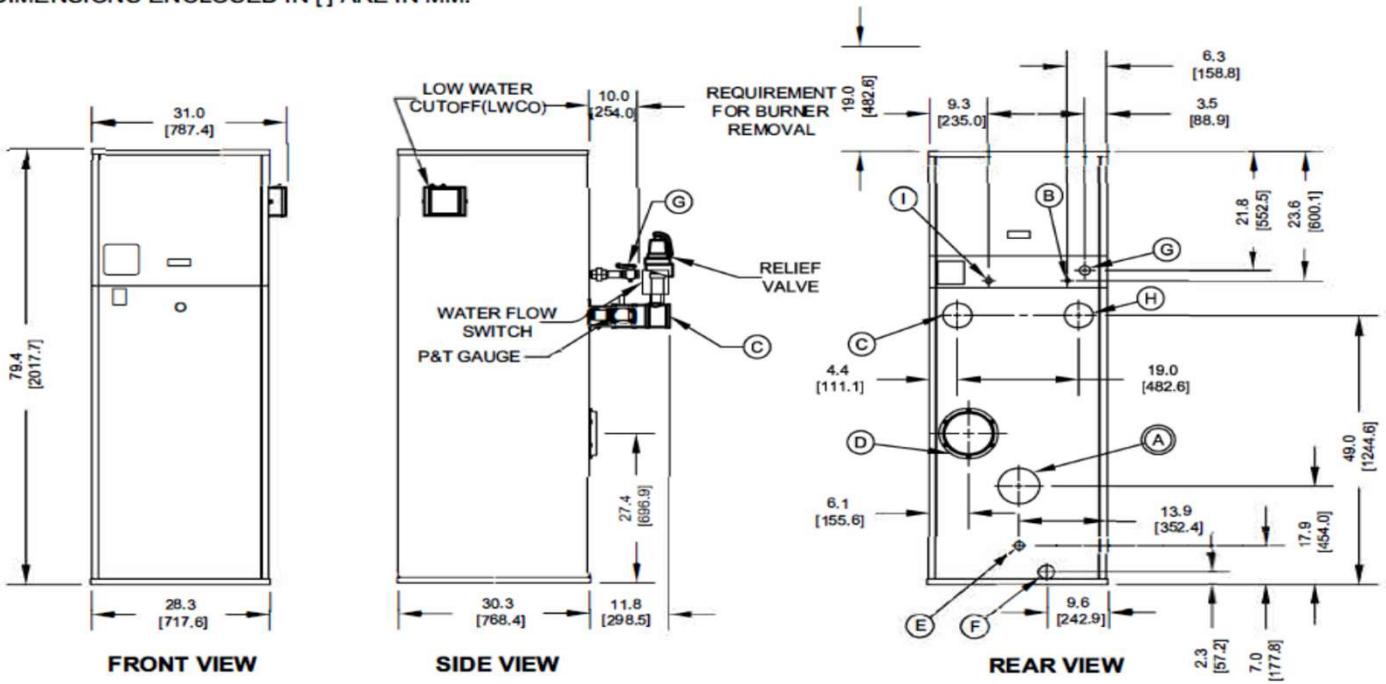
EVOLUTION EVSW NON-CONDENSING WATER HEATERS - SUBMITTAL DATA SHEET

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



CONNECTION 1	DESCRIPTION
CA	FLUE OUTLET, 4" [101.6] DIAMETER (AL29-40 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, WATER HEATER, 1" NPT
(G	GAS SUPPLY, 1" NPT
(1-)	WATER RETURN FROM SYSTEM, 3" NPT
Q.)	GAS VENT, 3/4" NPT (D.B.&B. & D.B.&B. w/POC ONLY)

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RATINGS AND CAPACITIES

Input (MBH):	**1,500,000**	BTU/HR
Output (MBH):	**1,230,000**	BTU/HR
Water Heater Horsepower:	**36.7**	BTU/HR
Thermal Efficiency:	**82.0%**	BHP
Heating Surface:	**264**	Sq.Ft.
Water Content:	**17.4**	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:	**1,402**	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 HW 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

Width:	**28 3/8"**	(Note 2)
Length:	**30 3/8"**	(Note 3)
Supply Connection:	**3"**	
Return Connection:	**3"**	
Vent / Air Intake Connections:	**6" Vent**	**8" Intake**
Condensate / Water Heater Drain Connection:	**5/8" Condensate Tube**	**1" NPT Pipe, Water Heate**
Gas Connection:	**1 1/2"**	

FLOWS AND PRESSURE DROPS

Delta T	Flow (GPM)	△ P (Ft. Hd)
20°F △ T	***120*** *(Max)*	**7.37**
40°F △ T	**63** *(Min)*	**1.85**

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.

Water Heater EQUIPMENT

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 (Water Heater Circulation Pump, Pump Flange Kit and Condensate Neutralizer) Sized based
Annual Maintenance Kit
Supply System temperature sensor
ModBus communication for Siemens RWF55 and Honeywell Flame Safeguard Control (Water Heater to BMS System)
Universal com. gateway (BacNet MS/TP, BacNet/IP, LonWorks)
Local / remote switch
Alarm bell with silencing switch
Relays: ☐ General Alarm ☐ Water Heater S
Conductor Sequencing Panel: (Required for multiple EVA Water Heater applications without BMS); Contact Regional Manager with Questions.)
The Conductor manages multiple condensing & non-condensing, small & large heat output, new and/or existing Water Heaters (full modulation), and steam or hot water applications. It helps improve system efficiency by selecting and modulating the right Water Heater to match operating conditions. The Conductor offers a single point Water Heater 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)

Water Heater Monitoring and Diagnostic Displays

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

Modulation Rate

- Various Water Heater 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 Water Heater 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) Water Heaters.
- Selectable Lead Water Heater rotation, 8-720 hours
- RJ45 plug in connections between units (Requires splitter)
- Rotation off feature for complex installations

Warm Weather Shutdown (WWSD)

- Water Heaters used primarily for building heat automatically shutdown when outdoor air temperature is warm.
- Saves energy by preventing Water Heater, 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 Water Heaters and 200F for water heaters
- Defineable min setpoint to reduce chance of condensing
- 3 pump control capable, Water Heater, DHW, System