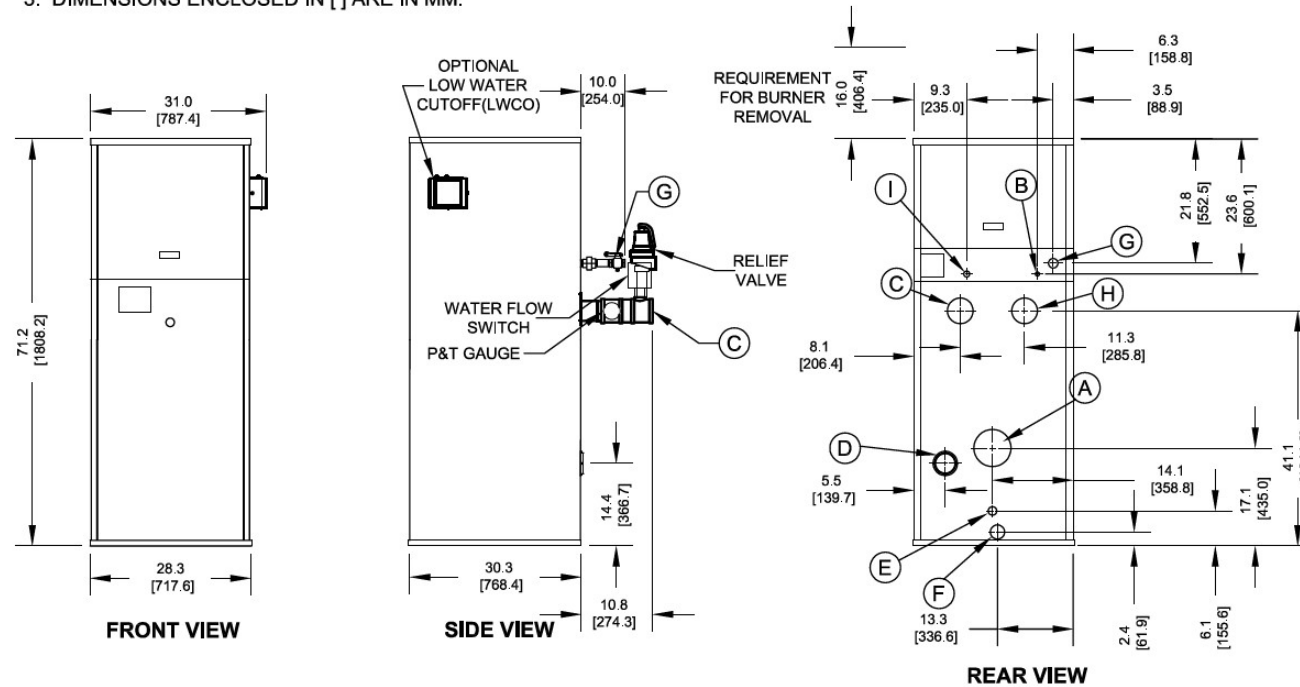


Submittal Data Sheet

NOTES:

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



KEY	DESCRIPTION	
A	Flue Outlet	4" [101.6] Diameter (AL29-4C SS)
B	Factory Installed Pilot Gas Li	1/4" [6/4] O.D. Tube
C	Water Supply to System	2" NPT
D	Inlet Air	4" [101.6] Diameter
E	Drain, Startup Condensate	5/8" [15.9] O.D. Tube SS
F	Appliance Drain	1" NPT
G	Gas Supply	1" NPT
H	Water Return from System	2" NPT
I	Optional Gas Train Vent	3/4" NPT (D.B.&B & D.B.&B w/ POC Only)

Submittal Data Sheet

RATINGS AND CAPACITIES

Input (MBH):	500,000	BTU/HR
Output (MBH):	431,000	BTU/HR
Boiler Horsepower:	0.0	BTU/HR
Thermal Efficiency:	86.2%	BHP
Heating Surface:	123	Sq.Ft.
Water Content:	6.1	Gallons
Fuel:	Natural Gas or LP Gas	
Firing Rate:	Reliable Modulation	
Burner Turndown:	3:1	
Low NOx Emissions:	<10 ppm	
Inlet Gas Pressure (NG):	See Chart at right	
Inlet Gas Pressure (LP):	See Chart at right	

* This data supercedes data found on Table 3 of I&O Manual, per PRODUCT UPDATE issued June 6, 2024.

Shipping Weight, Approximate: **772** 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.)

UL Certified to ANSI Z21.13 / CSA 4.9

UL Certified to UL 795 / CSA 3.1



DIMENSIONS / CONNECTIONS

Height:	71 1/4"	(Note 1)
Width:	28.3"	(Note 2)
Length:	30.3"	(Note 3)
Supply Connection:	2" NPT	
Return Connection:	2" NPT	
Vent / Air Intake Connections:	4" Vent	4" Intake
Condensate / Appliance Drain Connection:	5/8" Condensate Tube	1" NPT Drain
Gas Connection:	1"	

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

FLows AND PRESSURE DROPS

Delta T	Flow (GPM)	ΔP (Ft. Hd)
20°F ΔT	43 (Max)	2.93
40°F ΔT	22 (Min)	0.74

Electrical Supply Options

<input type="checkbox"/>	120v/60hz/1ph (Standard)	4.5 amps
<input type="checkbox"/>	208v/60hz/1ph	3.5 amps
<input type="checkbox"/>	230v/60hz/1ph	3.4 amps
<input type="checkbox"/>	208v/60hz/3ph	3.0 amps
<input type="checkbox"/>	230v/60hz/3ph	2.9 amps
<input type="checkbox"/>	460v/60hz/3ph	1.5 amps

Blower Motor (hp)

1/2

Relief Valve Options

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

Inlet Gas Pressure

SIZE	Nat. Gas Min. ("w.c.)	LP Min. ("w.c.)	Max
500	5.0" w.c.	8.0" w.c.	14.0" w.c.
750	7.0" w.c.*		
1000	7.0" w.c.*		
1500	7.0" w.c.*		
2000	9.0" w.c.*	9.0" w.c.	
2000s	7.0" w.c.	8.0	
2500	6.0" w.c.		
3000	6.0" w.c.		

* NOTE: Optional natural gas train with 4" w.c. minimum inlet gas pressure ONLY AVAILABLE on sizes 750, 1000, 1500 & 2000.

Submittal Data Sheet

STANDARD EQUIPMENT		OPTIONAL EQUIPMENT	
<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>PRESSURE VESSEL DESIGN</u></div> <p>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</p>	<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>BOILER EQUIPMENT</u></div> <p>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 pressure 30 - 150 PSI; See details above.) Single point electrical supply: (Available in: 1 and 3 phase options. See details above.)</p>	<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>OPTIONAL EQUIPMENT</u></div> <p style="font-size: small; color: #666;">Low gas pressure venturi, 4" wc (AVAILABLE ONLY on Models 750-2000) [FACTORY INSTALLED OPTION ONLY]</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Honeywell 7800 Series display with ModBus Module <input type="checkbox"/> Line Reactor Adds voltage / spike protection for the blower's VFD. (For areas with dirty voltage) <input type="checkbox"/> Outdoor Air Sensor <input type="checkbox"/> Condensate neutralizer: <div style="display: flex; justify-content: space-between; font-size: x-small;"> <input type="checkbox"/> 850 MBH <input type="checkbox"/> 1,200 MBH </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <input type="checkbox"/> 2,000 MBH <input type="checkbox"/> 5,000 MBH </div> </div> <div style="width: 50%;"> <input type="checkbox"/> Pump Kit (Boiler Circulation Pump, Pump Flange Kit Sized based on a 20°F Delta T) <input type="checkbox"/> Annual Maintenance Kit <input type="checkbox"/> System Temperature Sensor <input type="checkbox"/> Universal com. gateway (BacNet MS/TP, BacNet/IP, LonWorks) <input type="checkbox"/> Local / Remote Switch for Enable / Disable <input type="checkbox"/> Alarm bell with silencing switch <input type="checkbox"/> Relays: <input type="checkbox"/> General Alarm <input type="checkbox"/> Boiler Status <input type="checkbox"/> Conductor Sequencing Panel: (Contact Regional Manager with Questions.) </div> </div> <p style="font-size: x-small; color: #666;">The Conductor Sequencing Panel 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.</p>	
<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>COMBUSTION DESIGN</u></div> <p>Maintenance-free ceramic burner Ultr-low NOx emissions (<10ppm) Whisper quiet operation (<50 dBA) Easy to service, 99% efficient industrial air filter Industrial cast aluminum blower assembly VFD Driven Blower Reliable electric spark-to-pilot ignition 10-year burner warranty Honeywell UV-Scanner</p>	<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>BURNER EQUIPMENT</u></div> <p>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</p>		
<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>VENTING</u></div> <p>Sealed or room air combustion Direct vent (sidewall or vertical) (Cat IV) Conventional venting (Cat II) <i>NOTE: This is NOT a Cat I Vent appliance.</i></p>	<div style="background-color: #ccc; text-align: center; padding: 2px; margin-bottom: 5px;"><u>TSBC Control Features</u></div> <p>Advanced Boiler Modulation or Setpoint Intelligent Multiplier Boiler Staging (8 Boilers) Building Management (BMS) Interface Outdoor Air Temperature Reset Warm Weather Shutdown Domestic Hot Weather Priority Auxiliary Device Control <div style="margin-left: 20px;"> <input type="checkbox"/> Boiler Pump <input type="checkbox"/> System Pump </div> Adjustable setpoint or burner modulation with 1-9vDC input from BMS </p>		
Extended Warranty Options Available:			
<u>Parts Only</u>	<u>3-Year</u>	<u>5-Year</u>	<u>10 Year</u>
<u>Parts and Labor</u>	<input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>

TSBC CONTROL FEATURES



Flexible, Field Selectable Control

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

Boiler Monitoring and Diagnostic Displays

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

Modulation Rate

- Modbus or 1-9VDC input boiler modulation control options
- Choice of six different control modes
- Adjustable PID for local or remote control

Advanced Availability

- If optional header sensor fails, TSBC automatically reverts back to the outlet sensor to allow continued 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
- Pump Overrun for Heat Dissipation
- Boiler Pump

Peer-to-Peer Network

- Lead-lag sequencing for up to eight (8) boilers.
- Selectable Lead boiler rotation, 8-720 hours
- RJ11 plug in connections between units (Requires splitter)
- Rotation off feature for complex installations

Warm Weather Shutdown (WWSD)

- Boilers used primarily for building heat will automatically shut down when outdoor temp reaches programmable WWSD setpoint.
- 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)
- Rotation enable and disable
- 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