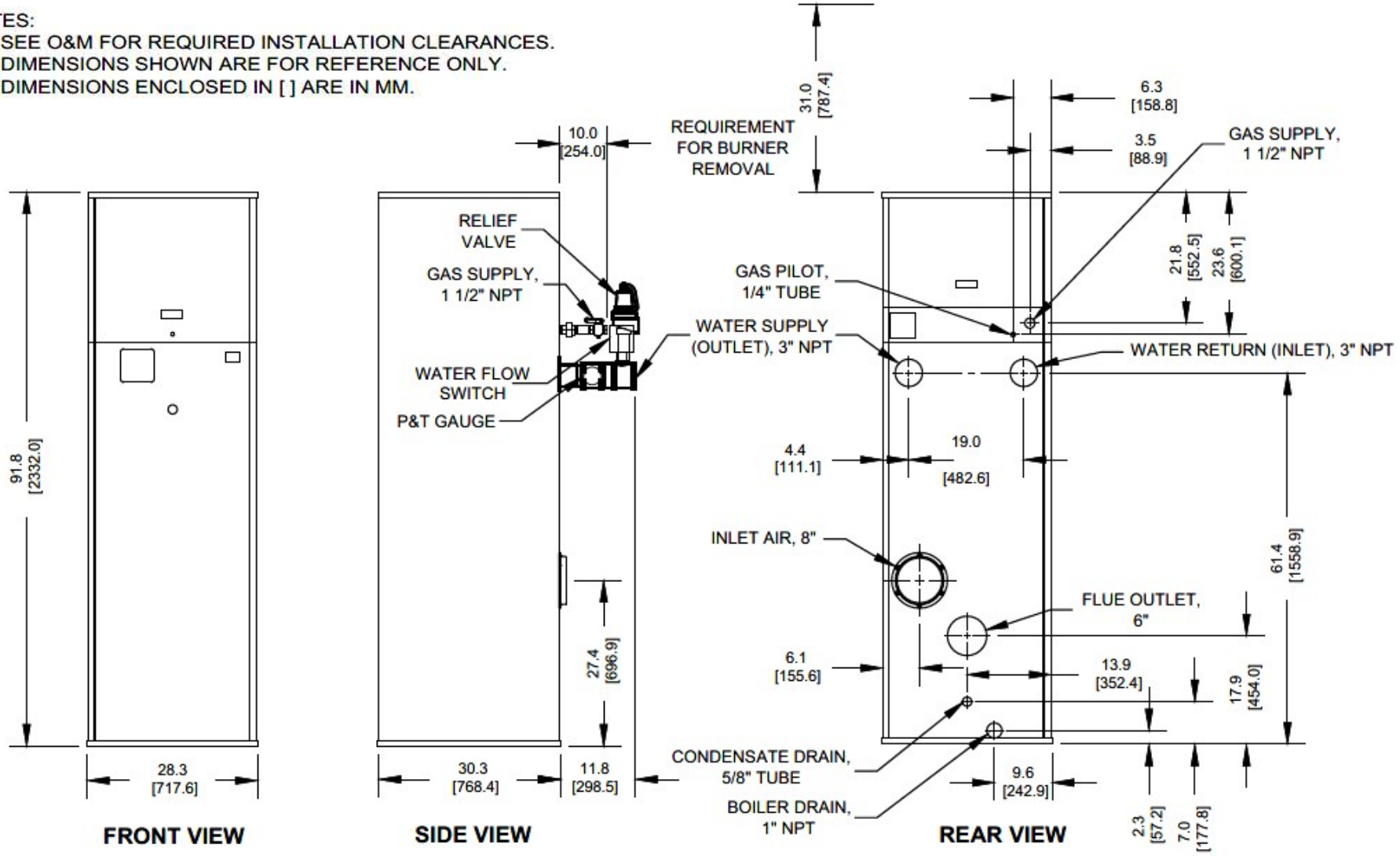
Submittal Data Sheet

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



Submittal Data Sheet

RATINGS AND CAPACITIES

Input (MBH):	**2,000,000**	BTU/HR
Output (MBH):	**1,640,000**	BTU/HR
Boiler Horsepower:	**49.0**	BTU/HR
Thermal Efficiency:	**82.0%**	BHP
Heating Surface:	**352**	Sq.Ft.
Water Content:	**18.5**	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: **1,536** lbs

ASME Section IV (Max 160 PSIG / 210°F)
Setpoint range is 145-190°F
Adjustable, manual reset high limit setting of ≤ 200°F.
ASME HLW stamp MAWT is 210°F for the vessel. (For max setpoint, see Setpoint range.)

UL Certified to ANSI Z21.10.3/CSA 4.3

DIMENSIONS / CONNECTIONS

Height:	**91 7/8"**	(Note 1)
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 / Appliance Drain Connection:	**5/8" Condensate Tube**	**1" NPT Drain**
Gas Connection:	**1 1/2"**	

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)	△P (Ft. Hd)
20°F△T	**170** *(Max)*	**13.27**
40°F△T	**85** *(Min)*	**3.32**

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

Relief Valve Options

☐	125 psi (STANDARD)
☐	150 psi (OPTIONAL)

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. minumum inlet gas pressure ONLY AVAILABLE on sizes 750, 1000, 1500 & 2000.**

Submittal Data Sheet

STANDARD EQUIPMENT

PRESSURE VESSEL DESIGN

Copper Fin-tube construction
Bronze 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
Ultr-low NOx emissions (<10ppm)
Whisper quet 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

VENTING

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

BOILER 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

TSBC Control Features

Advanced Boiler Modulation or Setpoint
Intelligent Multipler Boiler Staging (8 Boilers)
Building Management (BMS) Interface
Outdoor Air Temperature Reset
Warm Weather Shutdown
Domester Hot Weather Prioity
Auxiliary Device Control
- Boiler Pump
- System Pump

Adjustable setpoint or burner modulation with 1-9vDC input from BMS

OPTIONAL EQUIPMENT

- ☐ Low gas pressure venturi, 4" wc (AVAILABLE ONLY on Models 750-2000) [FACTORY INSTALLED OPTION ONLY]
- ☐ Honeywell 7800 Series display with ModBus Module
- ☐ Line Reactor Adds voltage / spike protection for the blower's VFD. (For areas with dirty voltage)
- ☐ Outdoor Air Sensor
- ☐ Condensate neutralizer:
  - ☐ 850 MBH ☐ 1,200 MBH
  - ☐ 2,000 MBH ☐ 5,000 MBH
- ☐ Pump Kit (Boiler Circulation Pump, Pump Flange Kit Sized based on a 20°F Delta T
- ☐ Annual Maintenance Kit
- ☐ System Temperature Sensor
- ☐ Universal com. gateway (BacNet MS/TP, BacNet/IP, LonWorks)
- ☐ Local / Remote Switch for Enable / Disable
- ☐ Alarm bell with silencing switch
- ☐ Relays: ☐ General Alarm ☐ Boiler Status
- ☐ Conductor Sequencing Panel: (Contact Regional Manager with Questions.)

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.

Extended Warranty Options Available:

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

Submittal Data Sheet

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 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 remode 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