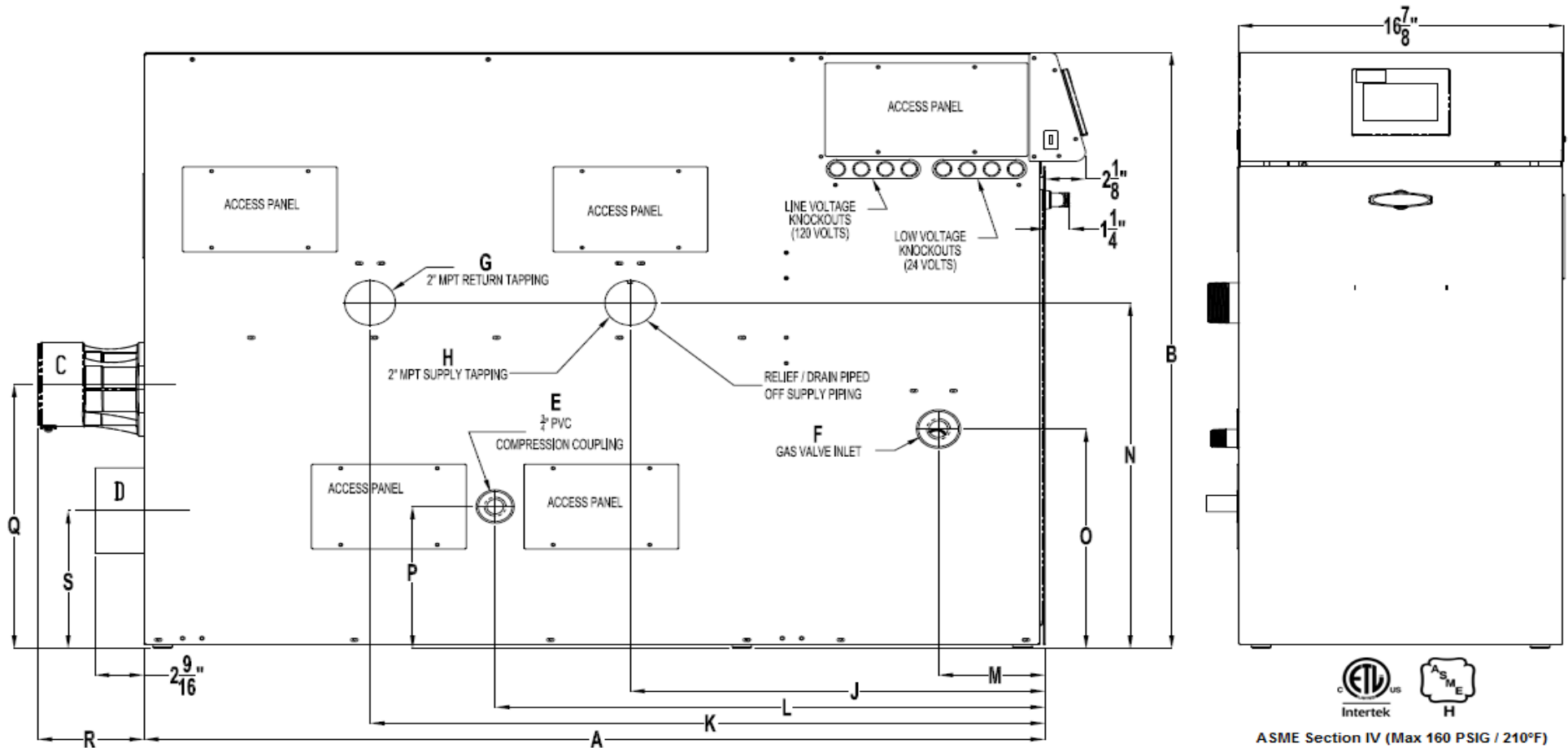


# APEX COMMERCIAL CONDENSING BOILERS - SUBMITTAL DATA SHEET



ASME Section IV (Max 160 PSIG / 210°F)

## RATINGS AND CAPACITIES

APEX MODEL	INPUT		GROSS OUTPUT (BTU/HR)	BOILER HORSEPOWER (BHP)	THERMAL EFFICIENCY (%)	HEATING SURFACE (SQ.FT.)	WATER CONTENT (GALLONS)	BURNER MODULATION TURNDOWN	FUEL [1]				FLOW AND PRESSURE DROPS								SHIPPING WEIGHT (LBS)
	MIN (BTU/HR)	MAX (BTU/HR)							NATURAL GAS		PROPANE		20°F Δ T (Max)		25°F Δ T		30°F Δ T		35°F Δ T (Min)		
									MIN	MAX	MIN	MAX	FLOW (GPM)	Δ P (FT.HD.)	FLOW (GPM)	Δ P (FT.HD.)	FLOW (GPM)	Δ P (FT.HD.)	FLOW (GPM)	Δ P (FT.HD.)	
APX525C	100,000	500,000	485,000	14.5	97.0%	58	4.3	5:1	4" WC	14" WC	8" WC	14" WC	48.5	13.6	38.8	9.3	32.3	6.8	27.7	5.2	368

[1] Product is built for Natural Gas firing, but can be converted over to Propane firing with field adjustments.

## DIMENSIONS

Length (A) .....	46-1/2"	Return Connection (G) .....	2" MPT	Floor to Supply/Return *Connections (N) .....	20-5/16"
Height (B) .....	35-1/16"	Supply Connection (H) .....	2" MPT	Floor to Gas Valve *Connections (O) .....	12-3/8"
Width .....	16-7/8"	Front to Relief Valve/Drain *Connection (I) .....	21-5/16"	Floor to Condensate Drain *Connection (P) .....	8-5/16"
Vent Connection (C) .....	4" CPVC/PP/SS	Front to Supply *Connection (J) .....	21-5/16"	Floor to Vent *Connection (Q) .....	15-1/2"
Air Intake Connection (D) .....	4" PVC	Front to Return *Connection (K) .....	34-13/16"	Floor to Air Intake *Connection (S) .....	8-1/8"
Condensate Drain Connection (E) .....	3/4"	Front to Condensate Drain *Connection (L) .....	28-5/16"	Rear to Vent Connection (R) .....	5-1/2"
Gas Valve Inlet Connection (F) .....	3/4" FPT	Front to Gas Valve Inlet *Connection (M) .....	5-3/8"	Rear to Air Intake Connection .....	2-9/16"
Relief Valve/Boiler Drain **Connection .....	3/4" FPT	* Dimension is to the Centerline of the Connection		** Piped off Supply Piping	

## APX525C



PO BOX 3244 | LANCASTER, PA 17601  
 INNOVATIVE EQUIPMENT FOR  
 HOT WATER SYSTEMS  
 WWW.THERMALSOLUTIONS.COM

# STANDARD EQUIPMENT - MODEL APX525C



## APEX CONDENSING BOILER

### PRESSURE VESSEL DESIGN

\*ASME Stainless Steel Heat Exchanger  
ASME Section IV Certified, "H" Stamp  
MAWP 160 PSIG & Max Temp 210°F  
Ten Year Limited Heat Exchanger Warranty

### COMBUSTION DESIGN

Stainless Steel Mesh Pre-Mix Burner  
Low NOx Emissions (<20 ppm)  
Full Modulation, 5:1 Turndown  
Natural or LP Gas  
4" wc to 14" wc inlet gas pressure  
Direct Spark Ignition System  
Zero governor gas valve  
Variable Speed Combustion Blower  
Air Proving Switch

### BOILER EQUIPMENT

\*Concert Boiler Control (24 Vac)  
High Limit w/Auto Reset Temperature Control  
High Limit w/Manual Reset Safety Temperature Control  
Water Flow Switch  
Supply & Return Water Temperature Sensors  
Flue Gas Temperature Sensor  
Outdoor Air Temperature Sensor  
Air Vent Valve  
Boiler Drain Valve  
Condensate trap  
Stacking boiler brackets  
Pressure & Temperature Gauge  
ASME Safety Relief Valve, 50 Psig

### VENTING

\* 3-In-1 Vent Connector  
- CPVC, Polypropylene or Stainless Steel  
- Combustion Analyzer Test Port  
PVC Vent Kit:  
- 30" CPVC Pipe, Schedule 40  
- 90° elbow, Schedule 80  
- (2 qty) vent terminals w/ rodent screens  
Vent - Horizontal or Vertical (Cat. IV)  
- Up to 100 Equivalent Feet  
Air Intake - Sealed or Room Air (Cat. IV)  
- Up to 100 Equivalent Feet

### ELECTRICAL DESIGN

120VAC/60HZ/1PH - High Voltage PCB  
- Amp Draw (< 6)  
- Three sets of Pump Contacts (Boiler, DHW, System)  
- PCB (Printed Circuit Board) Fused Connections  
24VAC/5VDC - Low Voltage PCB  
- 24VAC Contacts for Enable/Disable Sensor, DHW Demand, Low Water Cutoff, Proving Switch or Auto or Manual Reset External Limit, Lockout Alarm, EnviraCom Thermostat & Flow Switch  
- 5VDC Contacts for Remote Header Sensor, DHW Tank Sensor, Outdoor Air Sensor, Peer-To-Peer Communication, EMS Interface & Remote 4-20mA  
- RJ45 Jacks (Qty 2) Peer-To-Peer or ModBus Optional Connections  
- PCB (Printed Circuit Board) Fused Connections

\* Unique to Thermal Solutions

## CONCERT BOILER CONTROL

### Dashboard - Color Touchscreen Display, 4.3"

- Intuitive Icon Navigation  
- "Quick" Setup Menus  
- \*Real Time BTU/H Display

### Two (2) Temperature Demand Inputs

- Outdoor Air Reset Curve for Each Input  
- Time of Day Setback Capability  
(EnviraCom Thermostat must be installed)

### Three (3) Pump Control

- Boiler Pump With On/Off or Variable Speed Control  
- Domestic Hot Water (DHW) Pump  
- System Pump  
- Alternative Control to Isolation Valve, Combustion Air Damper or Standby Loss Damper  
- Pump Overrun for Heat Dissipation  
- Pump Exercise  
- Pump Rotor Seizing Protection

### Peer-to-Peer Boiler Communications

- Multiple Size Boiler Sequencing Up to 8 Units  
- \*Two (2) Boiler Start/Stop Trigger  
- Lead Boiler Automatic Rotation

### Energy Management System (EMS) Interface

- \*Firing Rate and Water Temperature Based Algorithms for Multiple Boilers; loss of EMS signal defaults to local boiler settings  
- 4-20mA Input/Output (0-10Vdc Optional Converter)  
- ModBus Input/Output (BACnet or LonWorks Optional Gateway)  
- Simultaneous Interface with Peer-to-Peer

### \*USB Data Port Transfer

- Upload Settings Between Boilers  
- Download Parameters for Troubleshooting  
- Import Data into .CRV Formatted Files for Performance Analysis

### Energy Efficiency Enhancer

- Anti-Cycling Technology  
- Multiplier boiler base load common rate  
- Outdoor Air Temperature Reset Curve  
- Warm Weather Shutdown  
- Boost Temperature & Time  
- Ramp Delay  
- Over-Temperature Safeguarding

### Self-Guiding Diagnostics

- Identifies Fault  
- Describes Possible Problems  
- Provides Corrective Actions  
\*Time/Date Stamp on Alarms and Lockouts

### Unmatched Archives

- Historical Trends - Collects Up to 4 months Data  
- Event History - Up to 3000 Alarms, Lockouts and Cycle & Run Times  
- Alarm - Limit String Faults, Holds, Lockouts and Others  
- Cycle & Run Time - Boilers & Pumps  
- Resettable (Lockouts/Alarms/Cycles & Run Time)

### Domestic Hot Water Priority

- DHW Tank Piped With Priority in the Boiler Loop  
- DHW Tank Piped as a Zone in the System With the Pumps Controlled by the Concert Control  
- DHW Modulation Limiting  
Status Screens  
Sensor Monitoring and Control

### Other Features

- \*Factory Default Settings  
- Three Level Password Security  
- Frost Protection  
- Contractor Contacts (Up to 3)  
- Low Water Flow Safety Control & Indication  
- Proportion Integral Derivative (PID) Parameters for Central Heat, DWH, Sequencer and Fan  
- Built-in Brown-Out Protection

## OPTIONAL EQUIPMENT

\_\_\_\_\_ Hydronic Kit (Boiler Circulation Pump - Constant Speed or Eco Propel™, Pump Flange Kit, ASME CSD-1 Compliant Kit, Low Water Cutoff with Manual Reset and Condensate Neutralizer)

\_\_\_\_\_ ASME CSD-1 Kit (includes High & Low Gas Pressure Switches, Manual Reset)

\_\_\_\_\_ Low Water Cut-Off, Manual Reset

\_\_\_\_\_ Condensate Neutralizer

\_\_\_\_\_ 80 psig Relief Valve

\_\_\_\_\_ 100 psig Relief Valve

\_\_\_\_\_ Header Sensor, Direct Immersion

\_\_\_\_\_ Header Sensor, Well Immersion (with Well)

\_\_\_\_\_ Wireless Outdoor Air Temperature Kit

\_\_\_\_\_ Universal Communications Gateway (BACnet, Metasys, Modbus or Lonworks)

\_\_\_\_\_ 0-10Vdc Input Converter

\_\_\_\_\_ IPEX Low Profile Sidewall Termination Kit