

Twice the power, half the space.



399-999 MBH

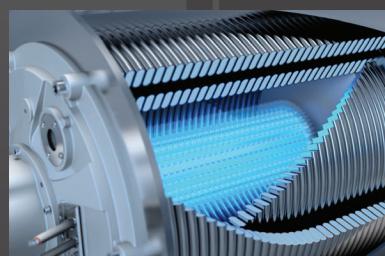


1250 & 1500 MBH



Commercial High Efficiency  
Condensing Boilers & Water Heaters

- Stackable/rackable
- Streamlines replacement
- Simplified specification & installation
- Reliability & serviceability



**USB** **Connect**  
C O M P A T I B L E

# Citadel (399-999 MBH) Boilers & Water Heaters



- CSD-1 compliant
- Stackable, hardware included
- Zero clearance on sides & top
- Fits through 30" doorways
- Modbus connectivity, cascade up to 8 individual units
- Indoor/outdoor construction
- 10:1 turndown, natural gas or LP
- Easy service and maintenance – complete service access to burner, combustion chamber, and slide-out boiler control vestibule
- USB Connect compatible (see back for details)
- Warranty: 10-year limited heat exchanger, 1-year parts & burner



#### PRESSURE VESSEL

- Stainless steel watertube heat exchanger
- Stainless steel inlet and outlet manifolds
- ASME Section IV-certified
- MAWP 160 PSIG
- CSD-1 compliant

#### COMBUSTION

- Stainless steel pre-mix burner
- Low NOx emissions (<10 ppm);
- Full modulation, 10:1 turndown
- 4" wc to 14" wc inlet gas pressure
- 8" wc LP min
- Direct spark ignition system
- High/low gas pressure switches w/ manual reset
- Combustion air switch

- Zero governor gas valve
- Variable speed combustion blower
- Air proving switch & blocked vent switch

#### VENTING

- 3-in-1 connector
- 100' equivalent exhaust, 100' equivalent intake
- CPVC, polypropylene or stainless steel acceptable
- Air intake; sealed combustion or room air
- Category II or IV venting
- Individual or common (engineered) venting systems

#### EQUIPMENT

- Concert™ control
- High limit w/ manual reset safety temperature control
- Low water cutoff w/ manual reset

- Water flow switch
- Supply & return, and water temperature sensors
- Flue gas temperature sensor
- Condensate trap
- Blocked condensate switch
- Pressure & temperature gauge
- ASME safety temperature & pressure relief valve (75 PSI boilers, 125 PSI water heaters)

#### ELECTRICAL

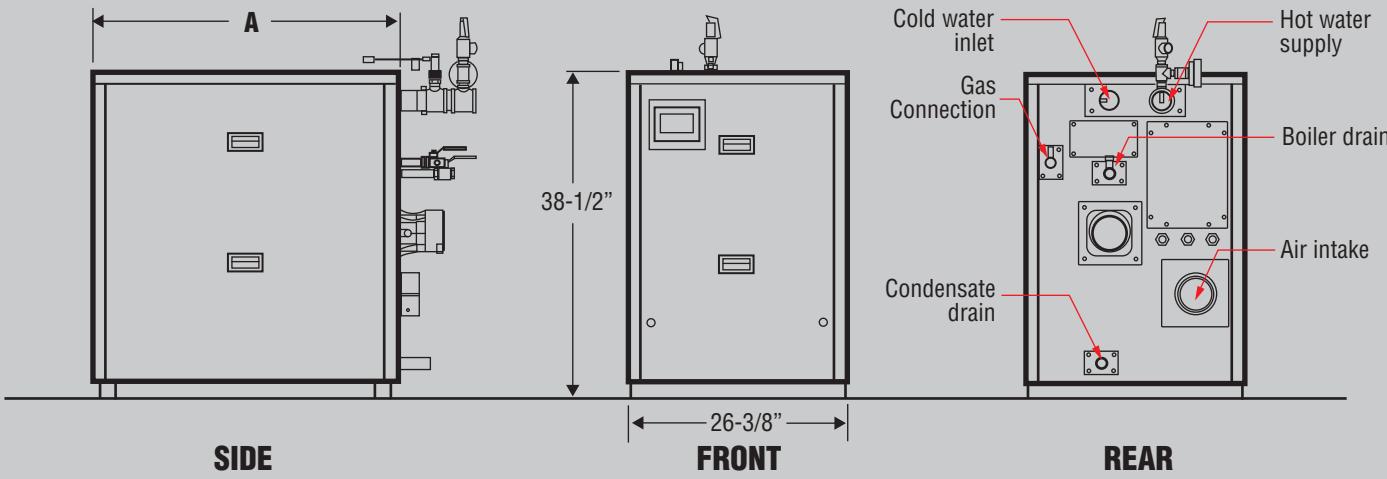
- High voltage printed circuit board (PCB)
- 120 VAC / 60 Hz / 1PH power supply
- 120 VAC manual reset external limit contacts
- Three sets of pump contacts
- PCB fused connections
- Printed circuit board (PCB)
- 24 VAC enable/disable sensor contacts

- 24 VAC proving switch or manual reset ext. limit contacts
- 24 to 120 VAC lockout alarm contacts
- DHW demand contacts
- Remote header sensor contacts
- DHW tank sensor contacts
- Peer-to-peer communication contacts
- EMS interface contacts
- Remote 4-20mA contacts

**Citadel 400-1000 Dimensions (Inches)**

Model*	A	Vent Connection	Gas Connection (NPT)	Supply (NPT)	Return (NPT)
CTD & CTDV-400	36-1/2	4	3/4	2	2
CTD & CTDV-500	36-1/2	4	3/4	2	2
CTD & CTDV-650	53-3/8	6	1	2	2
CTD & CTDV-800	53-3/8	6	1	2	2
CTD & CTDV-1000	53-3/8	6	1	2	2

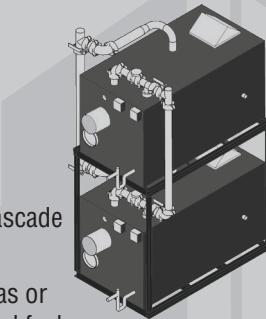
\* Water heater models are "-V"



# Citadel (1250 & 1500 MBH)

## Boilers & Water Heaters

- CSD-1 compliant
- Stackable with optional racking system
- Modbus connectivity, cascade up to 8 individual units
- 5:1 turndown, natural gas or LP natural gas, LP, or dual fuel (NG/LP)
- Complete access to burner and combustion chamber for ease of service
- USB Connect compatible (see back for details)
- Warranty: 10-year limited heat exchanger, 1-year parts & burner



### PRESSURE VESSEL

- Watertube stainless steel heat exchanger
- ASME Section IV-certified
- MAWP 160 PSIG
- CSD-1 compliant

### COMBUSTION DESIGN

- Stainless steel pre-mix burner
- Low NOx emissions (<10 ppm)
- 4" wc to 14" wc inlet gas pressure
- 8" wc LP min
- Direct spark ignition system
- UV scanner
- High & low gas pressure switches w/ manual reset
- Zero governor gas valve

- Variable speed combustion blower
- Air proving switch
- Blocked vent switch

### VENTING

- 150' equivalent exhaust, 150' equivalent intake
- CPVC, polypropylene or stainless steel acceptable
- Air intake, sealed combustion/room air
- Category II or IV venting
- Individual or common (engineered) venting systems

### EQUIPMENT

- Concert™ control
- High limit w/ manual reset

- Low water cutoff w/ manual reset
- Water flow switch
- Supply & return water temperature sensors
- Flue gas temperature sensor
- Condensate trap
- Blocked condensate switch
- Pressure & temperature gauge
- ASME safety temperature & pressure relief valve (75 PSI boilers, 125 PSI water heaters)

### ELECTRICAL

- High voltage printed circuit board (PCB)
- 120, 208 or 240 VAC / 60 Hz / 1PH power supply
- Three sets of pump contacts
- PCB fused connections

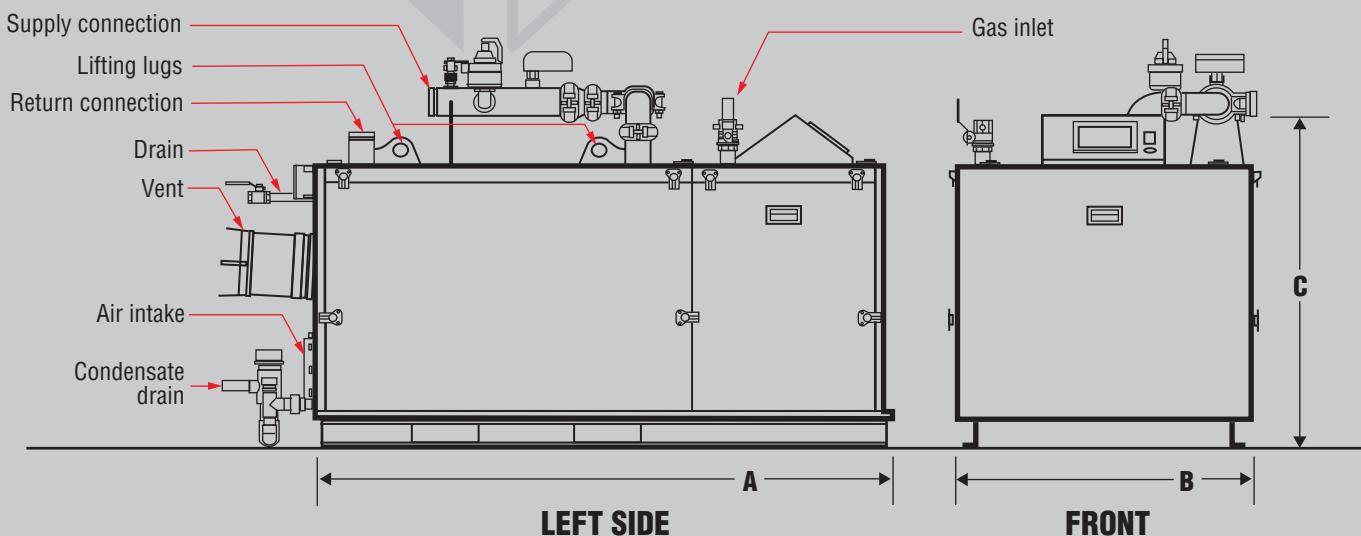
Printed Circuit Board (PCB)

- 24 VAC enable/disable sensor contacts
- 24 VAC proving switch or manual reset ext. limit contacts
- 24 to 120 VAC lockout alarm contacts
- DHW demand contacts
- Remote header sensor contacts
- DHW tank sensor contacts
- Outdoor air sensor contacts
- Peer-to-peer communication contacts
- EMS interface contacts
- Remote 4-20mA contacts

Citadel 1250 & 1500 Dimensions (Inches)							
Model	A	B	C	Vent Connection	Gas Connection (NPT)	Supply (grooved)	Return (grooved)
CTD & CTDW-1250	45-1/2	34-1/4	42-3/4	8	1	3	2-1/2
CTD & CTDW-1500	66-1/8	34-1/4	42-3/4	8	1-1/4**	3	2-1/2

\* Water heater models are "-W"

\*\*CTDW-1500 connection 1" grooved



# Citadel/XL: Technical Information



## Citadel<sup>3</sup> Ratings & Specifications

Model	Input (MBH)		Gross Output (MBH)	DHW Recovery <sup>2</sup> (GPH)	Thermal Efficiency (%)	Approx. Shipping Weight (lbs.)
	Min	Max				
CTD-400	40	399	387	—	97	460
CTDV-400 <sup>1</sup>	40	399	391	470	98	460
CTD-500	50	500	485	—	97	470
CTDV-500 <sup>1</sup>	50	500	490	588	98	470
CTD-650	65	650	631	—	97	530
CTDV-650 <sup>1</sup>	65	650	637	764	98	530
CTD-800	80	800	776	—	97	560
CTDV-800 <sup>1</sup>	80	800	784	941	98	560
CTD-1000	99	999	970	—	97	600
CTDV-1000 <sup>1</sup>	99	999	980	1176	98	600
CTD-1250	250	1250	1213	—	97	922
CTDW-1250 <sup>1</sup>	250	1250	1225	1485	98	922
CTD-1500	300	1500	1455	—	97	1217
CTDW-1500 <sup>1</sup>	300	1500	1470	1782	98	1217

### NOTES:

1. Water heater model
2. Based on 40°F to 140°F temperature rise
3. All Citadel models are ENERGY STAR® certified



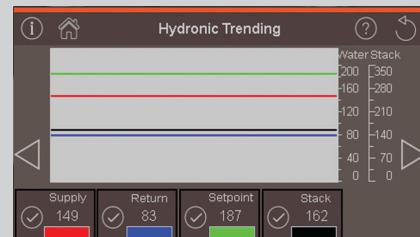
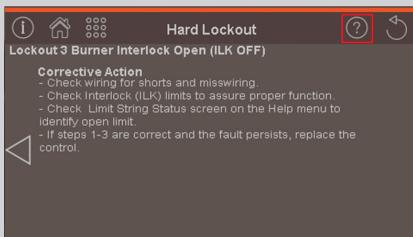
## USB Connect



Free smartphone app (App Store & Google Play) and bluetooth adapter available at your distributor, USB Connect puts complete boiler control in the palm of your hand with real time boiler status and adjustments. "Wizards" provide step-by-step instructions for start-up, service, and troubleshooting.

See [www.usboiler.net/product/usconnect](http://www.usboiler.net/product/usconnect) for more details.

## Concert<sup>TM</sup> Advanced Control System



- Color touchscreen, real time readouts
- Intuitive navigation
- 3-level password protection

- Self-guided diagnostics
- Fault identification and correction
- Factory default settings
- Timed setback capability

- Time/date stamp on reports
- Stores up to 4 months of data
- Calculates cycle and run times
- Resettable