

Twice the power, half the space.



Citadel
399-999 MBH

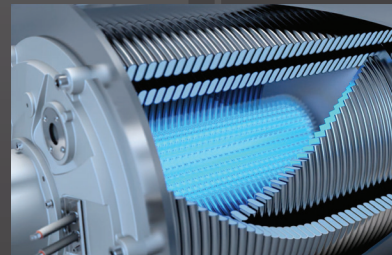


Citadel XL
1250 & 1500 MBH



Commercial High Efficiency Condensing Boilers & Water Heaters

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



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
- Outdoor models available – no upcharge
- 10:1 turndown, natural gas or LP
- Easy service and maintenance – complete service access to burner, combustion chamber, and slide-out boiler control vestibule
- Warranty: 10-year limited heat exchanger, 1-year parts & burner



PRESSURE VESSEL

- Stainless steel watertube heat exchanger
- 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 (boilers: 30, 50, 60, 75, 100, 125, or 150 available, water heaters: 150 PSI standard)

ELECTRICAL

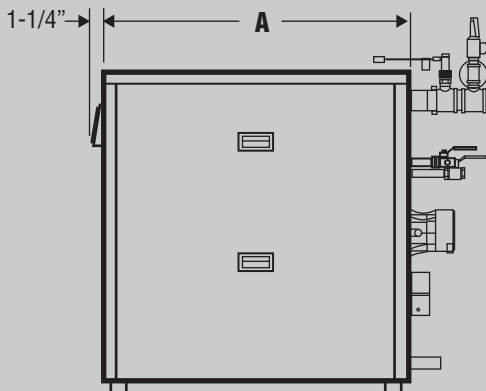
- High voltage printed circuit board (PCB)
- 120 VAC / 60 Hz / 1PH power supply
- 120 VAC manual reset external limit contacts

- 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

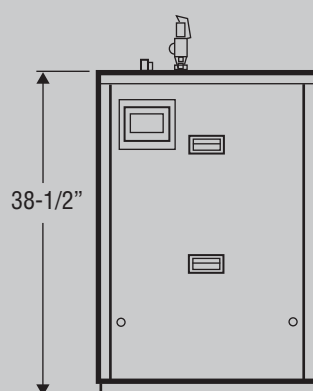
Citadel Dimensions (Inches)

Model*	A	Vent Connection	Gas Connection NPT	Supply (NPT)	Return (NPT)
CTD & CTDW-400	36-1/2	4	3/4	2	2
CTD & CTDW-500	36-1/2	4	3/4	2	2
CTD & CTDW-650	52-3/8	6	1	2	2
CTD & CTDW-800	52-3/8	6	1	2	2
CTD & CTDW-1000	52-3/8	6	1	2	2

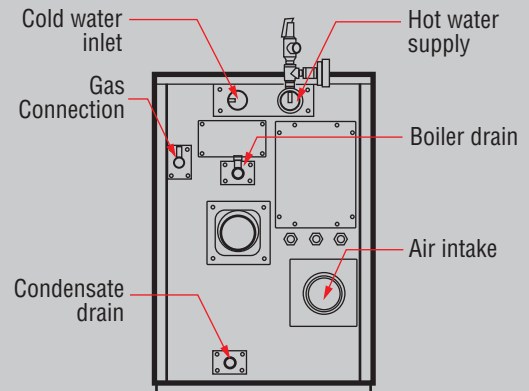
* Water heater models are "-W"



SIDE



FRONT

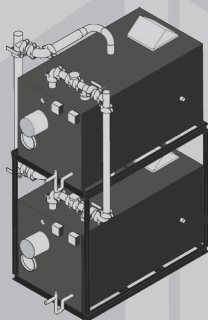


REAR

Citadel XL (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
- 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 (boilers: 30, 50, 60, 75, 100, 125, or 150 available, water heaters: 150 PSI standard)

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)

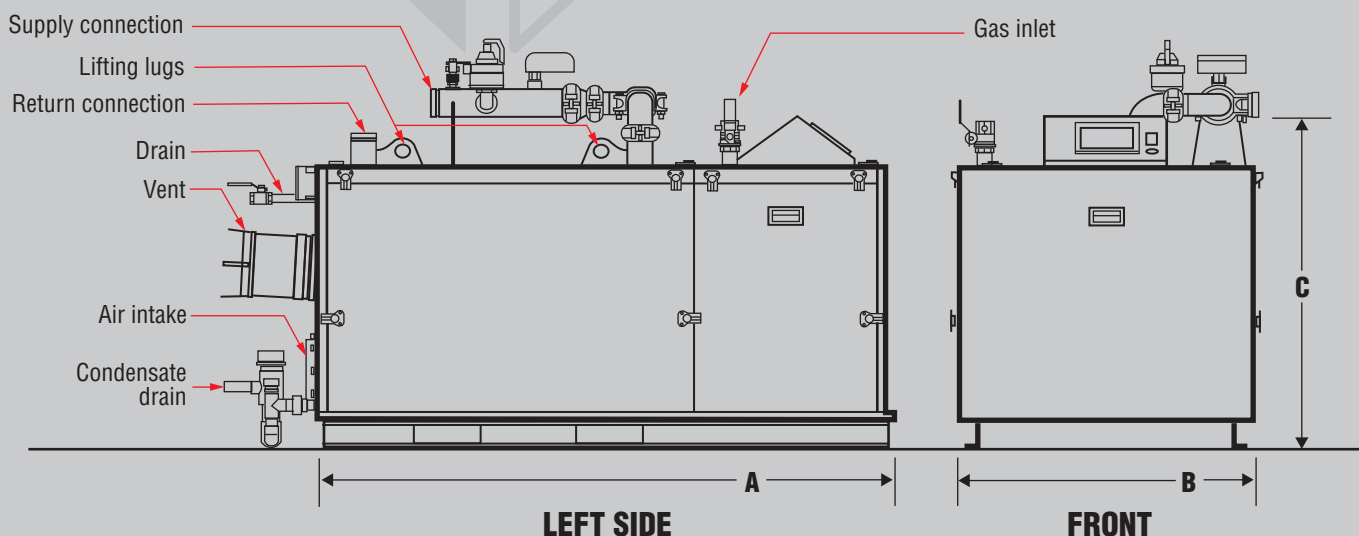
- 24 VAC enable/disable sensor contacts
- 24 VAC proving switch or manual reset ext. limit contacts
- 24 to 120 VAC lockout alarm contacts
- DHW demand contacts
- Remote header sensor contacts
- DHW tank sensor contacts
- Outdoor air sensor contacts
- Peer-to-peer communication contacts
- EMS interface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

Citadel XL 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



Citadel³ Ratings & Specifications

Model	Input (MBH)		Gross Output (MBH)	DHW Recovery ² (GPH)	Thermal Efficiency (%)	Approx. Shipping Weight (lbs.)
	Min	Max				
CTD-400	40	399	387	—	97	460
CTDW-400 ¹	40	399	391	470	98	460
CTD-500	50	500	485	—	97	470
CTDW-500 ¹	50	500	490	588	98	470
CTD-650	65	650	631	—	97	530
CTDW-650 ¹	65	650	637	764	98	530
CTD-800	80	800	776	—	97	560
CTDW-800 ¹	80	800	784	941	98	560
CTD-1000	99	999	970	—	97	600
CTDW-1000 ¹	99	999	980	1176	98	600

NOTES:

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



Citadel XL³ Ratings & Specifications

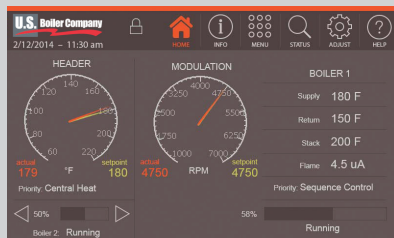
Model	Input (MBH)		Gross Output (MBH)	DHW Recovery ² (GPH)	Thermal Efficiency (%)	Approx. Shipping Weight (lbs.)
	Min	Max				
CTD-1250	250	1250	1213	—	97	922
CTDW-1250 ¹	250	1250	1225	1485	98	922
CTD-1500	300	1500	1455	—	97	1217
CTDW-1500 ¹	300	1500	1470	1782	98	1217

NOTES:

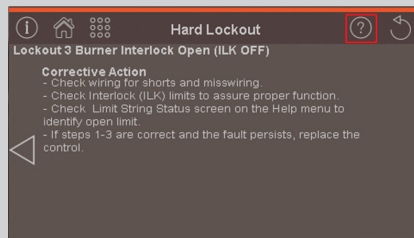
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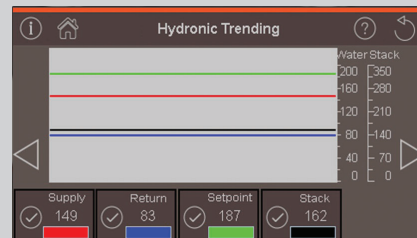
Concert™ Advanced Control System



- 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