USC Series
Cast Iron Gas-Fired Hot Water Boilers

P/N# 240005809, Rev. 1.0 [10/05]

SPECIFICATIONS AND PERFORMANCE

87% AFUE Efficiency

ENERGY STAR

Available Heating Capacity of:

50,000 Btuh through 140,000 Btuh

Application – The USC Series gas-fired hot water boilers are available in three sizes with a heating capacity of 50,000 to 140,000 Btuh and an AFUE of 87% (Venting Category I, chimney or III, through-the-wall). The USC Series gas-fired hot water boilers come fully assembled, wired, tested and ready to install. Features include quality cast-iron construction, high efficiency and dependable performance backed by Utica Boiler's years of experience and a low profile design allowing it to be installed virtually anywhere. The USC can be direct vented to the outdoors through the wall or through a vertical chimney making it an ideal choice when converting a home from electric heat to a hot water system or for new construction.

Benefits:
- High efficiency, performance and low operating cost
- Worry-free performance

Approvals – The cast iron boiler assembly is manufactured and tested in accordance with American Society of Mechanical Engineers (ASME) standards, and certified by Canadian Standards Association (CSA) in the US and Canada. The Annual Fuel Utilization Efficiencies (AFUE) and heating capacity are based on US DOE test procedures and FTC labeling regulations. AFUE and I=B=R ratings are certified in accordance with standards set by The Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). The Material and Equipment Acceptance number for the City of New York, is Mea# 131-01-E.

Warranty – Utica Boilers backs its residential, cast iron heat exchanger with a Limited Lifetime Warranty to the original home owner. This Warranty is meant to protect your investment, but is also offered to illustrate our commitment to customer satisfaction.

FEATURES AND BENEFITS

Cast Iron Boiler Assembly – Boiler sections and push nipples are constructed of long life cast iron. When the boiler is heated, sections and push nipples expand and contract in the same proportion because they are constructed of like material, providing a positive watertight seal.

Benefit: Cast iron provides efficient heat transfer, reliability and strength, the cast iron push nipples insure a watertight seal.

Cabinet:
- Constructed of heavy gauge steel with a baked-on enamel finish
- Insulated to keep cabinet surface temperatures low.
- Low profile allows for installation in areas with low ceilings.
- Specially designed to be vented vertically through a chimney or horizontally through a wall.

Benefits:
- Compact design and low profile allows for installation in areas with low ceilings.
- May be vented though-a-chimney or though-the-wall.

Stainless Steel Burner – Advanced design corrosion resistant stainless steel burners are incorporated into each USC boiler delivering uniform flame patterns that optimize combustion efficiency and quiet operation.

Built-In Safety Devices :
- Automatic gas shut-off feature and a three-phase fuel safety system which senses proper flue pressure before it opens the main gas valve. This gas safety system also checks for proper component function before proceeding to the ignition mode.
- Low water cut-off to constantly monitor water levels and prevent "dry-firing" and potential boiler failure (optional).

FEATURES AND BENEFITS *Continued*

Automatic Gas Control – Silent operating control provides 100% safety shut off. A 24 Volt redundant combination gas control valve combines:

- Automatic safety pilot
- Manual shut off (On-Off)
- Pilot filtration
- Automatic electric valve (dual)
- Gas pressure regulation
- Dual valve design provides 100% shut off to the pilot and main burners.

Aquastat Relay – Immersion-type controllers that combine high limit protection with switching relay control of burner and circulator motors.

Induced Draft Blower – Heavy duty blower safely vents flue products. The motor has permanently lubricated ball bearings. A pressure switch prevents unit operation in case of blockage of flue outlet.

Benefits: Combustion Air is drawn directly from the outdoors (sealed combustion, “direct vent”) and does not compete with building occupants for fresh air.

Circulating Pump – Supplied with the boiler to circulate hot water throughout the system and provide quick, even heat (field installed to supply-side of unit).

Relief Valve – Furnished as standard for field installation on top of the boiler. Valve provides for pressure relief of heating system in case of abnormal operating conditions. Valve opens at 30 psig (210 kPa) and is ASME stamped.

Electronic Ignition – Hot surface igniter provides positive ignition of pilot burner on each operating cycle. Pilot gas is ignited and burns during each running cycle of the boiler. Main burners and pilot gas are extinguished during the off cycle. Ignition system permits main gas valve to open only when the pilot burner is proven to be lit. Pilot operation is fully automatic on demand for heat. Should a loss of flame occur, the main valve closes, shutting down the unit.

<table>
<tr><th colspan="2">USC SERIES STANDARD EQUIPMENT</th></tr>
<tr><td>Assembled boiler wired and tested</td><td>Hot surface igniter</td></tr>
<tr><td>Deluxe insulated cabinet</td><td>Combination intake/exhaust termination kit</td></tr>
<tr><td>Cast iron section and push nipples</td><td rowspan="6">Electronic ignition
• Intermittent pilot control
• Continuous retry
• Combination pilot burner
- Electrode
- Flame sensor</td></tr>
<tr><td>Limit control</td></tr>
<tr><td>Circulator (field mounted)</td></tr>
<tr><td>Removable transformer</td></tr>
<tr><td>Stainless steel burners</td></tr>
<tr><td>Theraltimeter gauge</td><td>OPTIONAL EQUIPMENT</td></tr>
<tr><td>A.S.M.E relief valve</td><td rowspan="2">Electronic low water cut-off now available to meet the latest codes requirements.</td></tr>
<tr><td>Plug-in relay</td></tr>
<tr><td>Drain valve</td><td rowspan="2">Combustible floor kit</td></tr>
<tr><td>Induced draft fan and safety pressure switch</td></tr>
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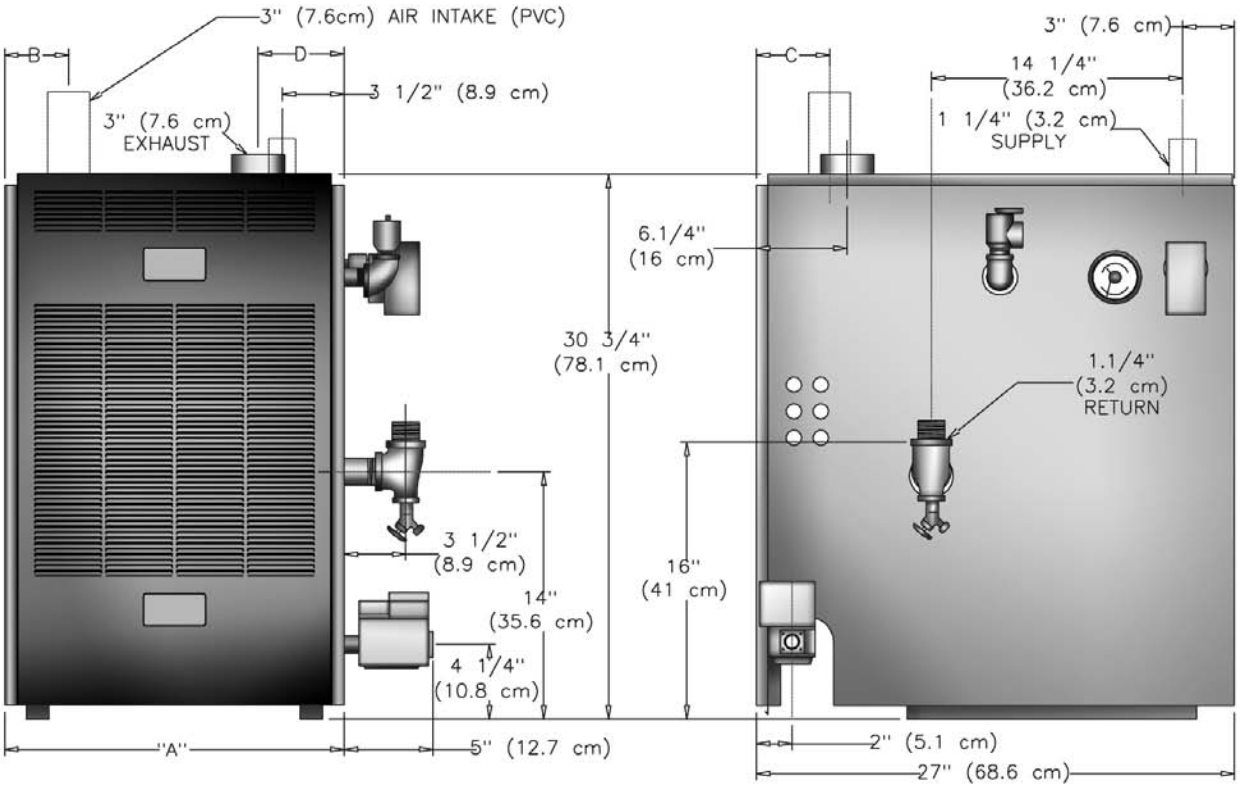
BOILER RATINGS & CAPACITIES



USC series, Cast Iron, Direct Vent Sealed Combustion, Gas-Fired, Hot Water Boiler RATINGS AND DIMENSION												
Boiler No.	A.G.A Input Btuh	Heating Capacity Btuh	I=B=R Net Output Btuh	Natural Gas Inlet	Dimensions				Supply & Return Tappings	No. Of Burners	Water Content	AFUE Ratings
					A	B	C	D				
USC3	50,000 (14.7 KW)	44,000 (12.9 KW)	38,000 (11.1 KW)	1/2" (1.27 cm)	15 ⅛" (38 cm)	3 ½" (9 cm)	3 ½" (9 cm)	5" (12.7 cm)	1 ¼" (3.2 cm)	2	4.0 gals (15.14 liters)	87%
USC4	100,000 (29.3 KW)	87,000 (25.5 KW)	76,000 (22.3 KW)	1/2" (1.27 cm)	19" (48 cm)	3 ½" (9 cm)	3 ½" (9 cm)	6 ½" (16.5 cm)	1 ¼" (3.2 cm)	3	5.6 gals (21.20 liters)	87%
USC5	140,000 (41.0 KW)	122,000 (35.7 KW)	107,000 (31.3 KW)	1/2" (1.27 cm)	22 ⅞" (58 cm)	4 ¼" (11 cm)	4 ⅛" (11 cm)	8 ⅜" (21.3 cm)	1 ¼" (3.2 cm)	4	7.2 gals (27.25 liters)	87%
NOTE: For altitudes above 2,000 ft. ratings should be reduced at the rate of 4% for each 1,000 ft. above sea level.												

All boilers are design certified for installation on non-combustible floors.
For installation on combustible floors, use combustible floor kit.

This boiler is a Direct Vent Designed Certified appliance which requires a special horizontal through the wall venting system. Only HEAT-FAB® SAF-T-VENT™, FLEX-L® STAR-34™, ProTech™ FasNSeal®, and Z-FLEX® Z-VENT™ venting material products shall be used.

Consult venting addendum for maximum vent lengths and proper configurations.
Electrical service to be 120 Volts, 15 Amps, 60 Hz.

BOILER CLEARANCES		
Unit	Minimum Clearance to Combustible	Vent Pipe Minimum Clearance
Top	18”	2”
Front	6”	
Flue Connector	2”	
Rear	4”	
Right Side	9”	
Left Side	3”	

Notes:

- *For installation on combustible flooring special base part No.#325-2-8.00 must be used.*
- *Allow for greater clearance on access side for servicing.*

Ventilation of the boiler room must be adequate to provide sufficient air to properly support combustion per the latest revision of the National Fuel Gas Code, ANSI Z223.1 section 5.3.

When a boiler is located in an unconfined space in a building or conventional construction frame, masonry or metal building, infiltration normally is adequate to provide air for combustion and ventilation. However, if the equipment is located in a building of unusually tight construction (See the national Fuel Gas Code, Ansi Z223.1 section 1.7). If there is any doubt, install air supply provisions in accordance with the latest revision of the National Fuel Gas Code.

Samples of venting options follow.

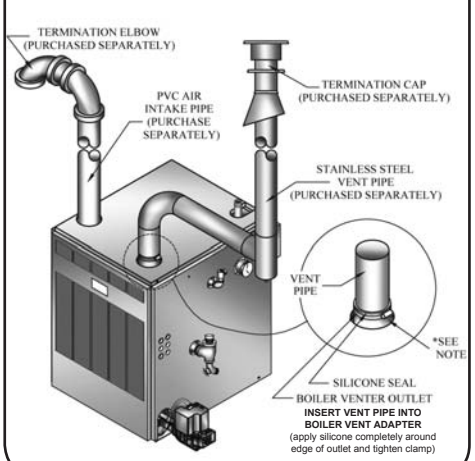
Vertical Vent or Chimney *(Category I)*

1) Use a suitably sized Type B1 vent liner or suitable corrigated liner.
2) Support vent liner in a masonry chimney. Maintain at least 1” clearance on all sides to reduce the possibility of condensate in the vent.
3) Terminate all vertical vents with a listed vent cap or roof assembly unless local codes require otherwise.

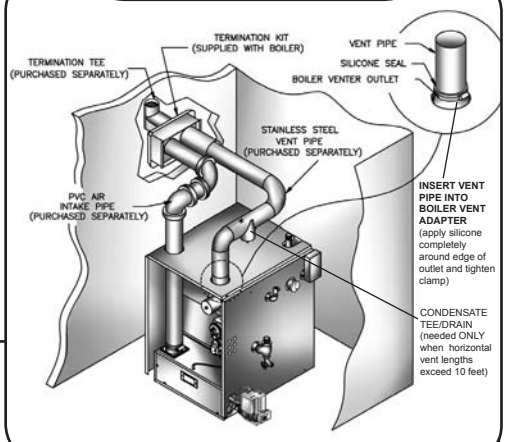
Typical Horizontal Venting *(Category III)*

Thruogh the wall wenting.

Typical Vertical Vent Piping

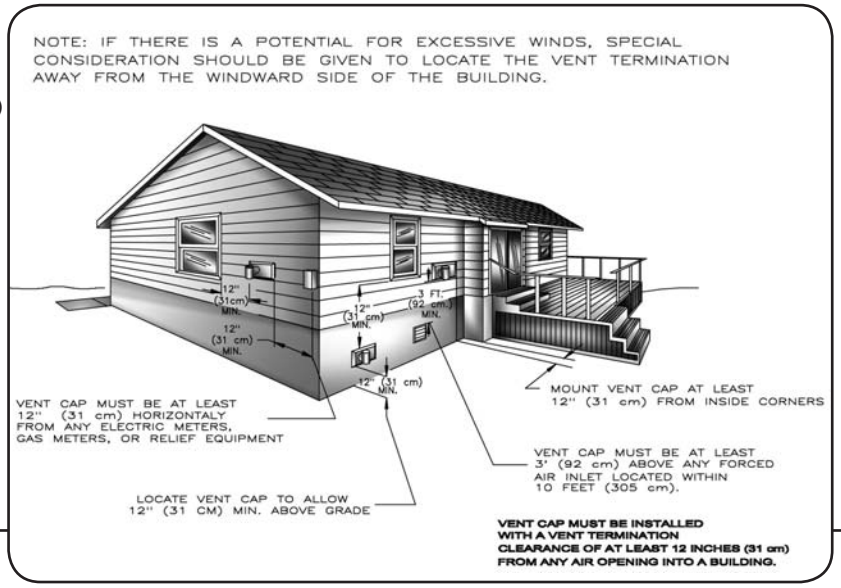


Typical Horizontal Venting



LOCATING THROUGH THE WALL VENT TERMINATION

1. At least 12 inches (31 cm) above finished grade, or at least 12 inches (31 cm) above the normally expected snow accumulation level in geographical areas where snow accumulates.
2. With a vent termination clearance of at least 12 inches (31 cm) from any air openings into a building.
3. At least 3 feet (92 cm) above any forced air inlet located within 10 feet (305 cm).
4. At least 12 inches (31 cm) horizontally from electric meters, gas meters, regulators and relief equipment.
5. For horizontal runs; keep a minimum air space clearance from any combustible material, electric wires, and building insulation of 2 inches (5 cm) for 3” (7.6 cm) vent pipe.
6. Do not terminate vent over public walkways or over an area where condensate or vapor could be detrimental to regulators, relief valves, or other equipment.
7. Do not locate the vent termination too close to shrubbery.
8. Some building materials may be affected by flue products expelled near unprotected surfaces.
9. When installing vent cap secure it to a noncombustible wall or a combustible wall thimble.
10. See the National or Canadian Codes listed for additional information on termination location.



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